

# Dream Homes

Aspirations and Real Estate Investments in Rural Myanmar

Jeffrey R. Bloem

Applied Economics Graduate Student Seminar Series

October 4, 2018

# Internal vs. External Constraints

- ▶ There is a long history of proving financial products that relieve *external* constraints to poverty alleviation
  - ▶ For example: Besley et al. (1993) and Pitt and Khandker (1998)
  - ▶ Many of these interventions have low take-up rates (e.g., Dupas et al. 2018 and Banerjee et al. 2015)
- ▶ Relieving external constraints may not be sufficient in alleviating poverty or driving widespread development
  - ▶ Living in an environment with multiple binding external constraints may influence how we think about the future
  - ▶ Ignoring these internal constraints may lead to ineffective poverty alleviation and development policies and programs

# Research Question

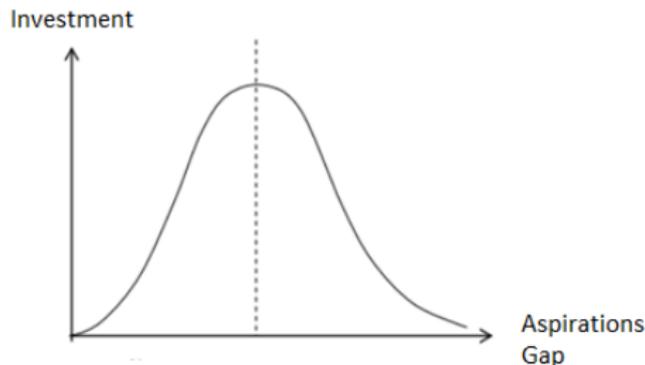
- ▶ General question: Can we identify the existence of internal constraints?
  - ▶ Doing so would suggest the existence of poverty traps
- ▶ Specific question: Is there an inverted U-shaped relationship between the income aspirations gap and financial investment choices of households in rural Myanmar?

# Aspirations and the Aspirations Gap

- ▶ Aspirations: A future-oriented goal
  - ▶ An abundance of theoretical work characterizes the relationship between aspirations and future-oriented behavior within the context of poverty
    - ▶ See: Appadurai (2004); Dalton et al. (2016); Genicot and Ray (2017); Lybbert and Wydick (2018); Mookherjee et al. (2010)
- ▶ Build on the idea of the “aspirations gap” (Ray 2006)
  - ▶ The distance between an individual’s current standard of living and their aspired standard of living

# The Aspirations Gap and Investment

- ▶ Aspirations failure
  - ▶ “Too small” of a gap and an individual has little incentive to forgo present-day consumption to achieve their aspiration
- ▶ Aspirations frustration
  - ▶ “Too large” of a gap and the necessary investment in the future takes away too much present-day consumption



# Preview of Results

- ▶ I find evidence of an inverted U-shaped relationship between the income aspirations gap and financial investment choices
  - ▶ OLS and semi-parametric regression analysis externally validate and extend the findings of Janzen et al. (2017)
    - ▶ An aspirations gap that is “too small” or “too large” are both associated with less investment in land or household construction materials
  - ▶ Preliminary analysis using an instrumental variable suggests this relationship is causal to some degree
  - ▶ Coefficient stability tests (Oster 2017) suggest that this finding is unlikely to be driven by unobservables
- ▶ These results suggest the presence of both *internal* and *external* constraints in rural Myanmar

# Context and Data

- ▶ The data are collected from households in Mon State, Myanmar
  - ▶ A coastal region with close proximity to Thailand
- ▶ Data sources:
  - ▶ Mon State Rural Household Survey (MSRHS)
    - ▶ May and June 2015
    - ▶ 1,637 households within 143 enumeration areas
  - ▶ Hope Survey (see Bloem et al. 2018)
    - ▶ March 2016
    - ▶ 503 households within 48 enumeration areas (random subset of MSRHS)

# Measuring Aspirations

- ▶ Follow the method described by Bernard and Taffesse (2014)
  - ▶ “How much income do you currently earn each month?”
  - ▶ “How much income would you like to earn each month?”
- ▶ Pre-testing raised concerns with this method
  - ▶ Appearing hungry for excessive wealth is generally seen as being “un-Buddhist”
  - ▶ Why answer any finite number to the aspirations question?
- ▶ We also asked the following question:
  - ▶ “How much income do you need to feel financial secure?”

