

Wealth, Race, and Consumption Smoothing of Typical Income Shocks

Peter Ganong¹, Damon Jones¹, Pascal Noel¹, Diana Farrell², Fiona Greig², and Chris Wheat²

(1) University of Chicago; (2) JPMorgan Chase Institute

April 29, 2021

- Cause for concern: 42% of Americans do not have money set aside that could be used for unexpected expenses or emergencies
- Yet little evidence on how monthly income fluctuations affect consumption
- 55% of black hhs do not have savings for unexpected shocks (vs 38% of white hhs)
 - Racial wealth gap has changed little since 1870
 - Historical factors: “forty acres and a mule” rescinded, redlining, GI Bill
 - ~55% of Hispanic households also report no emergency savings

- Cause for concern: 42% of Americans do not have money set aside that could be used for unexpected expenses or emergencies
- Yet little evidence on how monthly income fluctuations affect consumption
- 55% of black hhs do not have savings for unexpected shocks (vs 38% of white hhs)
 - Racial wealth gap has changed little since 1870
 - Historical factors: “forty acres and a mule” rescinded, redlining, GI Bill
 - ~55% of Hispanic households also report no emergency savings

Goal and Methods

Goal

- Construct precise estimates of the consumption response to “typical” labor income shocks and investigate how this varies by wealth and race

Methods

- Data with income, consumption, liquid assets, and race for ~2 million households
 - Link bank account records to public voter files with race
 - This is the first such data set at a monthly frequency in the U.S.
- Instrument for *typical* income variation using monthly fluctuations in firm pay
 - Builds on strengths of two distinct traditions: structural and quasi-experimental
 - Overcome challenge of endogenous labor supply in semi-structural studies
 - Overcome challenge of unusual sources of income variation in quasi-experimental studies

Goal and Methods

Goal

- Construct precise estimates of the consumption response to “typical” labor income shocks and investigate how this varies by wealth and race

Methods

- Data with income, consumption, liquid assets, and race for ~2 million households
 - Link bank account records to public voter files with race
 - This is the first such data set at a monthly frequency in the U.S.
- Instrument for *typical* income variation using monthly fluctuations in firm pay
 - Builds on strengths of two distinct traditions: structural and quasi-experimental
 - Overcome challenge of endogenous labor supply in semi-structural studies
 - Overcome challenge of unusual sources of income variation in quasi-experimental studies

Results

Main Result

- Consumption much more sensitive to income for black, Hispanic, and low-asset households

Interpretation

- Elasticities similar by race after controlling for assets
- Race not irrelevant; racial inequality mediated through wealth gaps, which are driven in part (and possibly entirely) by factors that are functions of race (e.g. structural racism)

Implications

- Structural models: enough power to test (and support) benchmark model prediction of a tight negative correlation between elasticity and liquid assets
- Welfare: substantial cost of temporary income volatility, 50% higher for black households, 20% higher for Hispanic households
- Social insurance: potential heterogeneity in consumption smoothing benefits, e.g. UI

Results

Main Result

- Consumption much more sensitive to income for black, Hispanic, and low-asset households

Interpretation

- Elasticities similar by race after controlling for assets
- Race not irrelevant; racial inequality mediated through wealth gaps, which are driven in part (and possibly entirely) by factors that are functions of race (e.g. structural racism)

Implications

- Structural models: enough power to test (and support) benchmark model prediction of a tight negative correlation between elasticity and liquid assets
- Welfare: substantial cost of temporary income volatility, 50% higher for black households, 20% higher for Hispanic households
- Social insurance: potential heterogeneity in consumption smoothing benefits, e.g. UI

1 Data

- External Validity

2 Reduced-form Estimates

- Instrument
- Causal Impact of Income on Consumption
- Heterogeneity by Race and Assets

Administrative bank data from Chase

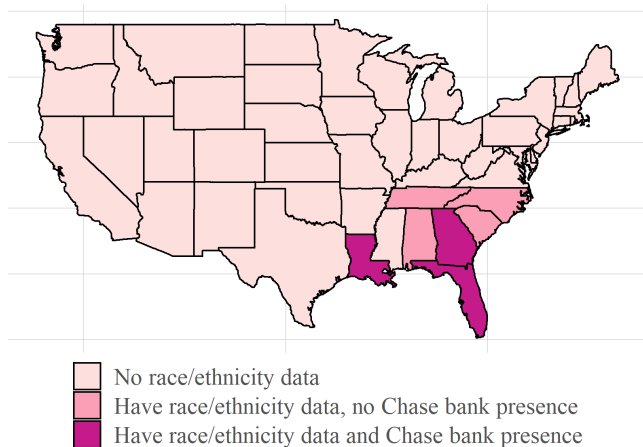
- October 2012 - January 2019
- ~20 million households per month
- Income data
 - Take-home labor income if paid by direct deposit
 - Unique firm identifier → link to coworkers
 - Unemployment insurance benefits (secondary analysis)
- Nondurable spending defined as in Lusardi (1996)
 - ~42% of expenditures
 - Electronic transactions, debit cards, credit cards, and cash
 - Misses accounts at other banks, other credit cards, in-kind transfers
- Checking account balances (augmented by Survey of Consumer Finances)

STATE OF GEORGIA APPLICATION FOR VOTER REGISTRATION

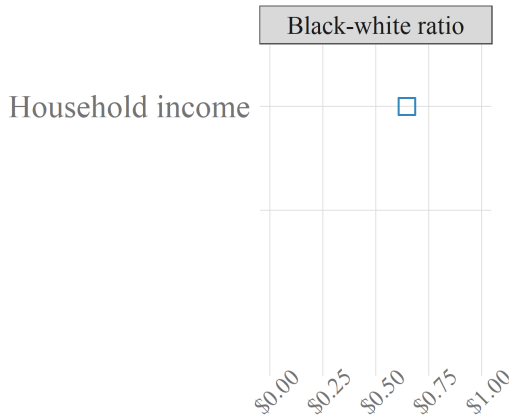
Fill out the bottom half of this application by following these directions. Print clearly and use blue or black ink.

