A year of COVID-19: Tracking labour market and financial inequalities through the crisis with the *Understanding Society* Covid-19 Study

88th East Jour Fixe of the OeNB

Thomas F. Crossley*

*Dept. Economics, EUI, Thomas.Crossley@EUI.EU

Understanding Society

- The UK Household Longitudinal Study (UKHLS)
- Large panel survey, based on probability samples, annual interviews.
- From 2009, but incorporates earlier BHPS.
- "Sister study" to PSID, SOEP, etc.
- Mixed mode.

Understanding Society COVID-19 Study

- From April 2020, participants asked to participate in short, frequent web interviews: The *Understanding Society* COVID-19 Web Study.
- This study covers the changing impact of the pandemic on the welfare of UK individuals.
- Core content captures change as pandemic and policy responses evolve.
- Variable content responds to changing situation and researcher input.
- Retrospective Jan/Feb 2020 baseline
- 9 Surveys from April 2020 to September 2021

Today

1. Design and implementation of the COVID-19 Study.
2. Population inferences: bias prevention and correction.
3. Labour market impacts.
4. Household finances.
5. Lessons learned.

Drawing on...

- Benzeval, M., J. Burton, T.F. Crossley, P. Fisher, C. Gardiner, An. Jäckle and J. Moore (2020), **High frequency online data collection in an annual household panel study: some evidence on bias prevention and bias adjustment.** Understanding Society Working paper 2021-03.
- Crossley, T.F., P. Fisher and H. Low, **The Heterogeneous and Regressive Consequences of COVID-19: Evidence from High Quality Panel Data.** *Journal of Public Economics*, 193 (January 2021).
- Crossley, T.F, P.Fisher, P. Levell and H. Low, (2021). **MPCs in an economic crisis: Spending, saving and private transfers.** *Journal of Public Economics Plus*, 2, 100005, (September 2021).,
- Crossley, T.F, P.Fisher, P. Levell and H. Low, (2021). **A Year of COVID: the Evolution of Labour Market and Financial Inequalities through the Crisis.**
- **And the work of the *Understanding Society* Team**.

Understanding Society (UKHLS)

- Follows the same people across time within the UK.
- Initial probability samples, carefully modelling of non-response and attrition.
- Began 2009, but incorporates BHPS sample (1991).
- Wave 11 (2019-20): approx. 22,400 households.
- 40 min annual interview of all HH members aged 16+, +12 min HH interview.
- Self-completion questionnaire for 10-15 year-olds.
- Mixed mode since 2016: F2F and web, in about 70% "web-first" in 2019.
- Employment, education, health, housing, income, social and family networks, civic engagement.

Normal Wave Time Line

- Early autumn $t-2$: agree priorities for content (re) development. (*e.g., W13: Autumn 2019*)
- January $t-1$ begin content (re) development work.
- July $t-1$: questionnaire consultation
- Fall $t-1$: scripting
- January t: fieldwork begins (*e.g., W13: Jan 2021*)
- 8 quarterly batches, each in the field for 5.5 months (total 28.5 months of fieldwork)
- May $t+2$: final data received.
- Summer-Autumn $t+2$: cleaning, checking, weights, derived variables.
- November $t+2$: Data release. (*e.g., W13: Nov 2023*)
- More than 4 years from initial planning to data release

Understanding Society COVID-19 Web Study

- Builds on an existing Event-Triggered Data Collection project with Ipsos (Jäckle, Burton, Couper, 2019)
- Asks all adult participants to answer short (20 minute) web surveys on experiences during pandemic.
- First survey (wave 1) April 24-30.
- Then May, June, July, September, November 2020; January, March, (September) 2021.
- Jan/Feb 2020 baseline collected in April/May/June/July 2020.
- 2 Telephone follow-up surveys (May, Nov 2020).
- Mail surveys for youth.
- Serology March 2021.

COVID-19 Web Study: Challenges

- Speed: funding, procurement, ethics, design, testing and fielding $<$ 6 weeks!
- Choosing content for short surveys.
- Rapid processing and release.
- **Population inferences**
  - Short field work period, restricted mode.
  - (Differential) non-response?

Wave 1

- Fieldwork April 24-30.
- Content: health, economic impacts, home-schooling.
- 42,330 sample members were sent the pre-notification letter inviting them to the study.
  - 32,596 had completed the wave 9 annual interview.
- The response rate for the full sample was 39 %, (41 % including partial respondents.)
- Among Main Stage Wave 9 respondents, 46%, (49% including partials.)
- Released (SN 8644) by the UK Data Service on 29 May.

Telephone surveys

- For adults in households where no-one is a regular internet user.
- 1st fielded end of May 2020 with version of the April web questionnaire.
- Capturing older respondents.
- Interview time almost double.
- Repeated in November 2020.

Probability samples

- Probability Sample: is every unit in the target population has a knowable, non-zero probability of selection.
  - Contrast: convenience samples, quota sample.
- Non-response and attrition mean Understanding Society (and other real surveys) are not pure probability samples, **but:**.
  - All "types" have positive inclusion probability.
  - Detailed information often available on attritors.
  - Very careful modelling of non-response and attrition.
  - Continuous evaluation of ability to estimate population quantities ("representativeness").

Bias prevention in the COVID-19 Web survey

- Start from Main Stage.
  - Lots of evidence that (weighted) Main Stage gives good population inferences (Benzeval, 2020).
- Invite all eligibles (not just regular internet users).
- Multiple reminders.
- Telephone follow-ups.

Bias adjustment in the COVID-19 Web survey

- Wave 1: 49% retention.
  - Very good for voluntary web survey.
  - Comparable to response rate to many large official surveys in UK.
  - But much below typical Understanding Society wave-on-wave retention rate.
  - (Short field work period, restricted mode)
- Model non-response as attrition from Wave 9 of main survey.
- Inverse probability (IP) weights.
  - An adjustment to the Main Stage Wave 9 weights
- Rich predictors from Main Stage data, selected by LASSO.

Testing for attrition bias

- Compare estimates of Main Stage Wave 9 statistics calculated with:
  - Full Main Stage Wave 9 data and Main Stage Wave 9 weights.
  - Covid-19 Study Respondents and Covid-19 (adjusted) weights.
- Evidence of bias?
- Variability of weights (precision)?
- Comparison with calibration?
- Value of issuing to non-regular web users/telephone follow-up?
  - recreate weights with and without.