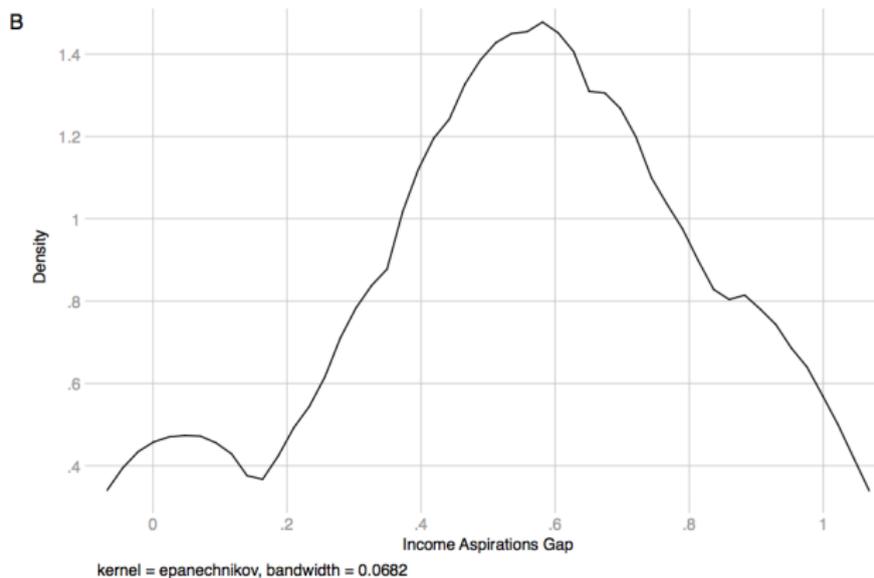
# Constructing the Aspirations Gap

- ▶ Follow the method described by Janzen et al. (2017)

$$\text{Income aspirations gap}_i = \frac{\text{aspiration}_i - \text{current}_i}{\text{aspiration}_i} \quad (1)$$

- ▶ Allows for meaningful comparisons of the aspirations gap across individuals
- ▶ A continuous measure bounded between 0 and 1
- ▶ Gap = 1 if the respondent reports zero current income and has a non-zero aspiration for income
- ▶ Note: no respondents in these data report zero income

# Density Plot of Income Aspirations Gap



# Dependent Variable

- ▶ Expenditures in land and household construction materials within the past 5 years to measure financial investments
  - ▶ Formal loan mechanisms require a land title (“Form 7”) for collateral
  - ▶ Many express a desire for their children to live in their home with them as adults—and support the household financially
- ▶ Lots of zeros in the data
  - ▶ Use the inverse hyperbolic sine transformation
  - ▶ Use a binary indicator of any expenditure
- ▶ Expenditures in ceremonies and banquets within the past 5 years
  - ▶ Serves as a falsification test

# Summary Statistics

Table: Summary Statistics

	<u>Hope Survey</u>			<u>MSRHS</u>		
	Mean	Standard Deviation	Obs.	Mean	Standard Deviation	Obs.
IHS land and materials expenditure <sup>a</sup>	3.53	6.12	482	3.93	6.38	1,637
Binary land and materials expenditure	0.26	0.44	482	0.29	0.45	1,637
IHS ceremonies and banquets expenditure <sup>a</sup>	5.25	6.78	482	5.35	6.81	1,637
Binary ceremonies and banquets expenditure	0.39	0.49	482	0.39	0.49	1,637
Income aspirations	663,937	1,249,137	491			
Income aspirations gap	0.55	0.28	482			
Squared income aspirations gap	0.37	0.29	482			
Alt. Income aspirations <sup>b</sup>	547,229	4,509,522	498			
Alt. Income aspirations gap <sup>b</sup>	0.39	0.37	488			
Alt. squared income aspirations gap <sup>b</sup>	0.28	0.37	488			
Current monthly income	403,951	3,399,548	490			
Years of education (respondent)	4.60	3.43	503	4.32	2.65	1,059
Age (respondent)	46.07	14.10	465	51.64	14.83	1,625
Household has migrant	0.47	0.50	482	0.45	0.50	1,637
Respondent controls spending	0.57	0.50	482	0.62	0.49	1,637

*Notes:* <sup>a</sup> IHS refers to the inverse hyperbolic sine, a function that is “log-like” but is able to handle zeros (Burbidge, Magee, and Robb (1988)). <sup>b</sup> The alternative income aspirations refers to income aspirations measured in terms of “needs” rather than “wants”.