COUNTY PRECINCT	MUNICIPAL PRECINCT	DISTRICT NUMBER	HOW APPLICATION WAS MADE	REGISTRATION NO.	CHANGE OF ADDRESS CHANGE OF NAME OTHER		
OFFICE USE ONLY							
1	LAST NAME	FIRST NAME	MIDDLE OR MAIDEN NAME	SUFFIX	<input type="checkbox"/> Jr <input type="checkbox"/> Sr <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/> V		
2	RESIDENCE ADDRESS: House No. and street name		APT. NO.	CITY	COUNTY	STATE GA.	ZIP CODE
3	MAILING ADDRESS (if different from residence address): Post-office box or route			CITY	STATE	ZIP CODE	
4	TELEPHONE NUMBER ()	DATE OF BIRTH MM/DD/YYYY /	GENDER Male <input type="checkbox"/> Female <input type="checkbox"/>	RACE/ETHNICITY: <input type="checkbox"/> Black <input type="checkbox"/> White <input type="checkbox"/> Hispanic/Latino <input type="checkbox"/> Asian/Pacific Islander <input type="checkbox"/> American Indian <input type="checkbox"/> Other			
5	VALID GA. DRIVER'S LICENSE OR GA. LD. NO. [] [] [] [] [] [] [] [] [] []	If no GA Driver's License or GA. LD. No., must provide last 4 digits of your Social Security Number		FULL SOCIAL SECURITY NUMBER (OPTIONAL) Last 4 Digits (Required) [] [] [] []		<input type="checkbox"/> Check if you do not have a GA Driver's License, GA. LD. No., or Social Security No.	
6	ISWEAR OR AFFIRM: (Your answer is required under federal law) Are you a citizen of the United States of America? Check One: Yes <input type="checkbox"/> No <input type="checkbox"/> Will you be 18 years of age on or before election day? Check One: Yes <input type="checkbox"/> No <input type="checkbox"/> If you checked "No" in response to either of these questions, do not complete this form. ISWEAR OR AFFIRM THAT: I reside at the address listed above. I am eligible to vote in Georgia. I am not serving a sentence for having been convicted of a felony involving moral turpitude. I have not been judicially declared to be mentally incompetent.			WARNING: Any person who registers to vote knowing that such person does not possess the qualifications required by law, who registers under any name other than such person's own name, or who knowingly gives false information in registering shall be guilty of a felony. O.C.G.A. § 21-2-561			
Date		X Signature		Signature of person helping illiterate or disabled voter			
7	May we contact you about working as an Election Day poll officer? Yes <input type="checkbox"/> No <input type="checkbox"/> If you would like to receive additional information by email, please provide your e-mail address:		8	CHANGE OF NAME: If you are changing your name, list the name under which you were previously registered: Last Name Suffix First Middle or Maiden Name CHANGE OF ADDRESS: If you are changing your address or if you were previously registered to vote, list your previous address: CITY COUNTY STATE		Military Active Duty? Yes <input type="checkbox"/> No <input type="checkbox"/>	

Figure: Race & ethnicity data in voter registration files and bank presence

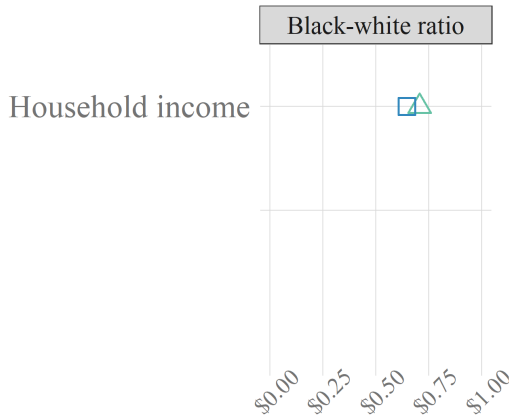


1.8 million hhs, 461,000 black hhs, 414,000 Hispanic hhs [▶ Match detail](#)



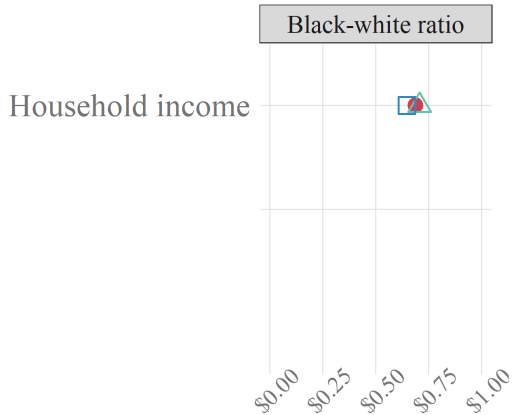
□ National (public use) △ 3 state banked (public use) ● Bank sample

Public use sources: Current Population Survey, Survey of Consumer Finances, Health and Retirement Study



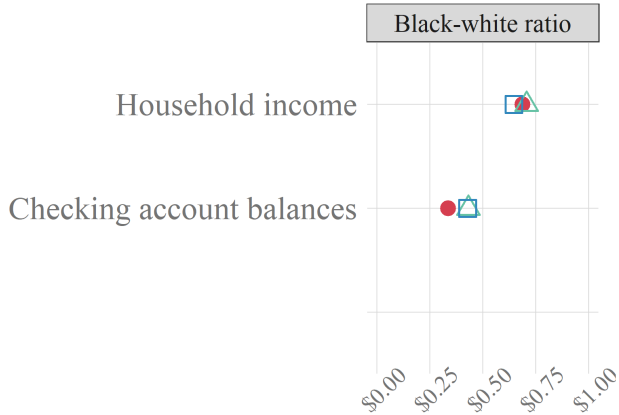
□ National (public use) △ 3 state banked (public use) ● Bank sample

Public use sources: Current Population Survey, Survey of Consumer Finances, Health and Retirement Study