Attrition Predictors

Predictor variable	Marginal Effect	t-stat
Gender: Male	-0.07	-8.59***
Ethnicity: Irish	-0.09	-11.37***
Region: Northern Ireland	-0.07	-2.31*
Age band: 16-29	-0.11	-8.85***
Age band: 30-39	-0.06	-6.47***
Age band: 80+	0.10	0.03
Qualifications: GCSE or lower	-0.08	-9.28***
Occupation: Professional	0.09	0.04
Occupation: Administrative and secretarial	0.09	0.04
Occupation: Associate professional and technical	0.08	0.05
Standardised income decile: 6	0.06	5.30***
Standardised income decile: 5	0.06	5.01***
Standardised income decile: 9	0.06	4.14***
Reported income from savings and investment: Yes	0.08	10.39***
Tenure: Local authority rent	-0.05	-6.06***
HH type: 3 or more adults, no kids, incl. at least one couple	-0.06	-5.31***
Mode at wave 9: Web	0.23	32.08***
Email known at start of COVID survey	0.28	25.80***
Internet use: Less than once a month	-0.13	-10.25***
Internet use: Once / several times a month	-0.09	-11.76***

Weight Variability

	(i) Regular internet users		(ii) All web = (i) + non-regular internet users		(iii) All web + telephone = (ii) + telephone	
	Raw	Trimmed	Raw	Trimmed	Raw	Trimmed
CV	249.5	140.1	306.6	156.7	138.0	133.6
DEFF	6.2	2.6	8.2	2.7	2.3	2.2

Bias after adjustment

	Wave 9	Regular internet users		W1 web		W1 web and telephone	
Variable	wt. est.	C. wt. diff.	IP wt. diff.	C. wt. diff.	IP wt. diff.	C. wt. diff.	IP wt. diff
In neither weighting model:							
Income poverty	0.15	0.03***	0.01	0.03***	0.01	0.02***	-0.01
	(0.00)						
Receives core benefit	0.05	0.02***	-0.00	0.02***	-0.00	0.02***	-0.00
	(0.00)						
Behind with housing	0.09	0.03***	0.00	0.03***	0.00	0.02***	-0.00
	(0.00)						
Smoker	0.15	0.05***	0.02*	0.05***	0.02**	0.05***	0.01
	(0.00)						
Long-standing illness	0.37	0.04***	0.02**	0.04***	0.01	0.03***	-0.01
	(0.00)						

Discussion

- IP weights work very well. Simple calibration weights do not.
  - (Previously shown in survey literature, eg, Couper and Groves, 1998).
- Telephone survey helps (but average telephone interview cost 22 x web).
- Perhaps surprisingly, issuing to non-regular internet users does not.
- **Outstanding issue:** selection on contemporaneous shocks.
  - Randomized participation incentives in July 2020 and March 2021.
  - "Instrumental variable" allows test for residual selection.

Labour Market Impacts

- Employment, positive hours, average hours (incl. zeros).
- Individual characteristics (age, gender, education, ethnicity).
- Job characteristics (contract type).

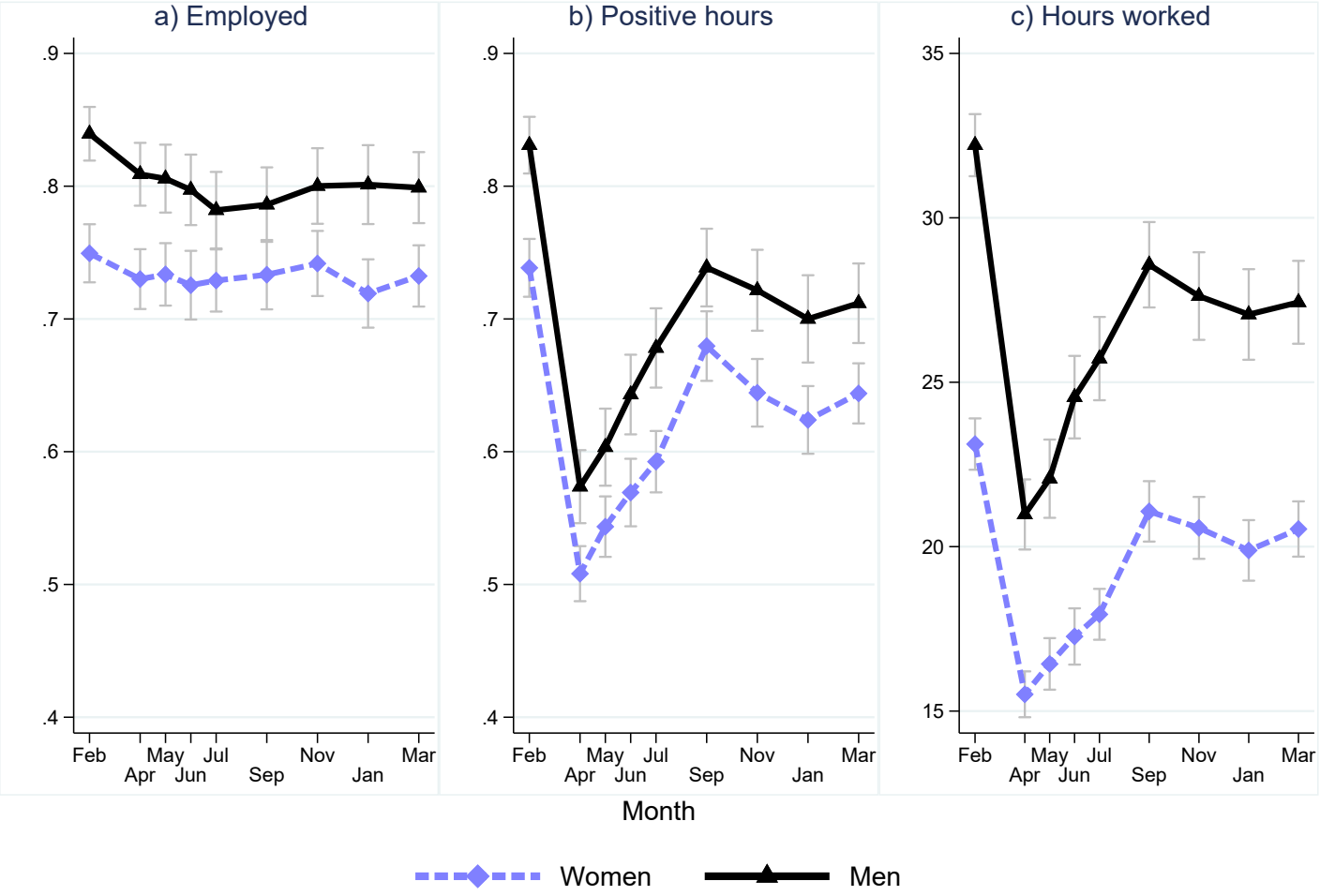
UK Timeline

- 23 Mar 2020: first "Stay at home" order.
- Summer 2020: restrictions eased.
- Nov 2020: 2nd full lockdown begins.
- Dec 2020: Christmas reopening.
- Jan 2021: 3rd lockdown begins, vaccination program begins.
- Mar 2021: schools reopen (England).
- Apr 2021: outdoor dining, restrictions easing.
- Summer 2021: further relaxation.

