Building Assets or Building Debt? Do First Time Homebuyers Know the Difference and Does it Matter?

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Study Motivation

- High rates of default and foreclosure , particularly among low and moderate income (LMI) households
  - Deterioration of borrower characteristics, including affordability ratios, exacerbated the mortgage crisis; DTI grew from 38% in 2001 to 41.4% in 2007 (Demyank and Van Hemert 2011)
- Default decision as exercise of financial option (equity) or result of illiquidity; high mortgage debt payment burden may exacerbate liquidity constraints
- Policy responses often include a focus on mortgage affordability and/or liquidity
  - Mortgage modification programs have been found to be most successful when payments are adjusted based on affordability ratios
  - Proposed changes under Dodd-Frank (Qualified Residential Mortgage) include focus on mortgage affordability ratios
  - Housing counseling interventions include a focus on mortgage affordability, budgeting and debt repayment.

Research Questions

- To what extent do LMI homebuyers accurately estimate their overall borrowing constraints, and how does this understanding (or lack thereof) influence decisions regarding their mortgage?
  - ✓ Amount of mortgage debt acquired through purchase may be partially a function of the extent to which borrowers accurately estimate their overall borrowing constraints
- Are less knowledgeable homebuyers more or less likely to respond to policy interventions, i.e., offers of financial counseling post-purchase?
  - ✓ Responses to interventions may be related to the perceived illiquidity of borrowers (rather than actual illiquidity)