# OLS Specification

- ▶ Estimate the following linear regression

$$y_i = \alpha_0 + \alpha_1 g_i + \alpha_2 g_i^2 + \alpha_3 s_i + X_i' \Gamma + \theta_e + \epsilon_i \quad (2)$$

- ▶  $y_{ie}$  is the outcome variable of interest (HH expenditures)
- ▶  $g$  is the income aspirations gap
- ▶  $g^2$  is the squared income aspirations gap
- ▶  $s$  controls for the current level of income
- ▶  $X$  is a vector of controls
- ▶  $\theta$  is enumeration area fixed effects
- ▶  $\epsilon$  is the error term

# Semi-Parametric Specification

- ▶ Estimate the following semi-parametrically

$$y_i = \beta_0 + f(g) + \beta_2 s_i + X_i' \Xi + \phi_e + v_i \quad (3)$$

- ▶  $g$  variable enters into the equation non-parametrically
- ▶  $s$  controls for the current level of income
- ▶  $X$  is a vector of controls
- ▶  $\phi$  is enumeration area fixed effects
- ▶  $v$  is the error term

## “Peer Effect” Instrumental Variable

- ▶ Leave- $i$ -out average, calculated as:

$$\bar{g}_{-i} = z_i = \frac{(\sum_i^N g_i) - g_i}{N - 1} \quad (4)$$

$$\bar{g}_{-i}^2 = z_i^2 = \frac{(\sum_i^N g_i^2) - g_i^2}{N - 1} \quad (5)$$

- ▶  $g$  is the income aspirations gap
- ▶  $g^2$  is the squared income aspirations gap
- ▶  $N$  is the number of households in the given enumeration area

# Instrumental Variable Specification

- ▶ Estimate the following equations

$$g_i = \delta_0 + \delta_1 \bar{g}_{-i} + \delta_2 \bar{g}_{-i}^2 + \delta_3 s_i + X_i' \Omega + \tau_e + \mu_i \quad (6)$$

$$g_i^2 = \gamma_0 + \gamma_1 \bar{g}_{-i} + \gamma_2 \bar{g}_{-i}^2 + \gamma_3 s_i + X_i' \Pi + \kappa_e + \eta_i \quad (7)$$

$$y_i = \lambda_0 + \lambda_1 \hat{g}_i + \lambda_2 \hat{g}_i^2 + \lambda_3 s_i + X_i' \Psi + \chi_e + \zeta_i \quad (8)$$

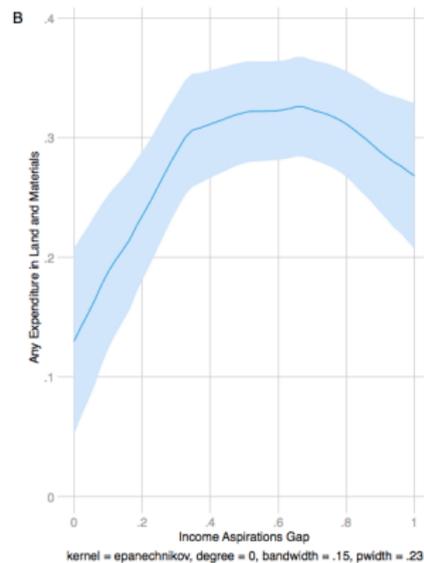
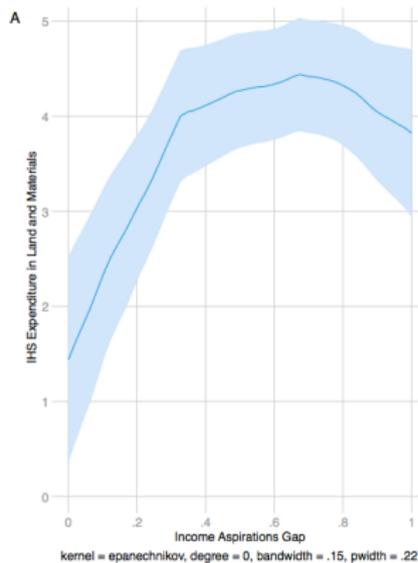
- ▶  $\hat{g}$  is the predicted value of  $g$  from equation (6)
  - ▶  $\hat{g}^2$  is the predicted value of  $g^2$  from equation (7)
  - ▶  $s$  controls for current level of income
  - ▶  $X$  is a vector of controls
  - ▶  $\tau$ ,  $\kappa$ , and  $\chi$  are enumeration area fixed effects
  - ▶  $\mu$ ,  $\eta$ , and  $\zeta$  are error terms
- ▶ Note: This is **not** Wooldridge's "forbidden regression"