Main UK economic support policies

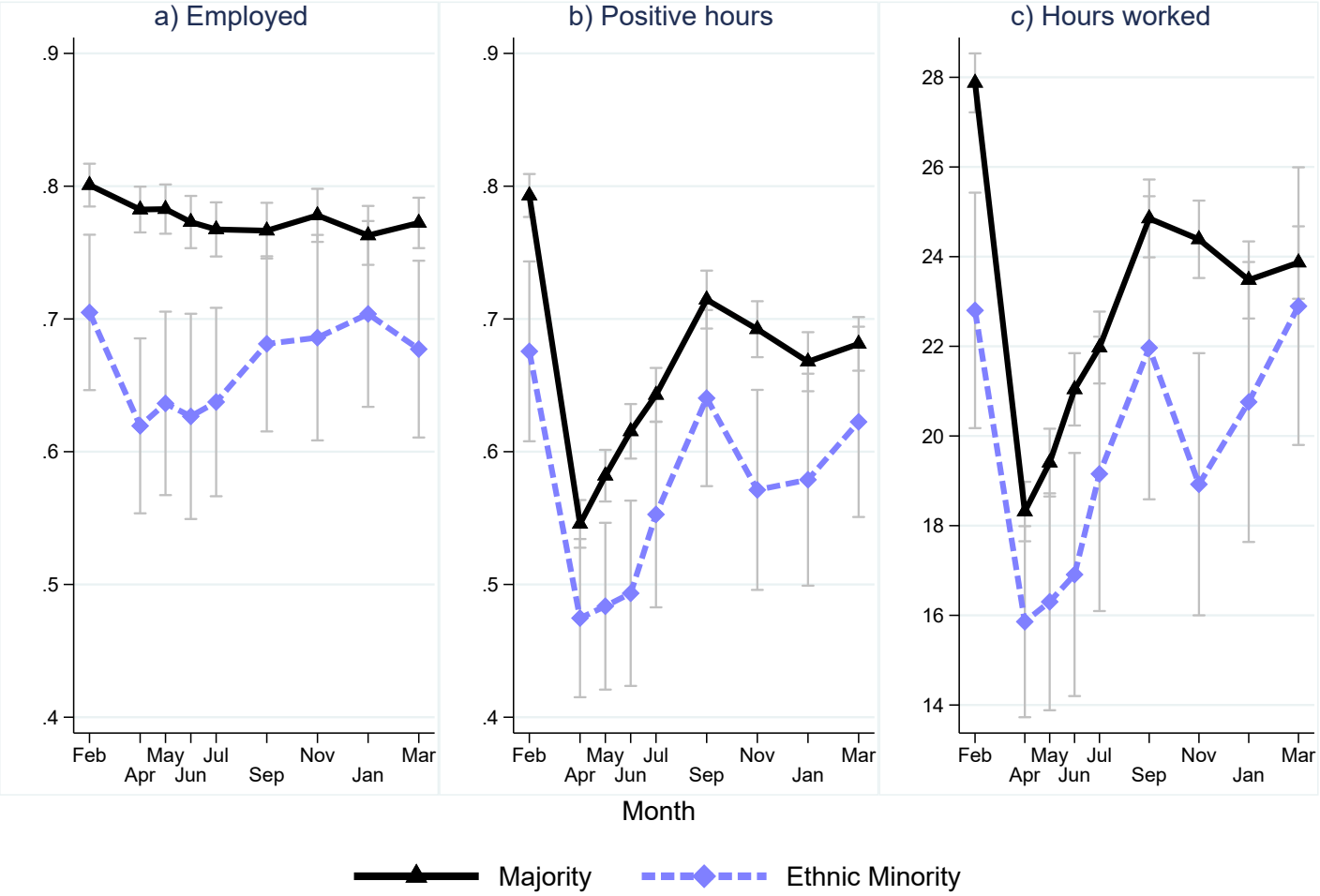
- Coronavirus Job Retention Scheme.
  - "Furlough": 80% of pay up to 2500/month covered by government subsidy to firms, provided worker not providing any hours of work.
  - From March 20; More flexible from July; Extended October '20 to September 2021.
- Self-Employment Support Scheme.
  - 80% of profits up to 2500/month
  - 5th round announced for summer '21
- Universal Credit increased by 20/week
  - Working-age, asset-tested.
  - Extended until Sept '21.
- Mortgage payment holidays, targetted VAT cut.
- No tax rebates or stimulus payments.

Labour market impacts by gender



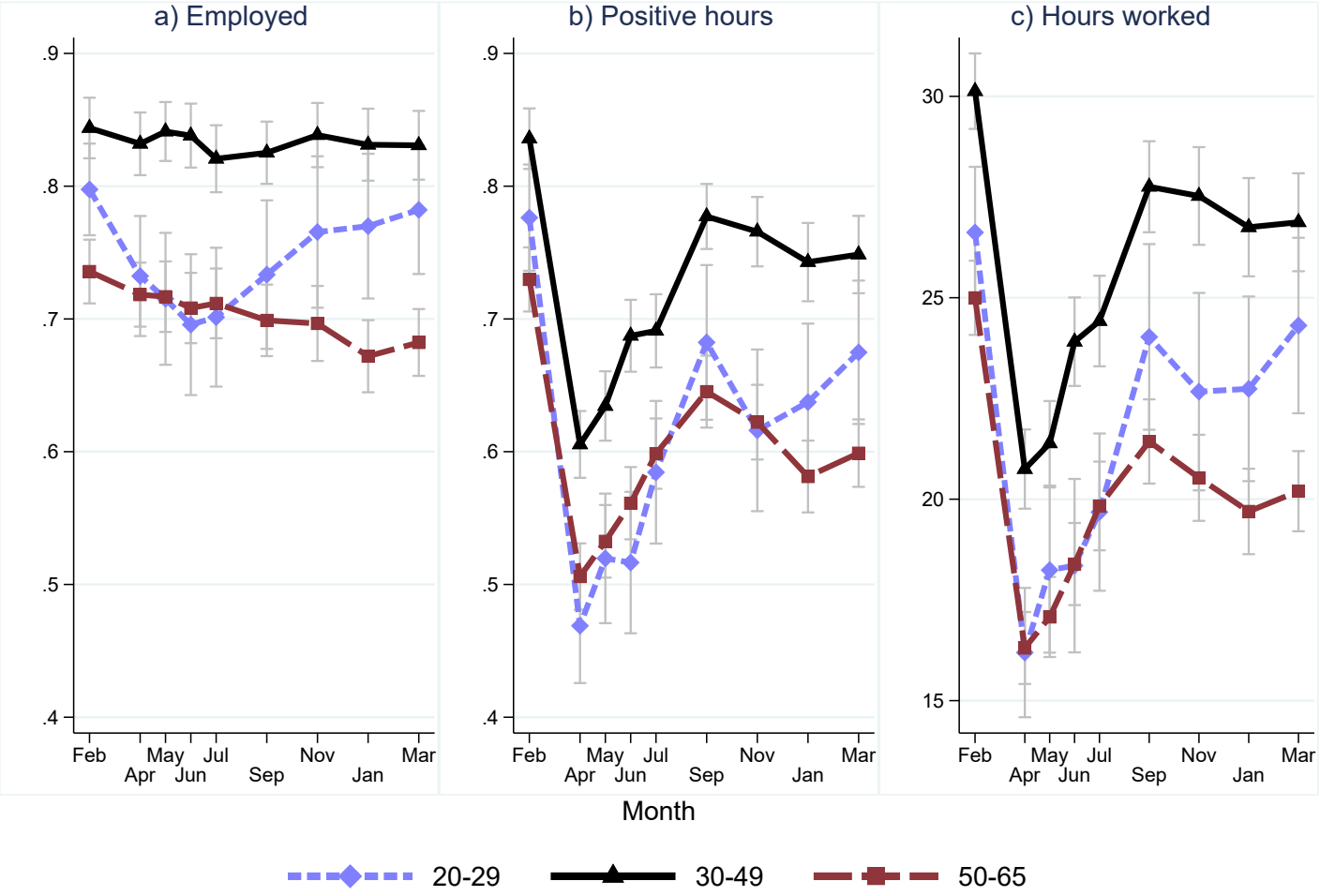
Notes: Unbalanced panel of 10,382 individuals. "Employed" is the fraction employed, where this includes both employees and the self-employed. "Positive hours" is the fraction who report actually working some hours, independent of reported employment status. "Hours worked" is the mean weekly work hours, where those not working are assigned zero hours.

