The mystery of the kibbutz: how socialism succeeded

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Ran Abramitzky

Stanford University

What is my book about

- Kibbutzim, egalitarian and socialist communities in Israel, thrived for almost a century within a more capitalist society
- This is despite the gloomy predictions that such communities are likely to fail because of severe incentive problems: members are expected to shirk on each other, the brightest members are expected to exit, and only the least productive workers are expected to enter
- How did such socialist islands survive successfully within a more capitalist society?
- Specifically: Were there incentive problems in kibbutzim? How did kibbutzim thrive and provide equal sharing despite incentive problems? Why did some kibbutzim eventually shift away from equal sharing while others didn't? Did the shift away from equal sharing help kibbutzim to survive? What are the lessons from kibbutzim for other organizations and societies aiming at high degrees of redistribution?

What is my book about

- Part I: The economic history of the kibbutz
- Part II: Do kibbutz members respond to economic incentives?
- Part III: How did kibbutzim thrive despite incentive problems?
- Part IV: Why did some kibbutzim shift away from equal sharing and others not? An empirical test of the limits of equality
- Part V: Did the shift away from equal sharing reduce incentive problems?
- Part VI: Implications beyond kibbutzim

This book is in part based on my following papers:

1. "Lessons from the Kibbutz on the Equality-Incentives Trade-Off," *Journal of Economic Perspectives*, 25:1, 185-208, Winter 2011
2. "On the (lack of) Stability of Communes: An Economic Perspective," in *Oxford Handbook of the Economics of Religion* (edited by Rachel McCleary), Oxford University Press, Chapter 9, 169-189, 2011
3. "The Effect of Redistribution on Migration: Evidence from the Israeli kibbutz," *Journal of Public Economics*, 93, 498-511, 2009
4. "The Limits of Equality: Insights from the Israeli Kibbutz," *Quarterly Journal of Economics*, 123:3, 1111-1159, August 2008
5. "The Limits of Equality: An Economic Analysis of the Israeli Kibbutz," *Journal of Economic History*, 67(2), 495-499, 2007
6. "How Responsive is Investment in Schooling to Changes in Redistribution Policies and in Returns?" with Victor Lavy [current draft: April 2012]

The puzzle:

How did socialist islands thrive within a capitalist society?

Stereotypical idealistic view

- Emphasizes the role of ideology
- Founders of kibbutzim were socialist idealists who migrated from Eastern Europe to modern-day Israel
- Attempted to create a “new human being” who cared about the group more than about himself, and to challenge the selfish *homo economicus*

An economic perspective

- To an economist, thinking about incentives that selfish individuals face…, equal-sharing arrangements seem unlikely to last:

1. Shirking and free riding are likely to be prevalent (moral hazard)
2. Low-ability individuals have an incentive to enter (adverse selection)
3. High-ability members have an incentive to exit (brain drain)
4. No incentives to invest in skill (because no return…)

Kibbutzim are a good experiment to study the survival of egalitarian communities

- Voluntary (unlike Russian Kolkhoz…)
  - so incentives can play a role…
- Never at margin of society; aware of outside option
- Long-lived

- Rest of the talk:

1. Did incentive problems exist in kibbutzim?
2. How did kibbutzim survive despite these problems?
3. What are the lessons for other contexts?

Part I: The economic history of the kibbutz

[Here only brief background]

Kibbutz experiment in voluntary socialism

- Communities in Israel based on equal sharing of income and communal ownership of property
- Survived successfully over the last century; one of most honest experiments in voluntary socialism
- First kibbutz established in 1910
- Most established 1930s and 1940s
- 120,000 members, 268 kibbutzim, 2.5% of Jewish population today [population over time]
- On average: 440 members
- 80% industry/manufacturing, 20% agriculture
- By 1970s, living standards higher than Israel's average

Identifying features of kibbutzim (until recently)

- Equality (in kind vs. cash): “from ability to needs”
- Common ownership of property; kibbutz belongs to its members: factories, services, housing, etc
- Communal dining halls
- Separate communal residences for children
- Many local public goods: swimming pool, cultural center
- No use of hired labor, no private savings
- Voluntary and democratic: general meeting elected secretary, treasurer, farm manager, other officials; committees: planning, education, personal problems