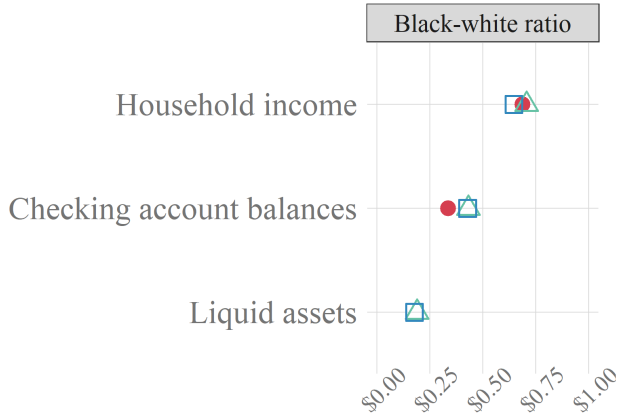
□ National (public use) △ 3 state banked (public use) ● Bank sample

Public use sources: Current Population Survey, Survey of Consumer Finances, Health and Retirement Study



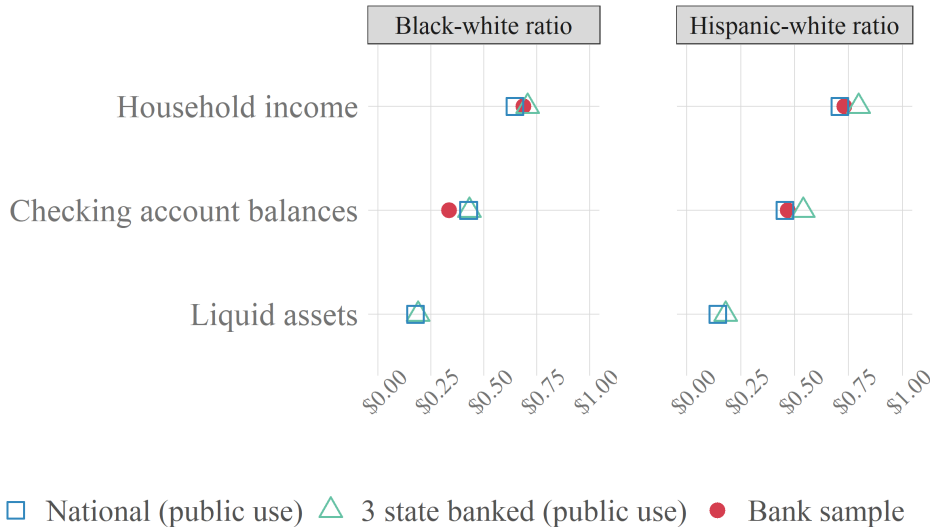
□ National (public use) △ 3 state banked (public use) ● Bank sample

Public use sources: Current Population Survey, Survey of Consumer Finances, Health and Retirement Study



□ National (public use) △ 3 state banked (public use) ● Bank sample

Public use sources: Current Population Survey, Survey of Consumer Finances, Health and Retirement Study



Public use sources: Current Population Survey, Survey of Consumer Finances, Health and Retirement Study

Summary: new data on income, assets, consumption & race

- Strengths

- Sample size: $\approx 100\times$ PSID
- Frequency: monthly instead of bi-annual
- Can identify coworkers

- Limitations

- Captures most consumption, but not all
- Captures most households, missing the unbanked and/or not registered to vote

Estimating Equations and Identifying Assumptions

Two-stage least squares

$$\Delta c_{it} = \alpha + \beta \Delta y_{it} + \varepsilon_{it}$$

$$\Delta y_{it} = \phi + \rho \Delta y_{j(-i,t),t} + \nu_{it}$$

where $\Delta y_{j(-i,t),t}$ is leave-out mean change in coworker pay

- In the spirit of the Abowd, Kramarz and Margolis (AKM, 1999) model of firm effects
- Builds on Shea (1995), Baker (2018) and Koustas (2018)

Identifying assumptions

- 1 Relevance: firm pay shocks affect individual pay
- 2 Exclusion restriction: firm pay shocks do not affect consumption, except through their effect on individual pay

Estimating Equations and Identifying Assumptions

Two-stage least squares

$$\Delta c_{it} = \alpha + \beta \Delta y_{it} + \varepsilon_{it}$$

$$\Delta y_{it} = \phi + \rho \Delta y_{j(-i,t),t} + \nu_{it}$$

where $\Delta y_{j(-i,t),t}$ is leave-out mean change in coworker pay

- In the spirit of the Abowd, Kramarz and Margolis (AKM, 1999) model of firm effects
- Builds on Shea (1995), Baker (2018) and Koustas (2018)

Identifying assumptions

- 1 Relevance: firm pay shocks affect individual pay
- 2 Exclusion restriction: firm pay shocks do not affect consumption, except through their effect on individual pay

Estimating Equations and Identifying Assumptions

Two-stage least squares

$$\Delta c_{it} = \alpha + \beta \Delta y_{it} + \varepsilon_{it}$$

$$\Delta y_{it} = \phi + \rho \Delta y_{j(-i,t),t} + \nu_{it}$$

where $\Delta y_{j(-i,t),t}$ is leave-out mean change in coworker pay

- In the spirit of the Abowd, Kramarz and Margolis (AKM, 1999) model of firm effects
- Builds on Shea (1995), Baker (2018) and Koustas (2018)

Identifying assumptions

- 1 Relevance: firm pay shocks affect individual pay
- 2 Exclusion restriction: firm pay shocks do not affect consumption, except through their effect on individual pay