Labour market impacts by ethnicity



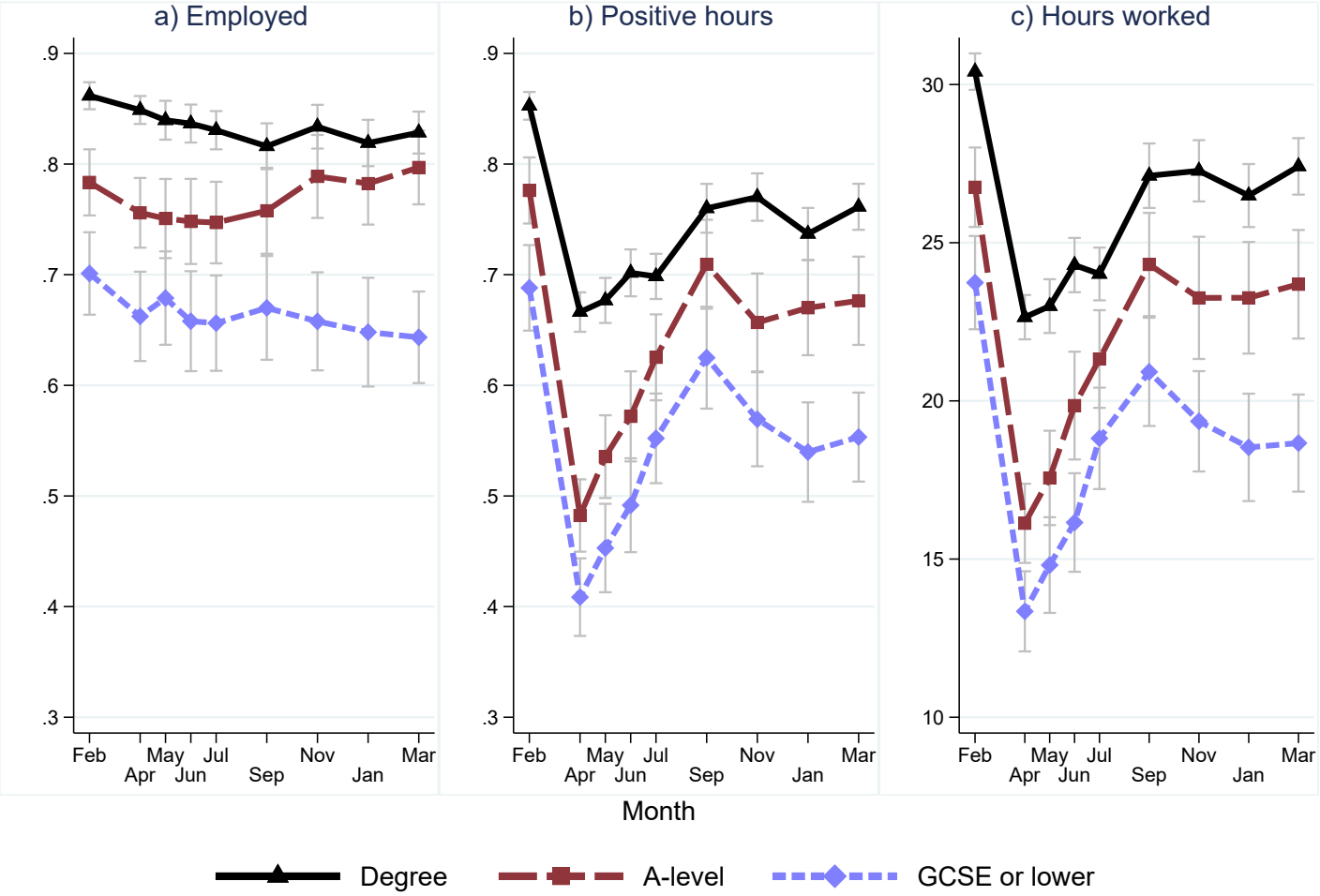
Notes: Unbalanced panel of 10,382 individuals. "Employed" is the fraction employed, where this includes both employees and the self-employed. "Positive hours" is the fraction who report actually working some hours, independent of reported employment status. "Hours worked" is the mean weekly work hours, where those not working are assigned zero hours. BAME refers to Black, Asian and Minority ethnic groups.

Labour market impacts by age



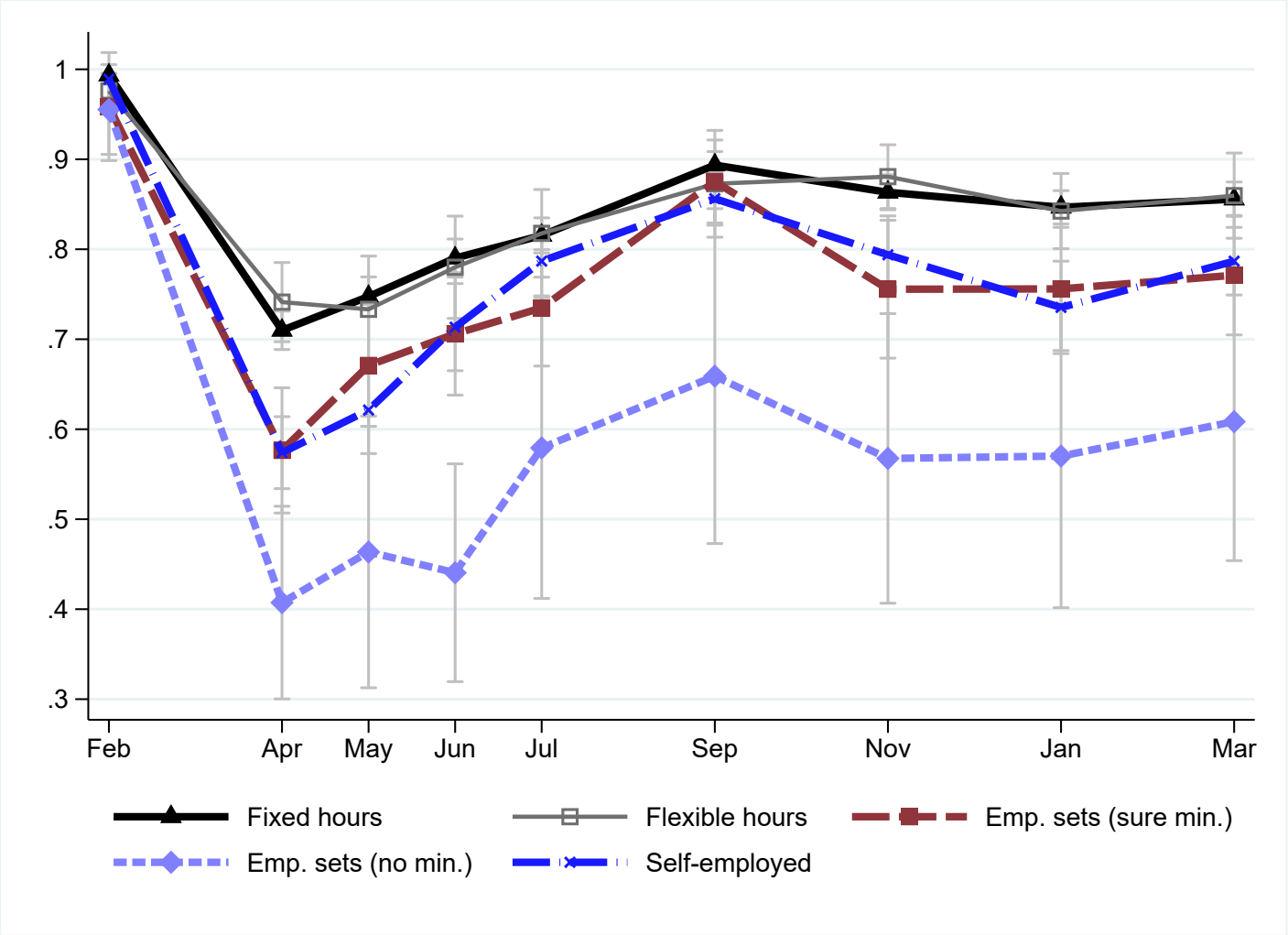
Notes: Unbalanced panel of 10,382 individuals. "Employed" is the fraction employed, where this includes both employees and the self-employed. "Positive hours" is the fraction who report actually working some hours, independent of reported employment status. "Hours worked" is the mean weekly work hours, where those not working are assigned zero hours.