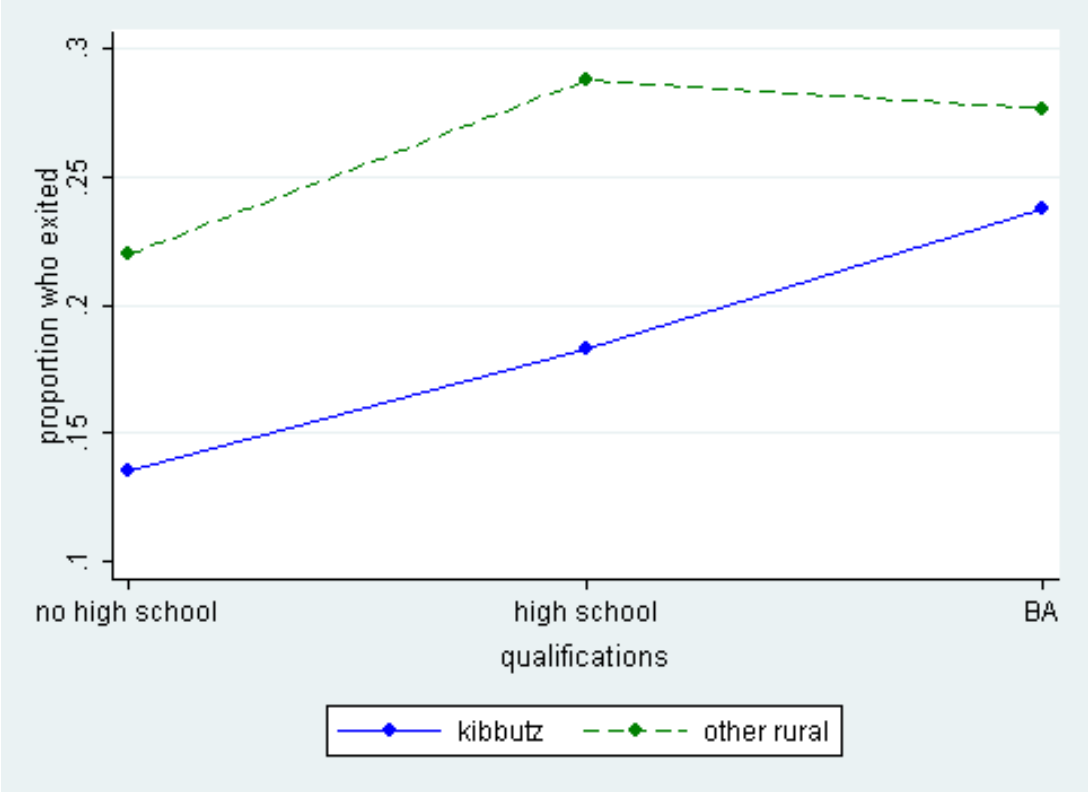
Superficial timeline

- Before 1980s: all kibbutzim were very similar
- Late 1970s: children moved to parents' homes
- Late 1980s:
  - Financial stress hit some kibbutzim more than others
  - High-tech boom in Israel increased the outside option
- Late 1990s-2000s: Many kibbutzim shifted away from equal sharing to various degrees

Part II: Do kibbutz members respond to economic incentives?

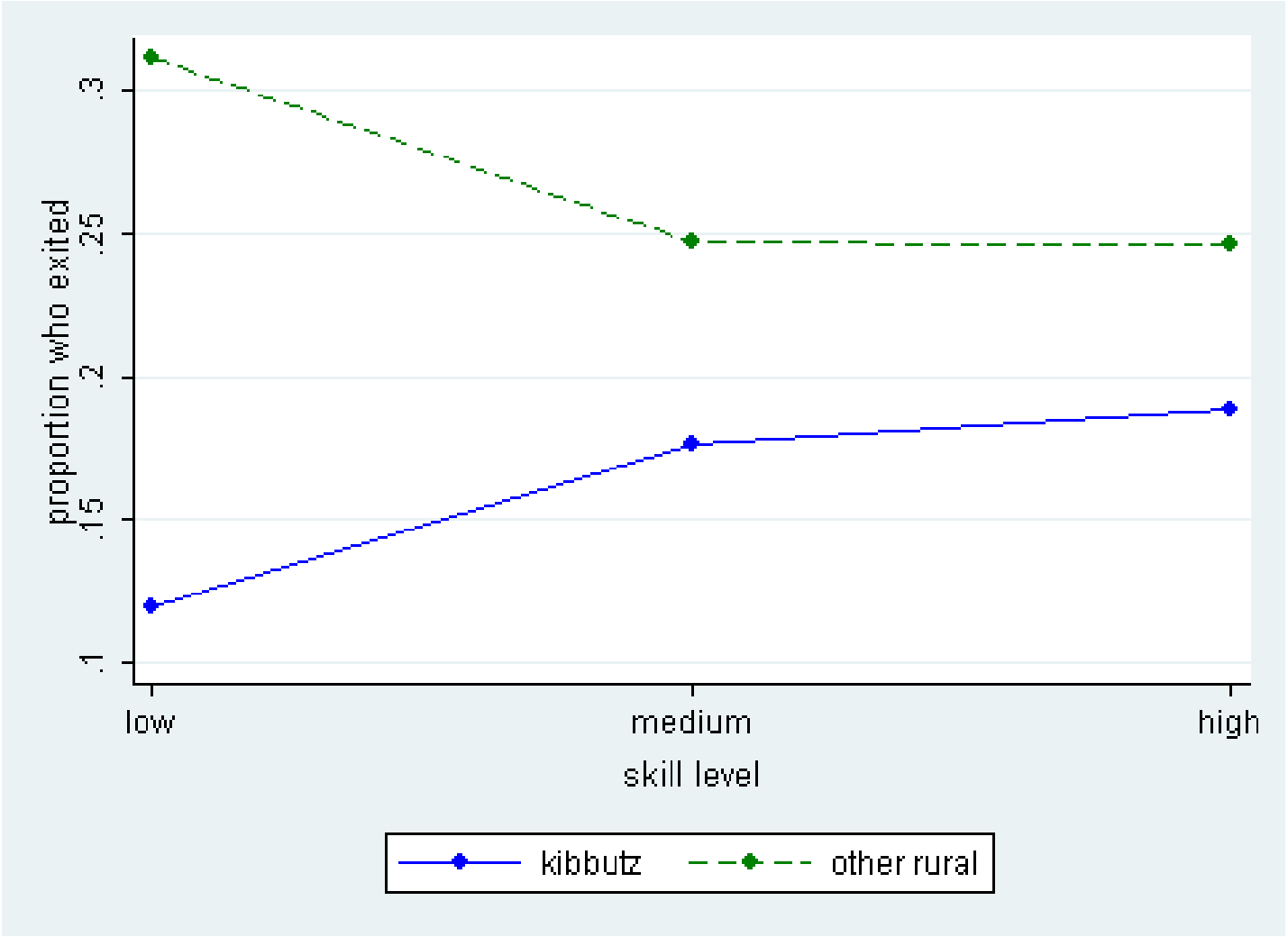
Is there “brain drain” in exit?
[Econometric analysis]