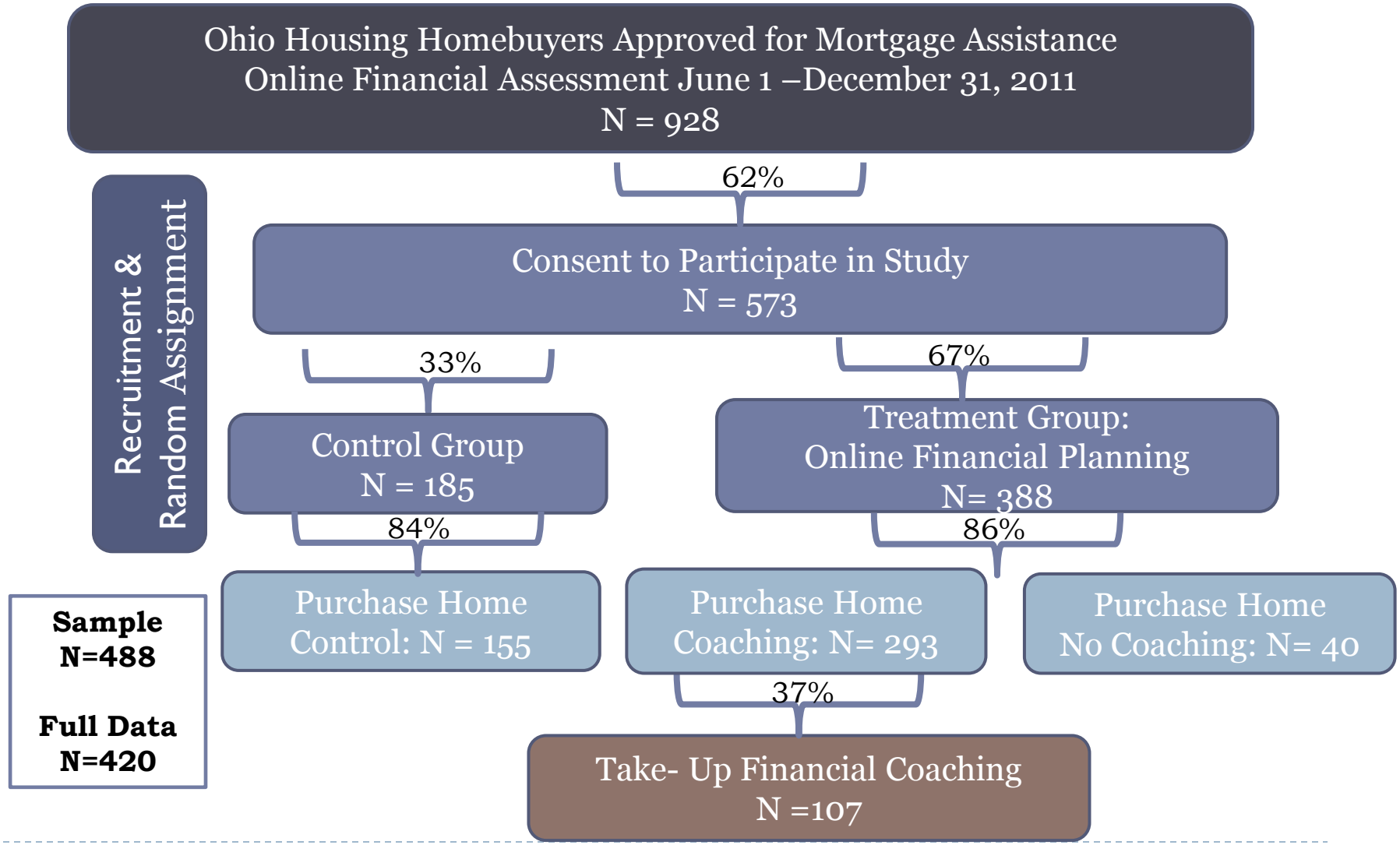
Previous Literature

1. Borrowing constraints and consumption decisions
   - Liquidity not just related to income; consumption decisions based in part on borrowing capacity (Johnson and Li 2011); Anchoring often drives attention to monthly payments (Navarro-Martinez et al. 2011; Stewart 2009)
   - If a household's total debt-to-income (DTI) is low, consumer may be willing to incur greater debt through purchase and still stay below optimal threshold
2. Self-estimations of debt (relative to administrative debt)
   - Borrowers may be unable or unwilling to accurately estimate their own debt; Such miscalculations may be associated with mortgage decisions
   - Zinman (2009) finds that consumers underestimate revolving debt in the SCF by about 50% (compared with administrative data)
   - Karlan and Zinman (2008) and (Elliehausen and Lawrence 2001) find underreporting of consumer and payday loans
3. Take up of offers of financial advice or counseling
   - Discount rates and advice at tax time (Meier and Sprenger 2007; 2010)
   - Lab experiment of advice offered with portfolio allocation decisions (Hung and Yoong 2010).

Study Population

- Field experiment of low and moderate income (LMI) first-time homebuyers purchasing homes with mortgages subsidized by Ohio Housing Finance Agency's Mortgage Revenue Bond (MRB) program.
  - All borrowers have incomes below 115% of Area Median Income
  - 2,000- 10,000 borrowers per year in Ohio; 100,000 nationwide
  - All borrowers receive mortgages originated through private lenders, but with same mortgage product (FHA insured), with the same interest rate at any given point in time. All mortgages sold to same master-servicer.
  - Administrative and self-report data at time of application, origination and one-year after purchase.

Study Design



Data Sources

- Administrative Data
  - Loan application data, including verified income & demographics
  - Origination Data, including mortgage characteristics
  - Credit report data, at origination and one year post-purchase
  - Mortgage payment data post-purchase

- Self-Report Data
  - Online Financial Self-Assessment (MyMoneyPath), pre-purchase and one year post-purchase
    - Budgeting (Earning & Spending)
    - Saving (Regular Savings)
    - **Borrowing (Credit & Debt)**
    - Home
    - Retirement
    - **Indicators of Financial Confidence, Literacy, & Future Discounting**

Administrative Characteristics (n=420)

	Mean	SD	Min	Max
Housing Ratio	22.6%	6.9%	7.7%	51.6%
Debt Ratio	35.2%	9.7%	9.9%	56.7%
Purchase Price	$102,007	35,910	$22,000	$247,000
Interest Rate	4.6%	0.3%	3.8%	5.3%
LTV Ratio	93.6%	6.6%	53.8%	106.5%
Credit Score	668.29	50.54	495	795
Monthly Income	$3,770	1,208	$843	$7,001
Amount Saved	$2,600	3,438	$0	$24,500
Female	46%	49.9%	0	1
Borrower Age	32.77	10.17	20	89
Education College	35.2%	47.8%	0	1
Minority	14.3%	35%	0	1
Household Size	2.44	1.30	1	7