Labour market impacts by education



Notes: Unbalanced panel of 10,382 individuals. "Employed" is the fraction employed, where this includes both employees and the self-employed. "Positive hours" is the fraction who report actually working some hours, independent of reported employment status. "Hours worked" is the mean weekly work hours, where those not working are assigned zero hours. Education is recorded at wave 9 (2017-18) of the main survey.

Postive hours by contract type (employed at baseline)



Notes: Unbalanced panels of 8364 individuals. "Positive hours" is the fraction who report actually working some hours, independent of reported employment status.

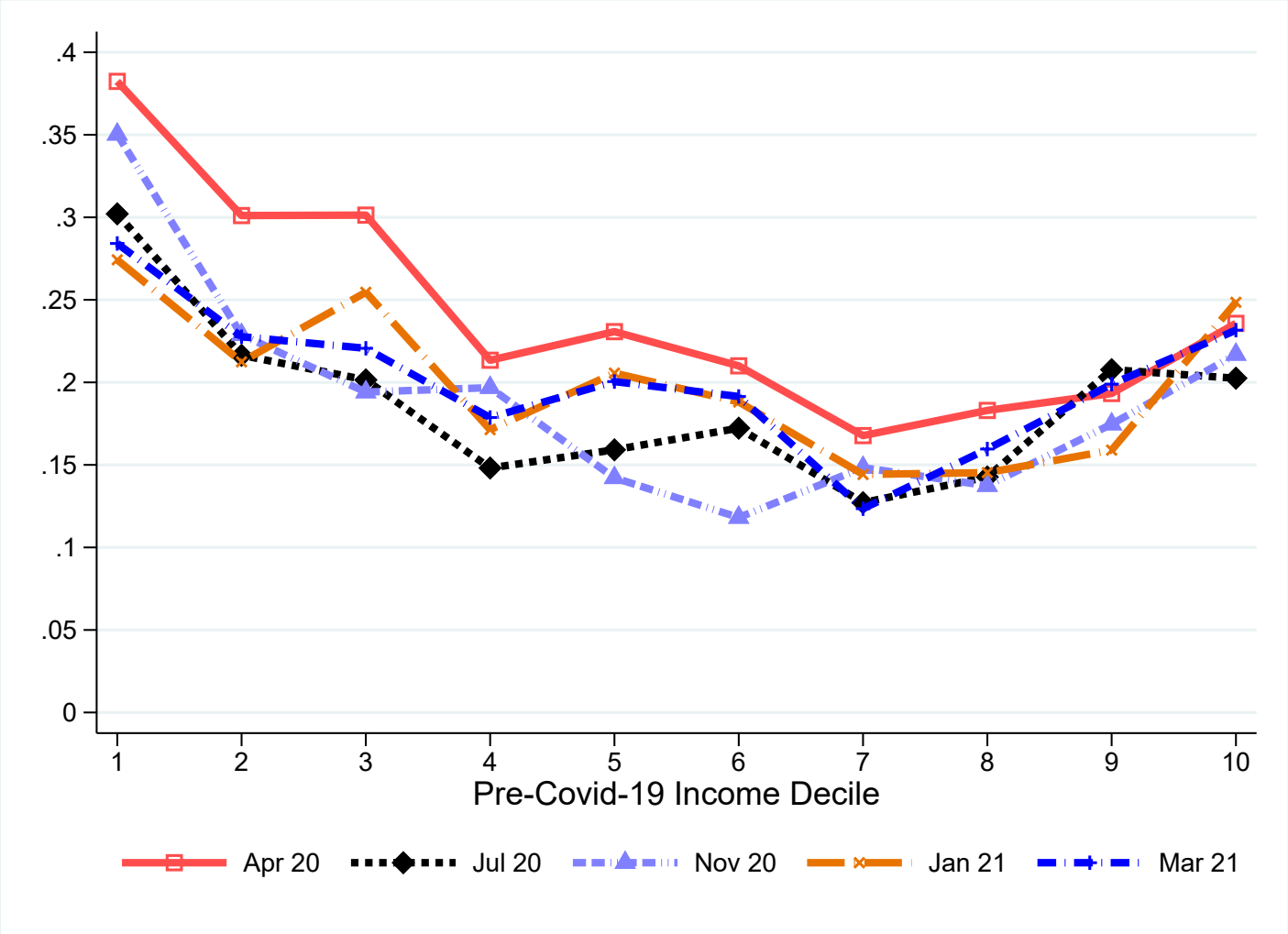
Summary

- "Diff-in-Diff" estimates and additional details in paper.
- Relative larger employment losses by BAME, young, lower education groups, but this reverses by March 2021.
- The position of older workers gradually deteriorated through the pandemic.
- Persistent effect on those with insecure contracts.