More educated are more likely to exit; skill bias stronger in kibbutzim



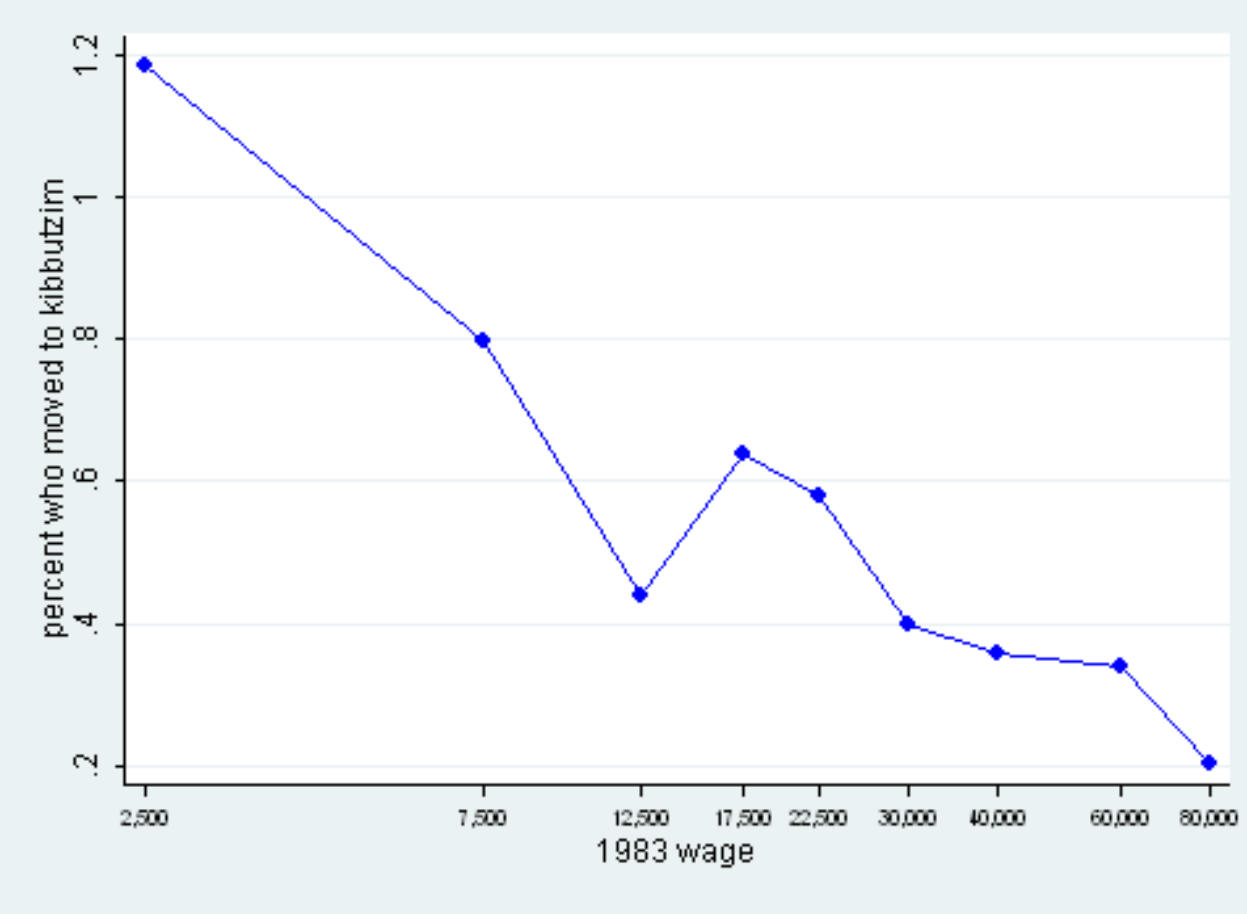
Data source: linked population censuses 1983-1995