Figure: Relationship between Coworker Pay and Individual Pay

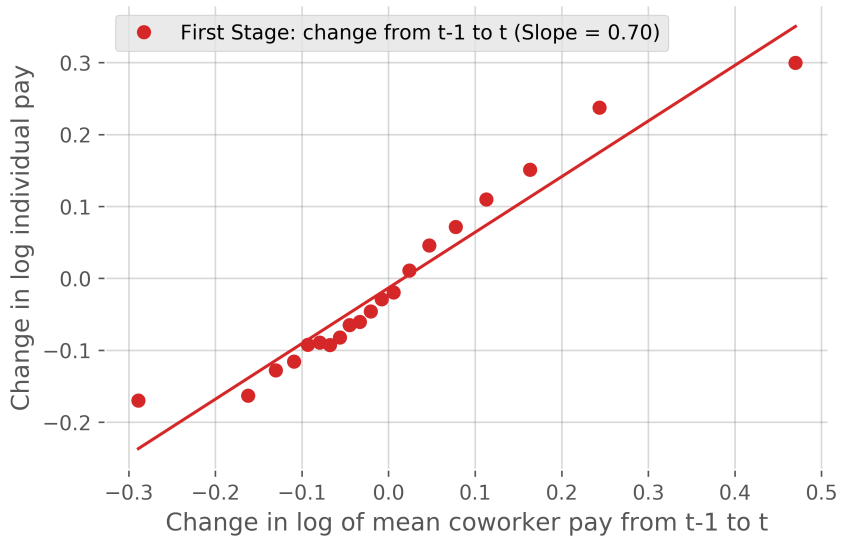
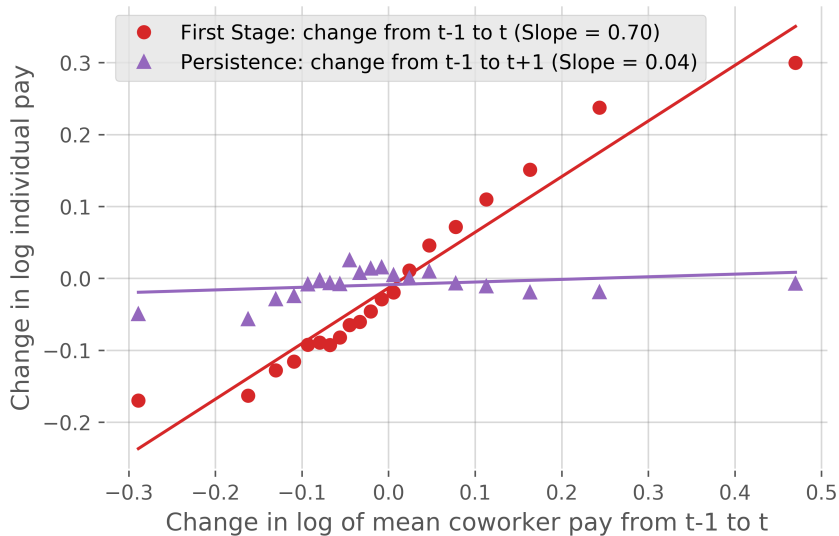


Figure: Relationship between Coworker Pay and Individual Pay



Source of Income Variation Relative to Prior Literature

Type of income variation	Rare exogenous	Typical exogenous	Endogenous
Semi-structural (e.g. Blundell, Pistaferri, and Preston 2008)	✓	✓	✓
Unusual windfalls (e.g. tax rebates, lottery winnings, etc.)	✓		
Firm pay shocks	✓	✓	

Concern about unusual windfalls: mental accounting

- Example: when the first stimulus checks were sent out in July 2001, White House cabinet members “spent their time on the Sunday shows essentially calling for a mass national shopping spree” (Time Magazine 2001)
- Labeling can have dramatic effects on spending (Hastings and Shapiro 2018, Beatty et al. 2014)

Source of Income Variation Relative to Prior Literature

Type of income variation	Rare exogenous	Typical exogenous	Endogenous
Semi-structural (e.g. Blundell, Pistaferri, and Preston 2008)	✓	✓	✓
Unusual windfalls (e.g. tax rebates, lottery winnings, etc.)	✓		
Firm pay shocks	✓	✓	

Concern about unusual windfalls: mental accounting

- Example: when the first stimulus checks were sent out in July 2001, White House cabinet members “spent their time on the Sunday shows essentially calling for a mass national shopping spree” (Time Magazine 2001)
- Labeling can have dramatic effects on spending (Hastings and Shapiro 2018, Beatty et al. 2014)

Source of Income Variation Relative to Prior Literature

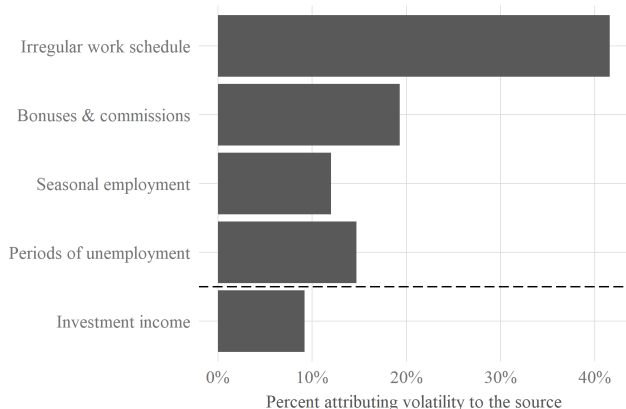
Type of income variation	Rare exogenous	Typical exogenous	Endogenous
Semi-structural (e.g. Blundell, Pistaferri, and Preston 2008)	✓	✓	✓
Unusual windfalls (e.g. tax rebates, lottery winnings, etc.)	✓		
Firm pay shocks	✓	✓	

Concern about unusual windfalls: mental accounting

- Example: when the first stimulus checks were sent out in July 2001, White House cabinet members “spent their time on the Sunday shows essentially calling for a mass national shopping spree” (Time Magazine 2001)
- Labeling can have dramatic effects on spending (Hastings and Shapiro 2018, Beatty et al. 2014)

Where Do Firm Pay Shocks Come From?

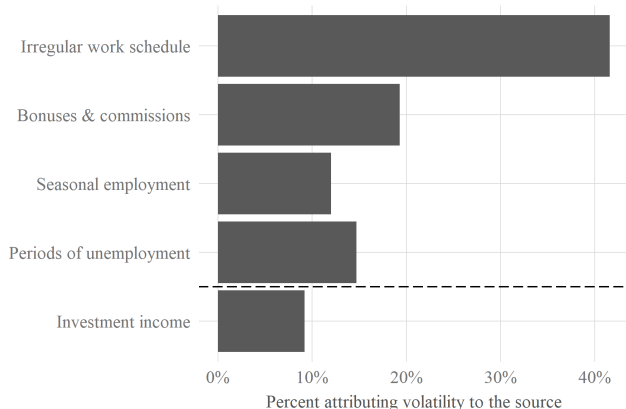
Figure: Why does your income change from month to month?