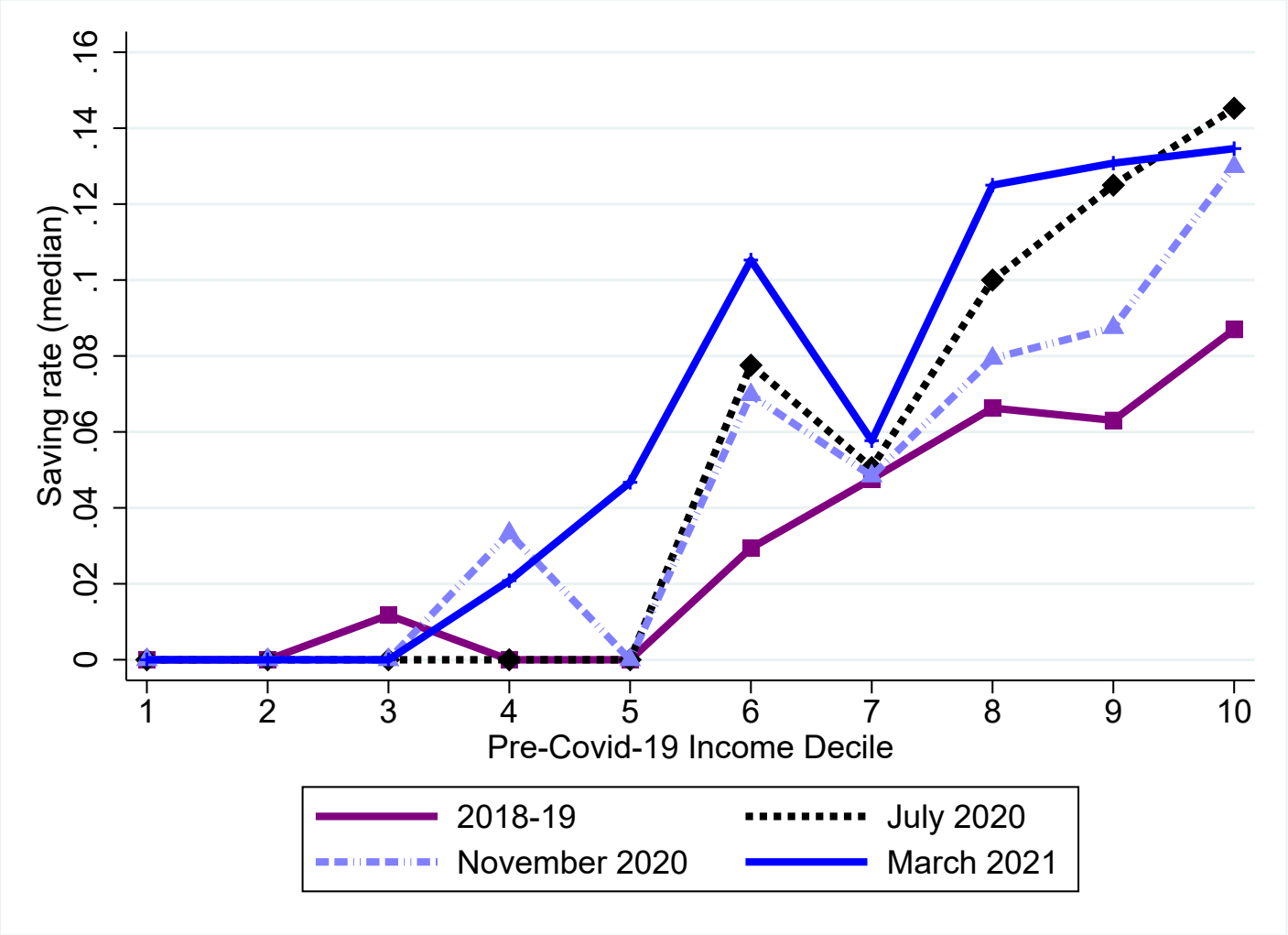
Household Finances

- Earnings.
- Saving, arrears, changes in wealth.
- Financial Satisfaction.
- MPCs.
- Key covariate: quintile of "long-run" household income.
  - Net household income averaged over past three waves of Main Study.

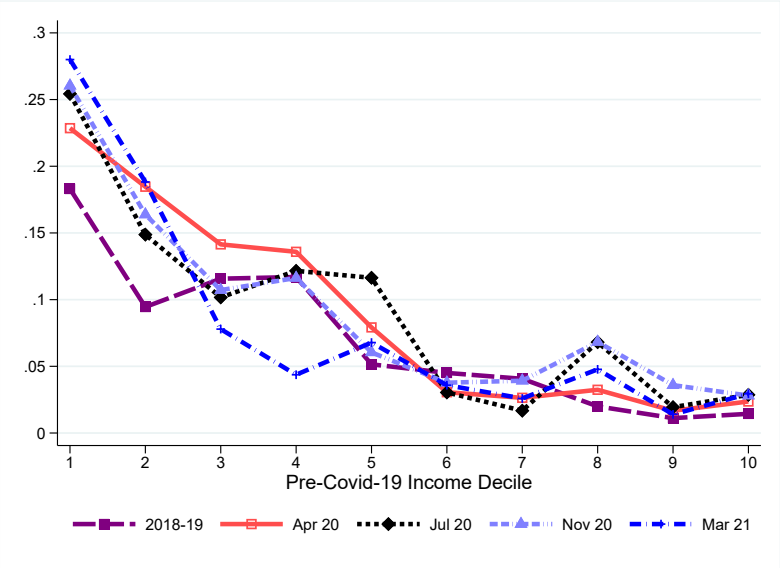
>20 % earnings losses by long-run income decile



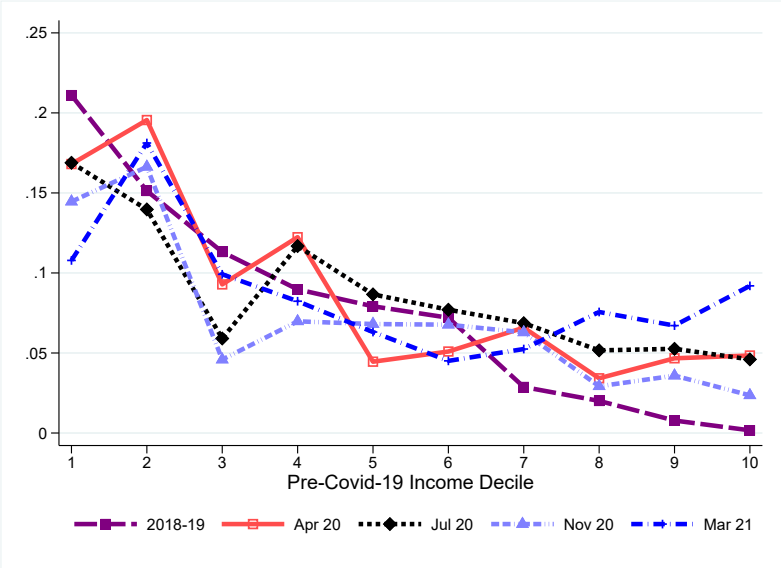
Savings rate across the long-run income distribution