Borrowing Constraints (n=420)

Administrative Debt	Mean	SD	Min	Max
Monthly non-mort DTI	13.1%	9.6%	0.0%	78.6%
Monthly Debt	$480	361	0	2,651
Monthly Installment Debt	$356	302	0	2,586
Monthly Revolving Debt	$124	169	0	1,111
Total Debt	$27,932	26,299	0	123,955
Self Estimated Debt				
Monthly non-mort DTI	10.2%	7.8%	0.0%	51.6%
Monthly Debt Estimate	$383	302	0	2,000
Monthly Installment Debt	$313	267	0	2,000
Monthly Revolving Debt	$72	112	0	1,000
Total Debt	$21,743	24,000	0	183,200
Debt Estimation Accuracy				
DTI Difference	-2.9%	8.0%	-38.9%	48.6%
DTI Underestimate <5%	22.9%	42.0%	0	1
DTI Overestimate >5%	7.1%	25.8%	0	1

Financial Capability Indicators (n=420)

	Mean	SD	Min	Max
Financial Literacy	1.61	0.59	0	2
Future Discounting	8.6%		0	1
Financial Confidence	17.89	1.91	10	20
Overconfidence	14.3%		0	1
Professional Advice	14.5%		0	1

Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?
More than $102; Exactly $102; Less than $102; I Don't know

Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
More than today; Exactly the same; Less than today; I don't know

Financial Capability Indicators (n=420)

	Mean	SD	Min	Max
Financial Literacy	1.61	0.59	0	2
Future Discounting	8.6%		0	1
Financial Confidence	17.89	1.91	10	20
Overconfidence	14.3%		0	1
Professional Advice	14.5%		0	1

Would you rather get $40 now or $60 a month from now

Financial Capability Indicators (n=420)

	Mean	SD	Min	Max
Financial Literacy	1.61	0.59	0	2
Future Discounting	8.6%		0	1
Financial Confidence	17.89	1.91	10	20
Overconfidence	14.3%		0	1
Professional Advice	14.5%		0	1

How confident do you feel with each of the following, where 1 is not at all confident and 4 is very confident:

Taking care of my day-to-day finances

Paying off my loans and credit cards

Making my monthly mortgage/rent payment

Planning for future expenses like vacations, big purchases, and emergencies

Planning for my retirement

Financial Capability Indicators (n=420)

	Mean	SD	Min	Max
Financial Literacy	1.61	0.59	0	2
Future Discounting	8.6%		0	1
Financial Confidence	17.89	1.91	10	20
Overconfidence	14.3%		0	1
Professional Advice	14.5%		0	1

How confident do you feel with each of the following, where 1 is not at all confident and 4 is very confident:

Paying off my loans and credit cards (4, very confident)