# OLS Results

	(1)	(2)	(3)	(4)	(5)	(6)
	IHS	Binary	IHS	Binary	IHS	Binary
	Investment	Investment	Investment	Investment	Banquets	Banquets
Income	13.63***	0.995***			-5.452	-0.344
aspirations gap	(2.527)	(0.184)			(3.510)	(0.255)
Squared income	-11.06***	-0.847***			3.915	0.187
aspirations gap	(2.418)	(0.168)			(3.314)	(0.227)
Alt. income			9.063***	0.610***		
aspirations gap			(3.203)	(0.212)		
Squared alt. income			-9.527***	-0.677***		
aspirations gap			(2.967)	(0.198)		
Observations	445	445	445	445	445	445
R-squared	0.37	0.38	0.35	0.36	0.35	0.36
EA fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Control variables?	Yes	Yes	Yes	Yes	Yes	Yes
U-test results:						
Turning point	0.616	0.587	0.475	0.451	0.696	0.918
Fieller 95% C.I.	[0.497; 0.816]	[0.477; 0.739]	[0.315; 0.585]	[0.290; 0.549]	$[-\infty; \infty]$	$[-\infty; \infty]$
Sasabuchi p-value	0.003	0.000	0.003	0.003	0.257	0.448
Slope at Min	13.632	0.995	9.063	0.610	-5.452	-0.344
Slop at Max	-8.491	-0.700	-9.991	-0.743	2.378	0.031

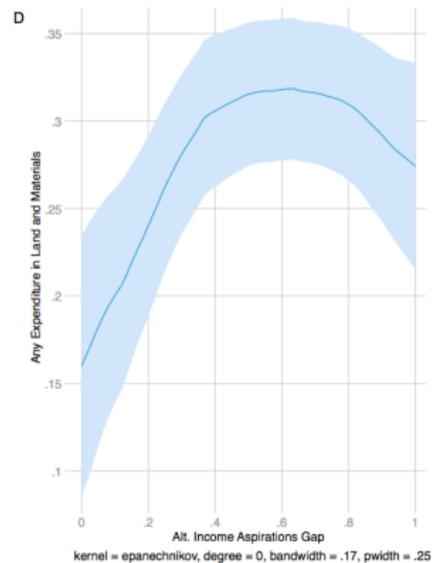
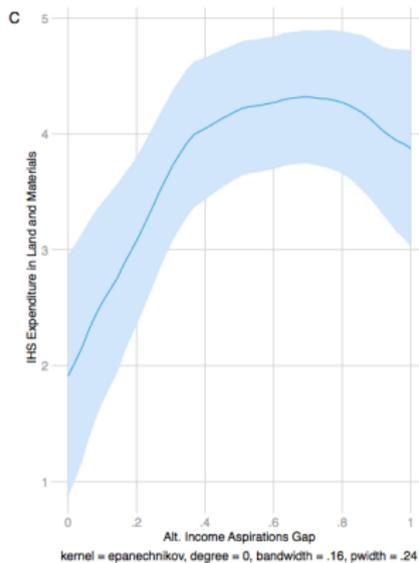
# Semi-Parametric Results