- Homebase: “first stage” regression of own hours on coworker hours has slope of 0.85, similar to earnings first stage in bank data

Where Do Firm Pay Shocks Come From?

Figure: Why does your income change from month to month?

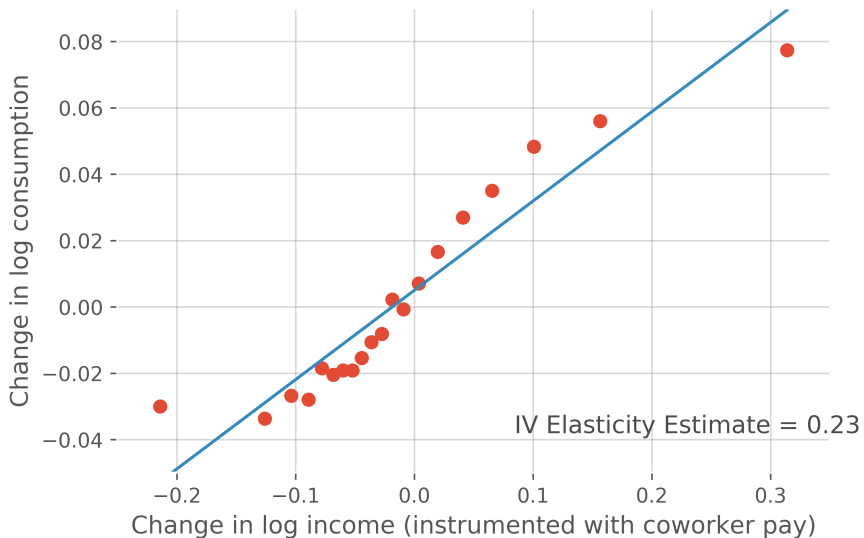


- Homebase: “first stage” regression of own hours on coworker hours has slope of 0.85, similar to earnings first stage in bank data

Passthrough of Income Shocks to Consumption

- ① Overall estimate
- ② Heterogeneity by race
- ③ Heterogeneity by assets
- ④ Heterogeneity by race, controlling for assets

Figure: Impact of Instrumented Individual Pay on Nondurable Consumption



Passthrough of Income Shocks to Consumption

- ① Overall estimate
- ② **Heterogeneity by race**
- ③ Heterogeneity by assets
- ④ Heterogeneity by race, controlling for assets

Figure: Impact of Instrumented Individual Pay on Nondurable Consumption by Race

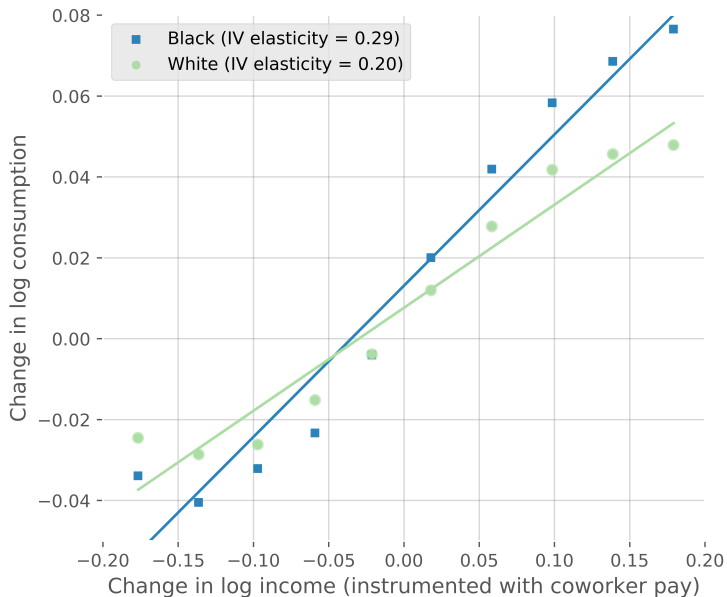
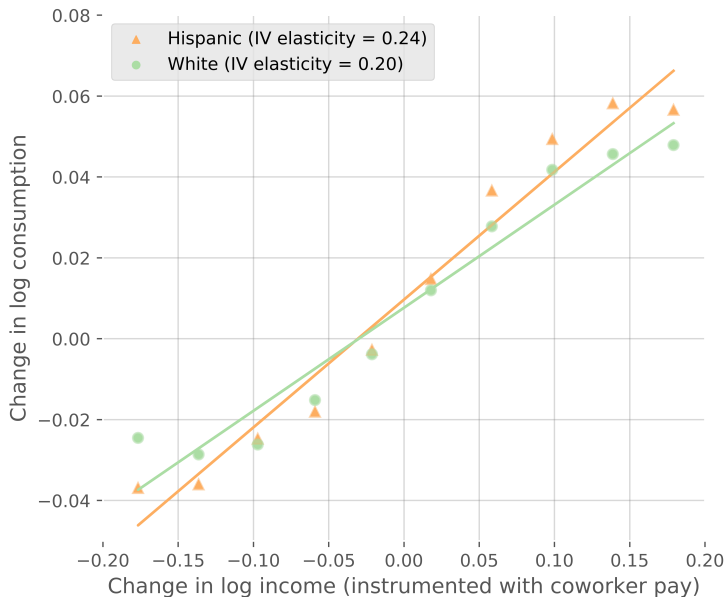