Arrears across the long-run income distribution



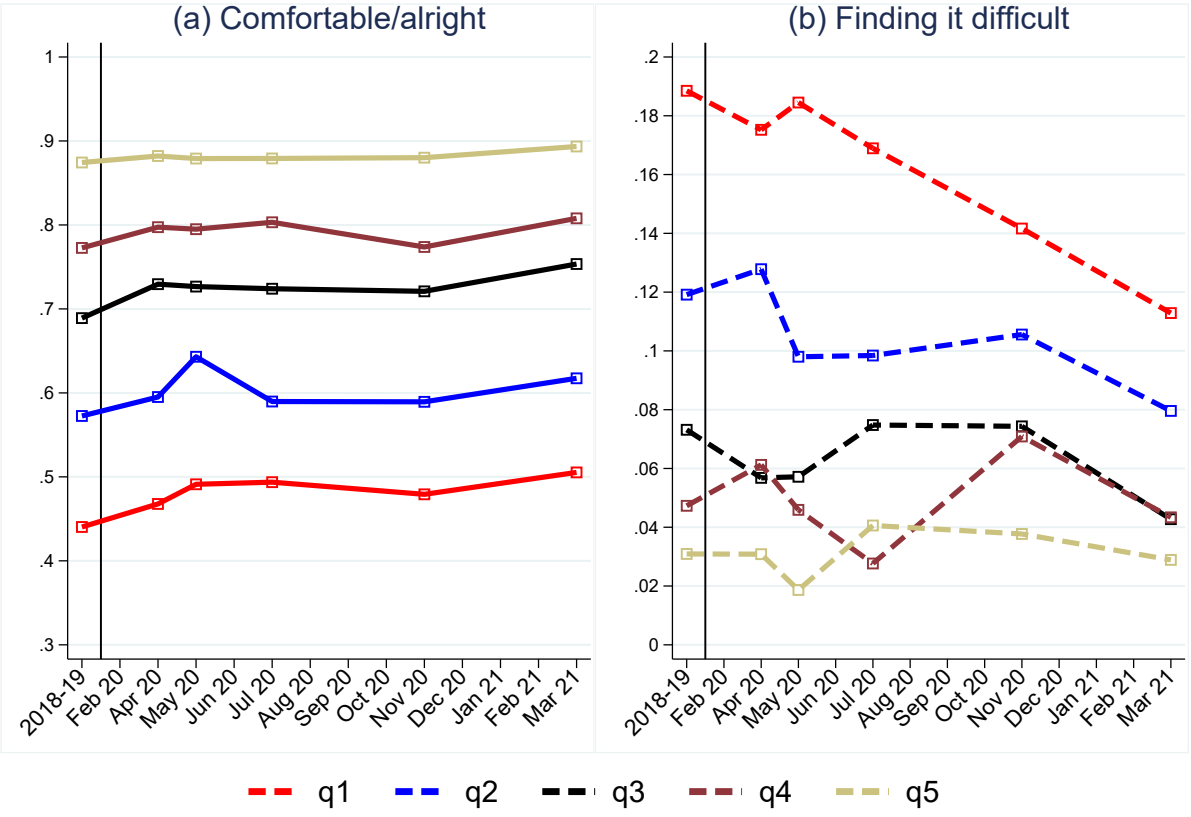
(a) Bills



(b) Housing

Change in net wealth to March 2021

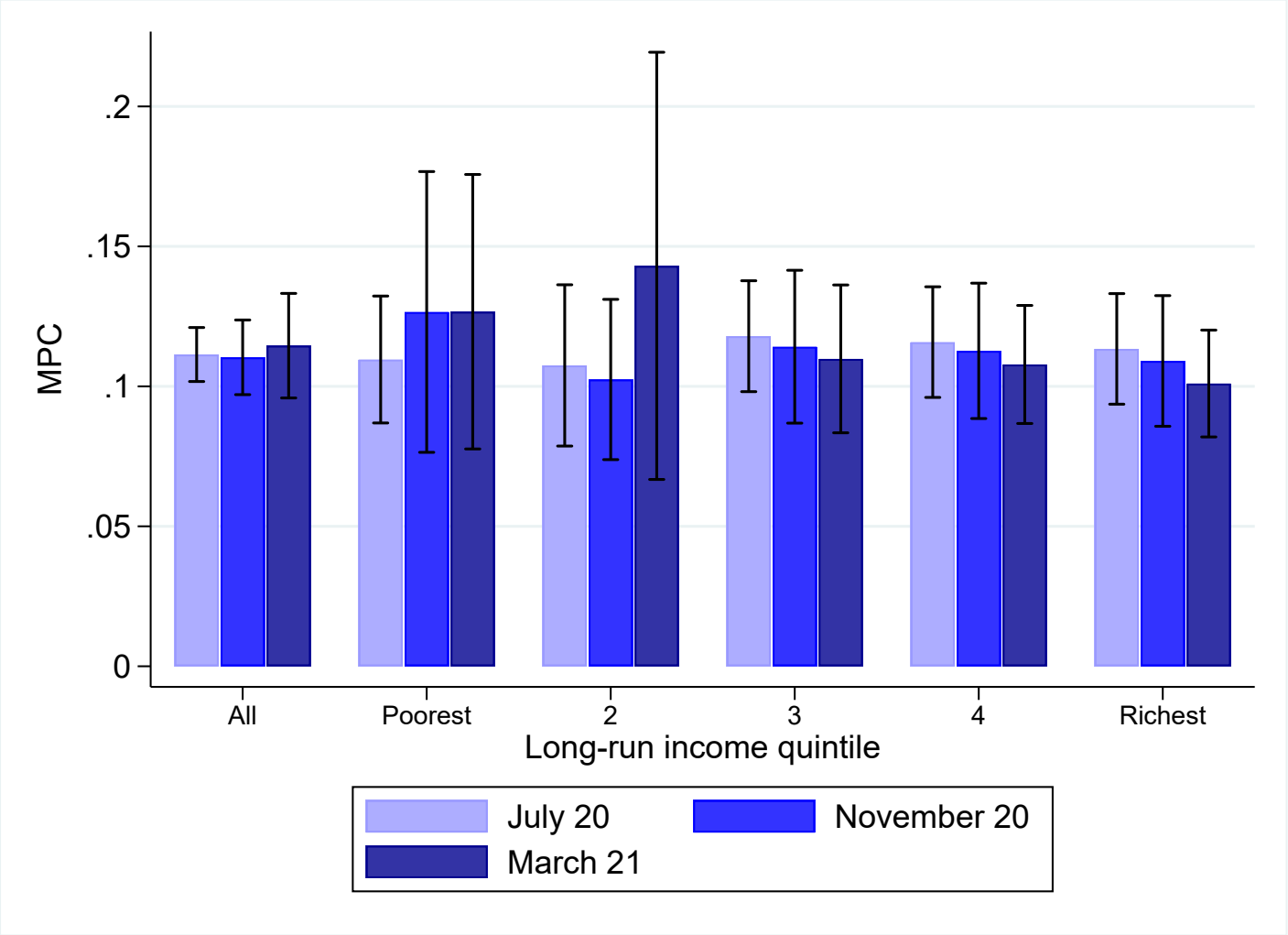
Financial Satisfaction by long-run income quintile