## Income aspirations gap



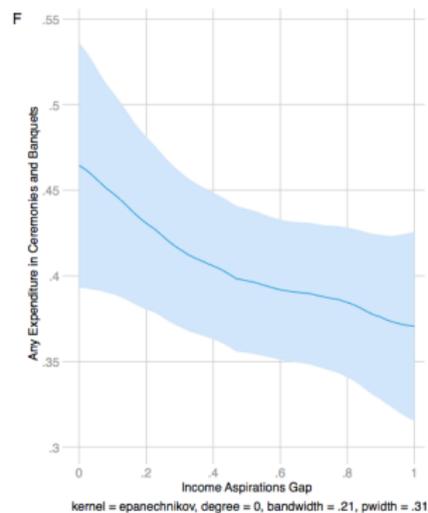
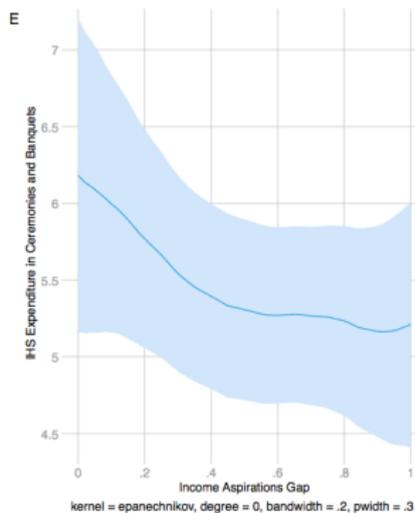
# Semi-Parametric Results

Alt. income aspirations gap



# Semi-Parametric Results

## Expenditure in ceremonies and banquets



95% CI    lpoly smooth

# Instrumental Variable Results

## First-Stage

	(1)	(2)	(3)	(4)
	Income aspirations gap	Squared income aspirations gap	Alt. Income aspirations gap	Squared alt. income aspirations gap
Peer income aspirations gap	-7.114*** (0.995)	1.327** (0.636)		
Squared peer income aspirations gap	-1.210* (0.684)	-9.781*** (0.529)		
Peer alt. income. aspirations gap			-8.756*** (0.630)	-0.132 (0.563)
Squared peer alt. income aspirations gap			-0.221 (0.671)	-8.850*** (0.808)
Observations	445	445	445	445
R-squared	0.949	0.960	0.967	0.967
EA fixed effects?	Yes	Yes	Yes	Yes
Control variables?	Yes	Yes	Yes	Yes
F-Statistic	266	340	377	376

# Instrumental Variable Results

## Second-Stage

	(1)	(2)	(3)	(4)	(5)	(6)
	IHS	Binary	IHS	Binary	IHS	Binary
	investment	investment	investment	investment	banquets	banquets
Income aspirations gap	12.371*** (2.579)	0.896*** (0.195)			-6.374** (3.164)	-0.415* (0.231)
Squared income aspirations gap	-9.923*** (2.408)	-0.760*** (0.172)			4.758 (3.048)	0.255 (0.210)
Alt. income aspirations gap			8.037*** (3.016)	0.528*** (0.203)		
Squared alt. income aspirations gap			-8.213*** (2.939)	-0.578*** (0.198)		
Observations	445	445	445	445	445	445
R-squared	0.36	0.38	0.36	0.37	0.35	0.36
EA fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Control variables?	Yes	Yes	Yes	Yes	Yes	Yes
U-test results:						
Turning point	0.623	0.589	0.489	0.457	0.670	0.814
Fieller 95% C.I.	[0.505; 0.828]	[0.478; 0.782]	[0.336; 0.644]	[0.282; 0.575]	$[-\infty; \infty]$	$[-\infty; \infty]$
Sasabuchi p-value	0.004	0.001	0.004	0.005	0.175	0.334
Slope at Min	12.371	0.896	8.037	0.528	-6.374	-0.415
Slop at Max	-7.480	-0.625	-8.389	-0.628	3.142	0.095

## Is this IV strategy credible?

- ▶ IV estimates may overstate precision and lead to invalid causal inference (Young 2018)
  - ▶ OLS with caution might be a reasonable (alternative) approach
- ▶ Unobservable selection and coefficient stability (Oster 2017)

$$\hat{\alpha} = \alpha^* - (\alpha - \alpha^*) \times \frac{R_{Max} - R^*}{R^* - R} \quad (9)$$