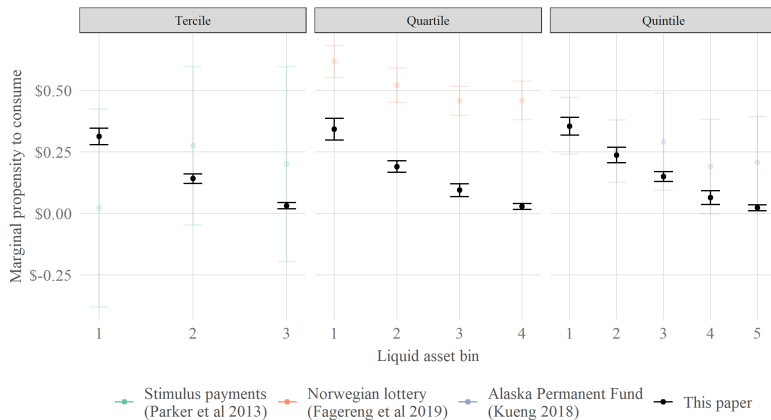
Figure: Impact of Instrumented Individual Pay on Nondurable Consumption by Race



Passthrough of Income Shocks to Consumption

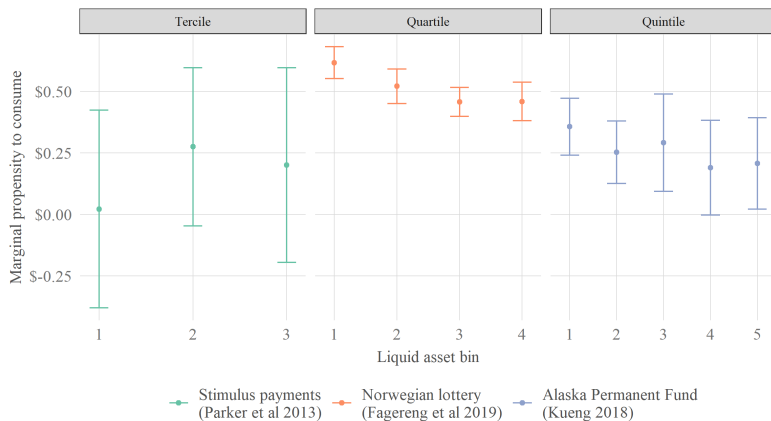
- ① Overall estimate
- ② Heterogeneity by race
- ③ **Heterogeneity by assets**
- ④ Heterogeneity by race, controlling for assets

Figure: Marginal Propensity to Consume by Asset Buffer



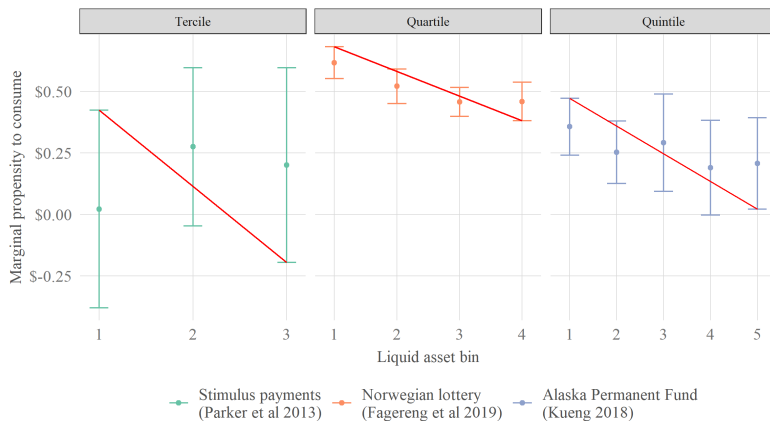
Note: asset buffer measured in Chase using checking account balance

Figure: Marginal Propensity to Consume by Asset Buffer



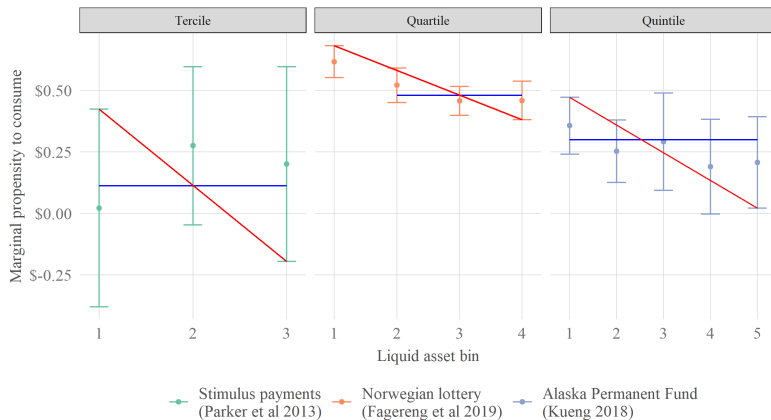
- Benchmark model prediction: tight negative correlation between liquid assets and MPC
- Prior empirical evidence: correlation unclear given available precision

Figure: Marginal Propensity to Consume by Asset Buffer



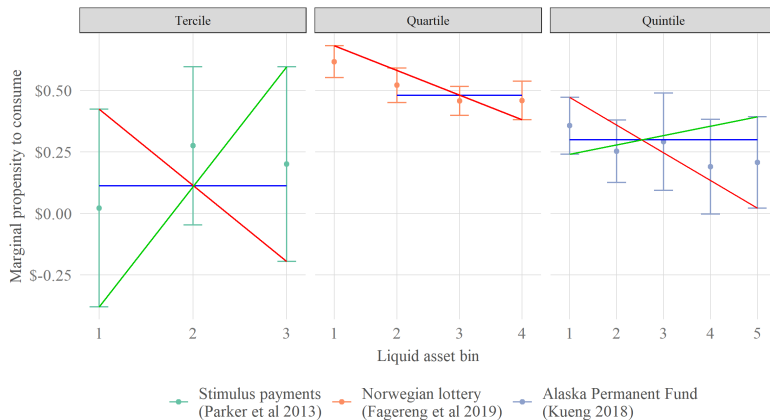
- Benchmark model prediction: tight negative correlation between liquid assets and MPC
- Prior empirical evidence: correlation unclear given available precision