+

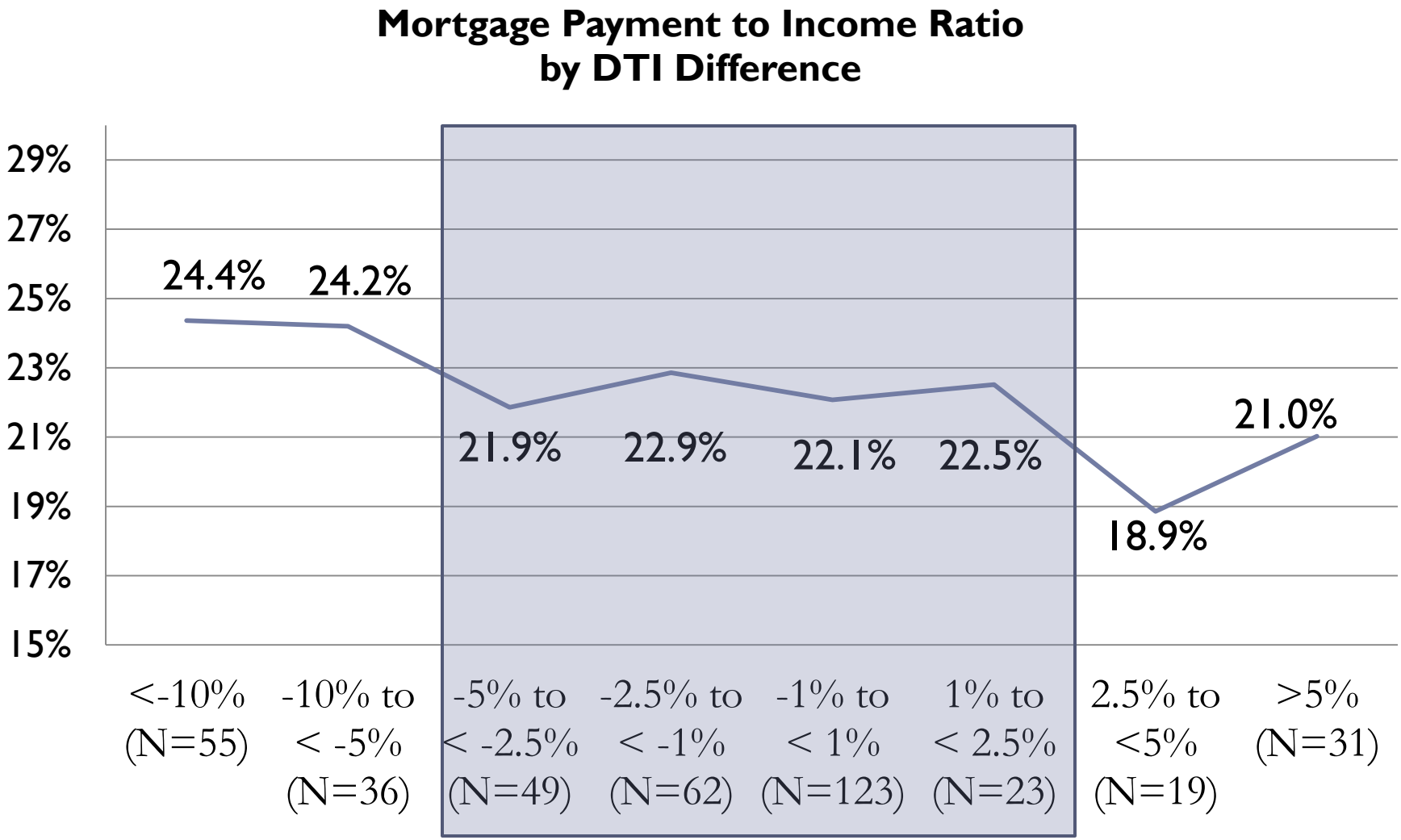
Ever 60 Days Delinquent on a revolving transaction within the last 24 months

Model (Mortgage Debt)

$$Y_i = \alpha + \beta D_i + \delta X_i + \gamma F_i + \varepsilon$$

- Y = Mortgage Payment to Income Ratio
- D = Dummy variables indicating DTI underestimate (<5%) and overestimate (>5%)
- X = Vector of borrower characteristics: FICO, CLTV, income, savings, DTI, gender, age, education, minority, household size
- F = Vector of financial capability characteristics: financial literacy, future discounting, financial confidence, and professional financial advice
- Variations
  - Y = Mortgage payment; Y= Total Mortgage
  - D= Estimated/Admin Monthly Payment; Estimated-Admin Monthly Payment; Installment and Revolving DTI differences

Descriptive Results



Estimation Results

Regression Predicting Mortgage Debt

	Payment/Income			Payment		
	β		Robust SE	β		Robust SE
DTI Underestimate <5%	0.026	**	0.008	101.24	**	27.39
DTI Overestimate >5%	-0.018	^	0.011	-79.80	^	42.06
Administrative DTI	-0.148	**	0.038	-630.38	**	118.81
Financial Literacy	0.007		0.005	25.20		17.35
Financial Confidence	0.001		0.002	1.73		5.26
Overconfidence	0.018	*	0.009	68.39	*	29.86
Monthly Income (logged)	-0.117	**	0.011	397.94	**	33.07
Education College	0.022	**	0.006	82.07	**	24.31
Minority	0.023	*	0.009	82.77	*	32.13
Constant	1.196	**	0.105	-2519.13	**	327.84
R-Squared	0.366	**		0.379	**	