- ▶  $\alpha^*$  and  $R^*$  are the coefficient estimate and  $R^2$  from a “long regression” with controls
- ▶  $\alpha$  and  $R$  are the coefficient estimate and  $R^2$  from a “short regression” without controls
- ▶  $R_{Max}$  is some (assumed) maximum  $R^2$  of the specification

# Coefficient Stability and Causal Effect Bounds

## Income aspirations gap

	(1)	(2)	(3)	(4)	(5)	(6)
	Short regression	Long regression	$R_{Max} =$ $1.3R^*$	$R_{Max} =$ $R^* + (R^* - R)$	$R_{Max} =$ $2.2R^*$	$R_{Max} = 1$
<b>IHS investments</b>						
Income aspirations gap	6.031** (2.879)	13.63*** (2.527)	[13.65; 15.86]	[13.65; 21.82]	[13.65; 24.06]	[13.65; 30.16]
Squared income aspirations gap	-5.028 (2.995)	-11.06*** (2.418)	[-12.88; -11.07]	[-17.97; -11.07]	[-19.97; -11.07]	[-25.65; -11.07]
$R^2$	0.01	0.37				
$R_{Max}$			0.48	0.73	0.81	1.00
<b>Binary investments</b>						
Income aspirations gap	0.472** (0.213)	0.995*** (0.184)	[0.999; 1.15]	[0.999; 1.574]	[0.999; 1.748]	[0.999; 2.099]
Squared income aspirations gap	-0.418* (0.214)	-0.847*** (0.168)	[-0.979; -0.851]	[-1.352; -0.851]	[-1.512; -0.851]	[-1.848; -0.851]
$R^2$	0.01	0.37				
$R_{Max}$			0.48	0.72	0.81	1.00
Observations	482	445				
EA fixed effects?	No	Yes				
Control variables?	No	Yes				

# Coefficient Stability and Causal Effect Bounds

Alt. income aspirations gap

	(1)	(2)	(3)	(4)	(5)	(6)
	Short regression	Long regression	$R_{Max} =$ $1.3R^*$	$R_{Max} =$ $R^* + (R^* - R)$	$R_{Max} =$ $2.2R^*$	$R_{Max} = 1$
<b>IHS investments</b>						
Alt. Income aspirations gap	4.204 (3.157)	9.062*** (3.203)	[9.065; 10.69]	[9.065; 15.13]	[9.065; 16.96]	[9.065; 22.90]
Squared alt. income aspirations gap	-5.041* (2.992)	-9.527*** (2.967)	[-10.95; -9.529]	[-14.97; -9.529]	[-16.61; -9.529]	[-21.98; -9.529]
$R^2$	0.01	0.36				
$R_{Max}$			0.47	0.71	0.79	1.00
<b>Binary investments</b>						
Alt. Income aspirations gap	0.243 (0.213)	0.610*** (0.212)	[0.612; 0.736]	[0.612; 1.073]	[0.612; 1.228]	[0.612; 1.626]
Squared alt. income aspirations gap	-0.332 (0.203)	-0.677*** (0.198)	[-0.791; -0.678]	[-1.392; -0.678]	[-1.239; -0.678]	[-1.602; -0.678]
$R^2$	0.01	0.37				
$R_{Max}$			0.48	0.72	0.81	1.00
Observations	482	445				
EA fixed effects?	No	Yes				
Control variables?	No	Yes				

# Concluding Remarks

- ▶ Find evidence of an inverted U-shaped relationship between the aspirations gap and investment choices
  - ▶ Extending the findings of Janzen et al. (2017)
  - ▶ Add an attempt at credible causal estimates
    - ▶ “Peer effects” instrumental variable
    - ▶ Coefficient stability and causal effect bounding (Oster 2017)
- ▶ Implies the existence of both internal and external constraints to poverty alleviation in rural Myanmar
  - ▶ Suggests the existence of poverty traps
    - ▶ Well-designed and implemented programs and policies may be better than cash transfers
- ▶ Provide new evidence and validation of a method for measuring aspirations
  - ▶ Follow the method proposed by Bernard and Taffesse (2014)
  - ▶ Find consistent results across questions re: “wants” vs. “needs”

Thank you!  
Any questions and/or feedback?