Figure: Marginal Propensity to Consume by Asset Buffer



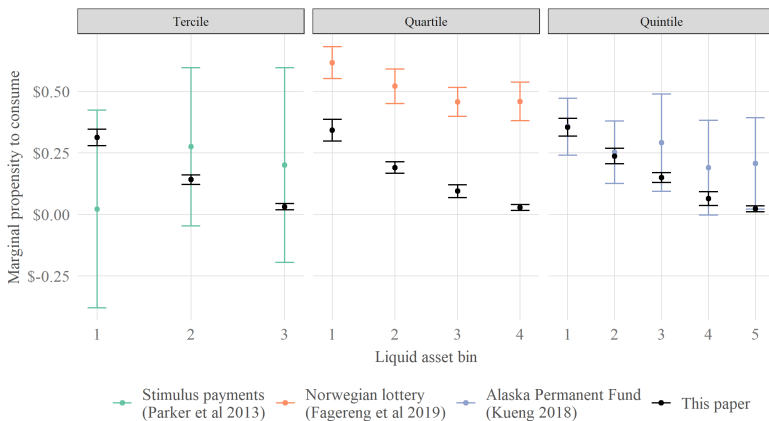
- Benchmark model prediction: tight negative correlation between liquid assets and MPC
- Prior empirical evidence: correlation unclear given available precision

Figure: Marginal Propensity to Consume by Asset Buffer



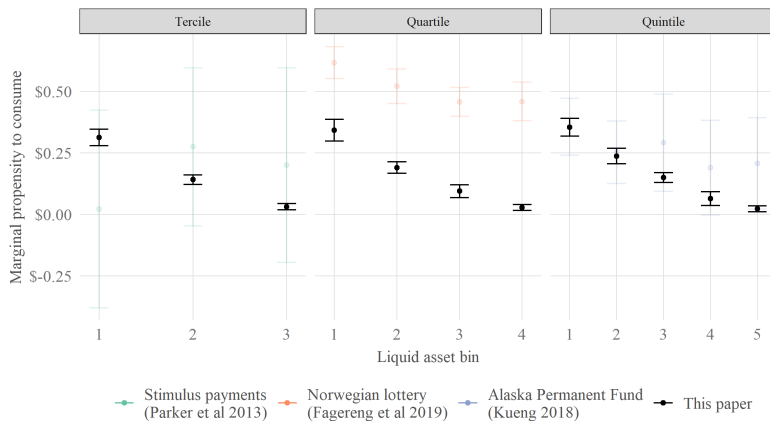
- Benchmark model prediction: tight negative correlation between liquid assets and MPC
- Prior empirical evidence: correlation unclear given available precision

Figure: Marginal Propensity to Consume by Asset Buffer



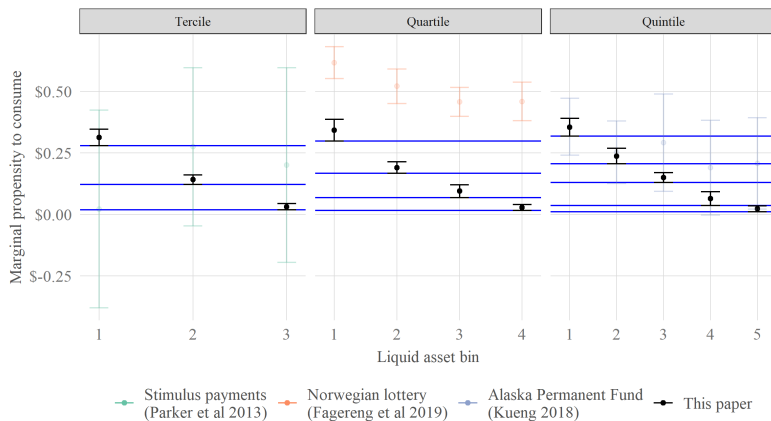
- Benchmark model prediction: tight negative correlation between liquid assets and MPC
- We find sharp negative gradient, support for benchmark models

Figure: Marginal Propensity to Consume by Asset Buffer



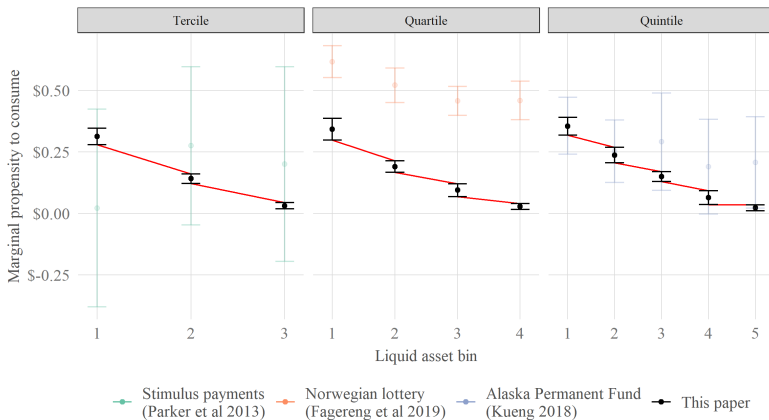
- Benchmark model prediction: tight negative correlation between liquid assets and MPC
- We find sharp negative gradient, support for benchmark models

Figure: Marginal Propensity to Consume by Asset Buffer



- Benchmark model prediction: tight negative correlation between liquid assets and MPC
- We find a sharp negative gradient, support for benchmark models

Figure: Marginal Propensity to Consume by Asset Buffer



- Benchmark model prediction: tight negative correlation between liquid assets and MPC
- We find a sharp negative gradient, support for benchmark models

Passthrough of Income Shocks to Consumption

- ① Overall estimate
- ② Heterogeneity by race
- ③ Heterogeneity by assets
- ④ **Heterogeneity by race, controlling for assets**