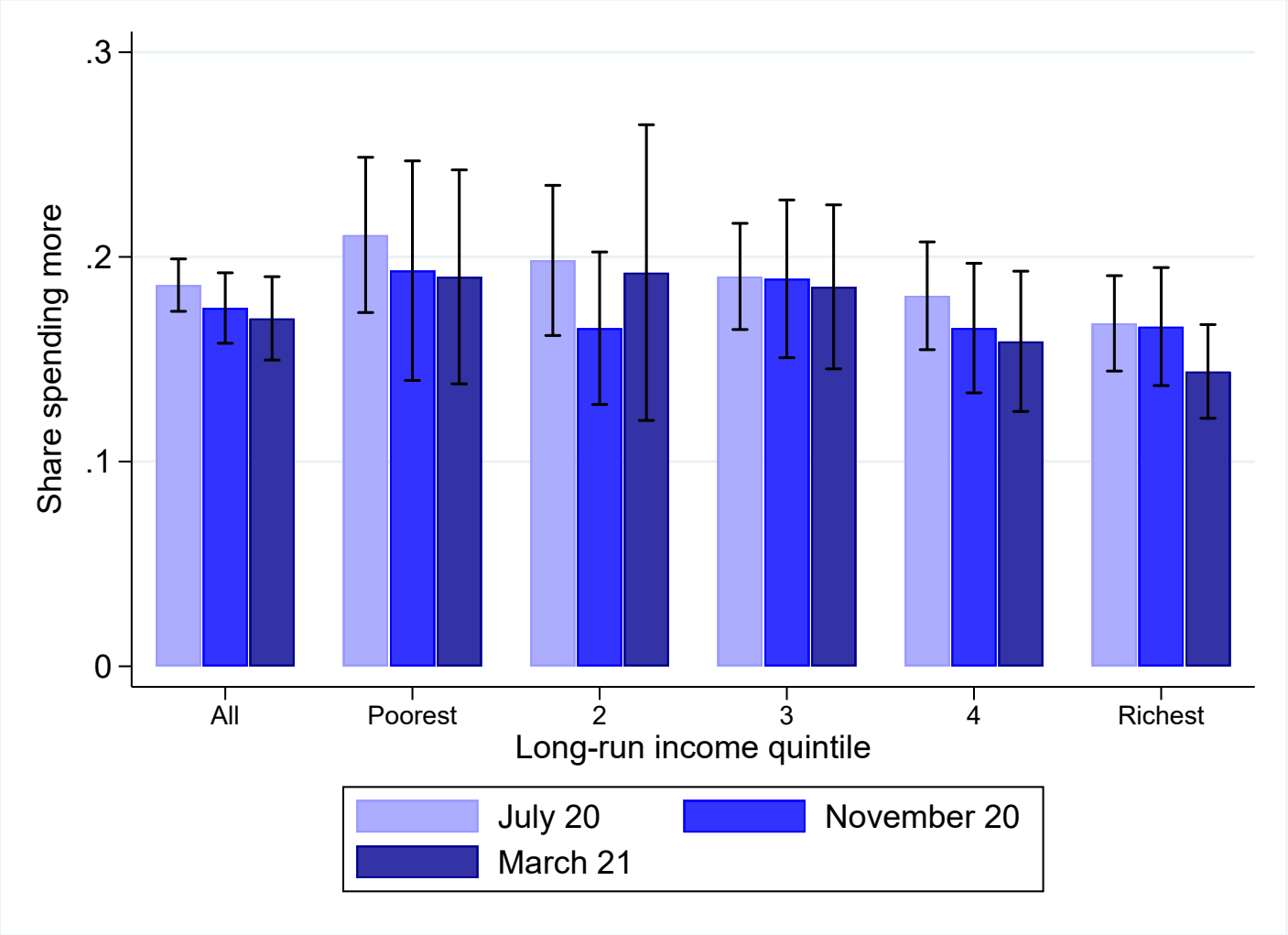
Marginal Propensity to Consume

- Hypothetical unexpected and one-time payment of £500 on the day of the survey
- Spend more, less or the same over the next three months (categorical)?
- If more (or less), how much (quantitative)?
- Most similar to questions asked in the New York Fed survey questions analysed by Fuster et al. (2020).
- If less than fully spent, what? (paying off debt, saving, more financial help to friends and family; less financial help from friend or family).

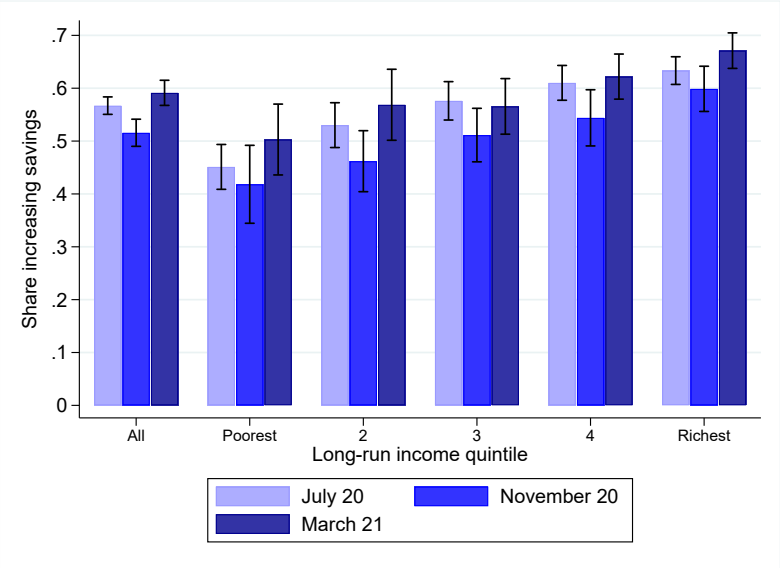
Marginal propensity to consume by long-run income quintile



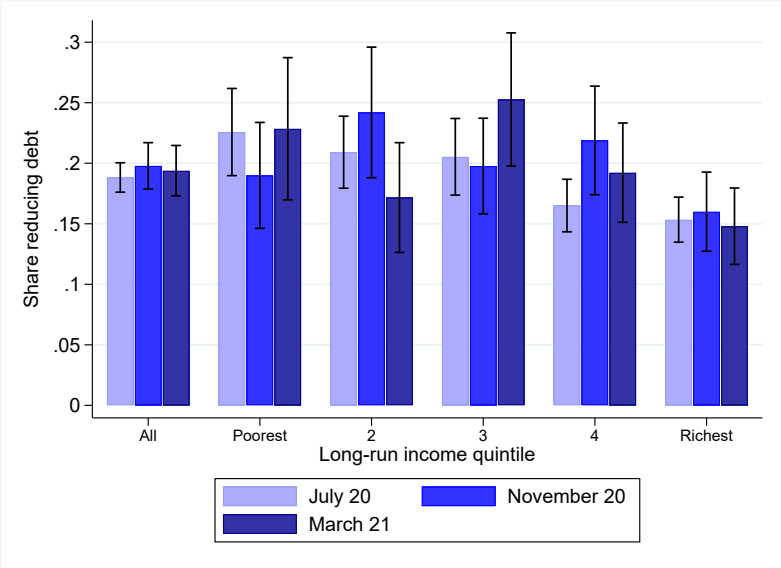
MPC >0 by long-run income quintile



Saving and debt repayment by long-run income quintile



(c) Save



(d) Repayment

Summary

- A mixed story...
- Increasing saving up the income distribution
  - Also debt repayment (not shown)
- Net Wealth increases exceed decreases above the 30th percentile.
- Puzzling improvements in financial satisfaction.
- No evidence of high MPCs.
  - Debt repayment seems a priority for the harder-hit.

Measurement Lessons learned

- Significant advantages of building on an existing panel study:
  - **Content**: past waves of the main study provide important context for responses. Future waves will allow study of long-run impacts.
  - **Population Inferences**: (Initial) probability samples.Past waves provide detailed information on web survey non-respondents.
  - Longitudinal Surveys are valuable **infrastructure**.
- 2nd mode useful but expensive.
- Build in tests (eg., randomized incentives).
- Value of frequent measurement through crisis.