N=420; OLS with robust standard errors

^p<0.10, * p<0.05, ** p<0.01

Variables not shown, not significant: Future Discounting, Financial Confidence, Professional Advice, Low Credit <620, Med Credit 620-660, High Credit 660-700, Amount Saved

Model (Take-Up of Counseling)

$$\text{logit}\,[Pr(Y_i = 1)] = \alpha + \beta D_i + \delta X_i + \gamma F_i$$

- Y = Take-up of Counseling
- D = Dummy variables indicating DTI underestimate (<5%) and overestimate (>5%)
- X = Vector of borrower characteristics: FICO, CLTV, income, savings, DTI, gender, age, education, minority, household size
- F = Vector of financial capability characteristics: financial literacy, future discounting, financial confidence, and professional financial advice
- Variations
  - Logit; also estimated as LPM
  - D= Estimated/Admin Monthly Payment; Estimated-Admin Monthly Payment; Installment and Revolving DTI differences

Estimation Results

Logit Predicting Take-Up of Coaching	β	Robust SE	Δ Pr
DTI Underestimate < 5%	0.156	0.238	8.13%
DTI Overestimate > 5%	1.754**	0.001	36.23%
DTI Administrative	-3.618^	0.079	-4.81%
Future Discounting	-0.366	0.488	-4.29%
Financial Literacy	-0.155	0.525	-1.25%
Overconfidence	-2.034*	0.003	-13.41%
Female	0.729*	0.013	12.21%
R-Squared	0.160**		15.81%

N=283; Logistic regression with robust standard errors

^p<0.10, * p<0.05, ** p<0.01

Variables not shown, not significant: Mortgage Over and Under Estimate, Financial Confidence, Professional Advice, Low Credit <620, Med Credit 620-660, High Credit 660-700, Monthly Income, Amount Saved, Age, Education, Minority, Household Size

Preliminary Conclusions

1. To what extent do LMI borrowers underestimate their borrowing constraints?
   - LMI borrowers in our sample underestimate their non-mortgage debt by about 20%, both in terms of monthly payments and total debt.
   - Not clear if this is "unable" or "unwilling" to estimate accurately. Does not appear to be associated with other measures of financial capability.
2. Is estimation of borrowing constraints associated with the amount of mortgage debt acquired through purchase?
   - Those who underestimate their debt (DTI) appear to take on larger mortgage payments, overall and as a percent of monthly income.
   - Nonlinear; most pronounced at extremes.
3. Is estimation of borrowing constraints associated with the take-up of financial counseling after purchase?
   - Overestimation of borrowing constraints appears to be associated with take-up of coaching; however, underestimation also marginally positive.
   - Overconfidence and temporal discounting (Meier & Sprenger 2012)
   - Not financial literacy, credit, income, or other administrative characteristics

Issues & Future Study

- Results are preliminary, but suggestive
  - Statistical, data and conceptual issues to manage, particularly related to conceptualization of estimated to actual debt
  - Distinguish high DTI/ high debt from underestimation of debt; these are highly correlated, where those with higher debt are more likely to underestimate their debt
- Surveys and tools that rely on self-reported data may not accurately reflect borrowing constraints
  - Without administrative data, only as good as self-reported inputs
  - Higher debt (DTI) is not associated with take-up of counseling; however, those who self report higher DTI are more likely to take-up counseling.
- Selection into counseling may be associated with perceptions of borrowing constraints
  - Does not speak to the effectiveness of financial counseling; Longer term outcomes forthcoming; Do not yet know effects on mortgage delinquency or default
  - Cannot test the difference between self-selection vs. mandatory requirement on financial behavioral change; all self-selection.

Questions & Comments?

Thank You!