Figure: Racial Inequality in Consumption Smoothing and Role of Assets

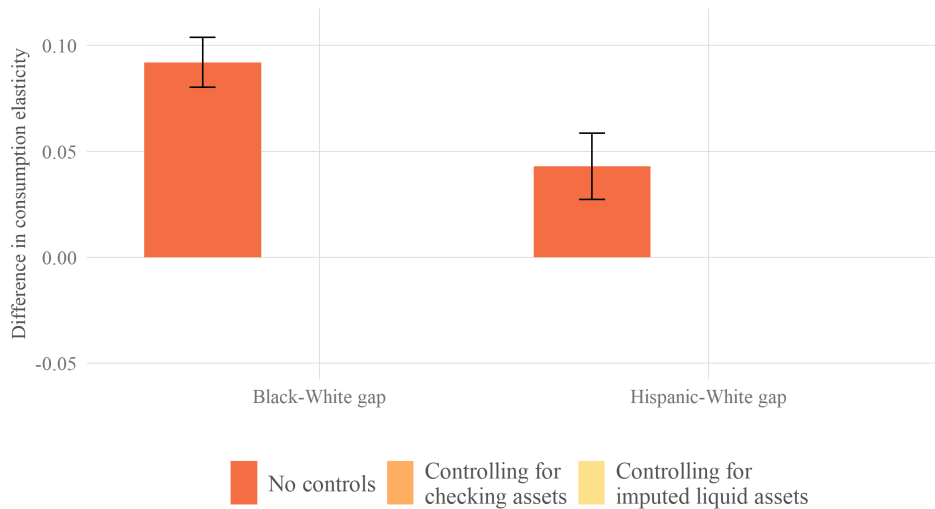


Figure: Racial Inequality in Consumption Smoothing and Role of Assets

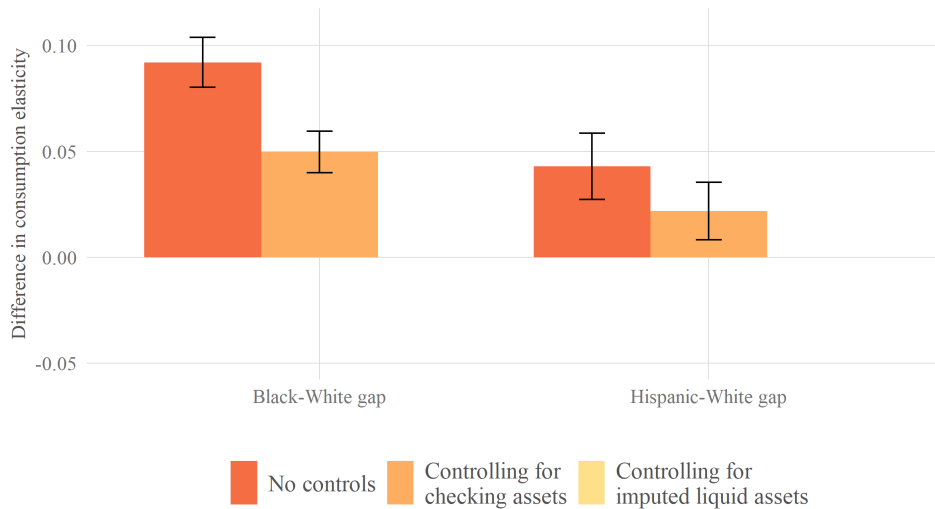
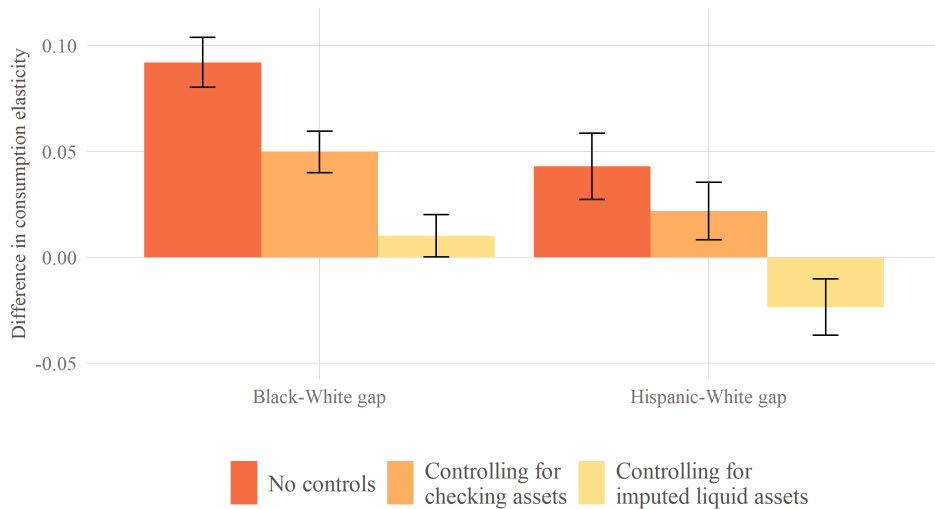


Figure: Racial Inequality in Consumption Smoothing and Role of Assets



Interpreting the role of race vis-à-vis assets

- Candidate interpretation: “neutrality”
 - With same income shocks *and* financial buffers, households of all races react similarly
 - Non-wealth channels that may differ by race are quantitatively small or cancel each other out (e.g., credit access, family structure, labor supply, social programs, expectations, preferences)
 - Note: these factors could explain or be correlated with assets and wealth
- However, results do *not* imply that race is irrelevant for inequality in consumption smoothing
- Results do suggest that these disparities are likely mediated through the racial wealth gap
 - Wealth gaps are driven by current and historic factors (e.g. structural racism) that themselves are functions of race
- Overall, the results suggest that the racial wealth gap leaves black and Hispanic households particularly vulnerable to income fluctuations

Passthrough of Income Shocks to Consumption

- ① Overall estimate
- ② Heterogeneity by race
- ③ Heterogeneity by assets
- ④ Heterogeneity by race, controlling for assets

Goal: measure consumption smoothing; heterogeneity by race & assets

- Tools

- Administrative data on income, consumption, assets, and race
- Method for identifying firm pay shocks

- Contributions

- ① Estimate of passthrough of income to consumption (elasticity 0.23)
 - Statistically precise
 - Uses typical income variation, not unusual windfall
- ② Passthrough varies by race and wealth
 - Black and Hispanic households have higher elasticities
 - High-asset households almost fully smooth firm pay shocks
- ③ After controlling for assets, racial differences are negligible
 - Points to role for racial wealth gap
- ④ Welfare cost of *temporary* income volatility is high
 - Especially for people with low assets, such as black and Hispanic households