Members with more skilled occupations more likely to exit; skill bias stronger in kibbutzim

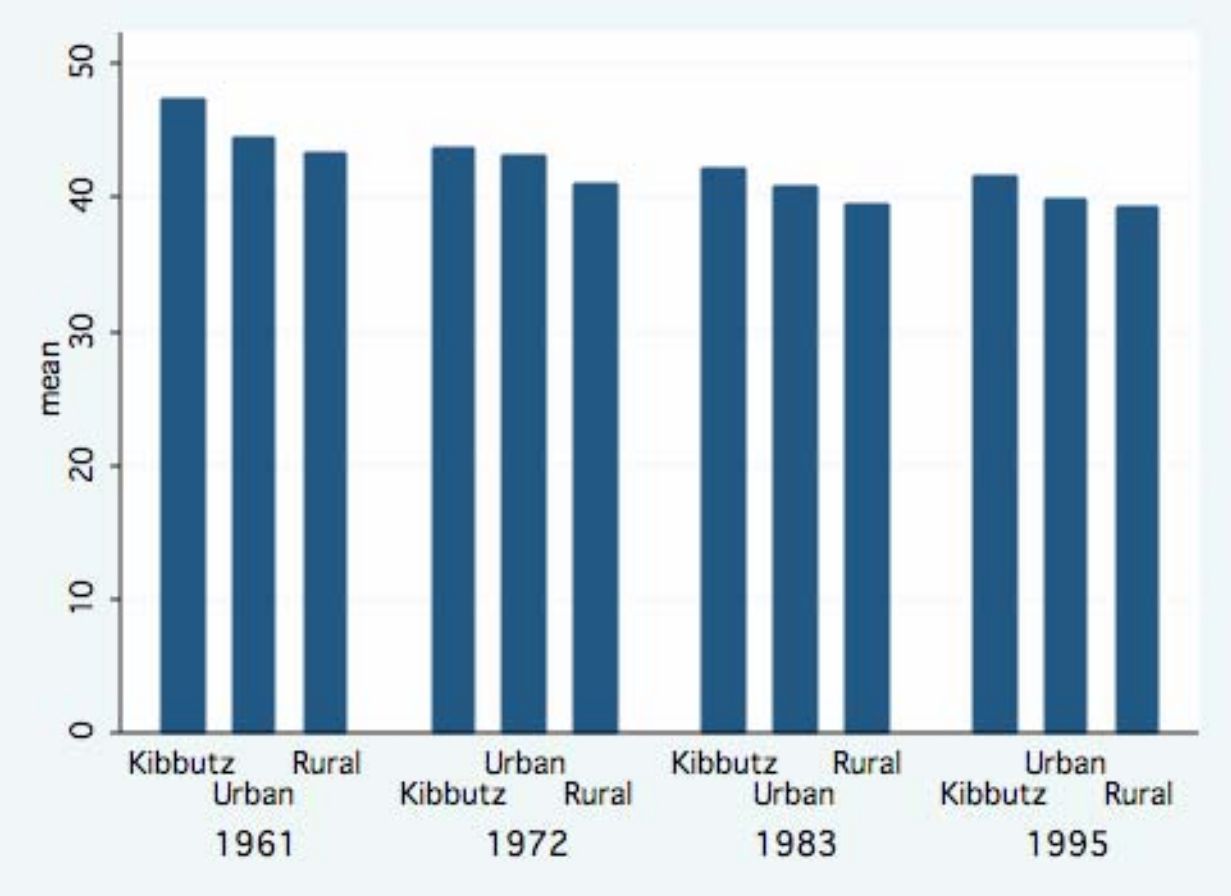


Are less productive individuals more likely to enter? [Econometric analysis]

- Individuals who earn less are more likely to enter



Is there evidence for shirking?
Kibbutz members work longer hours



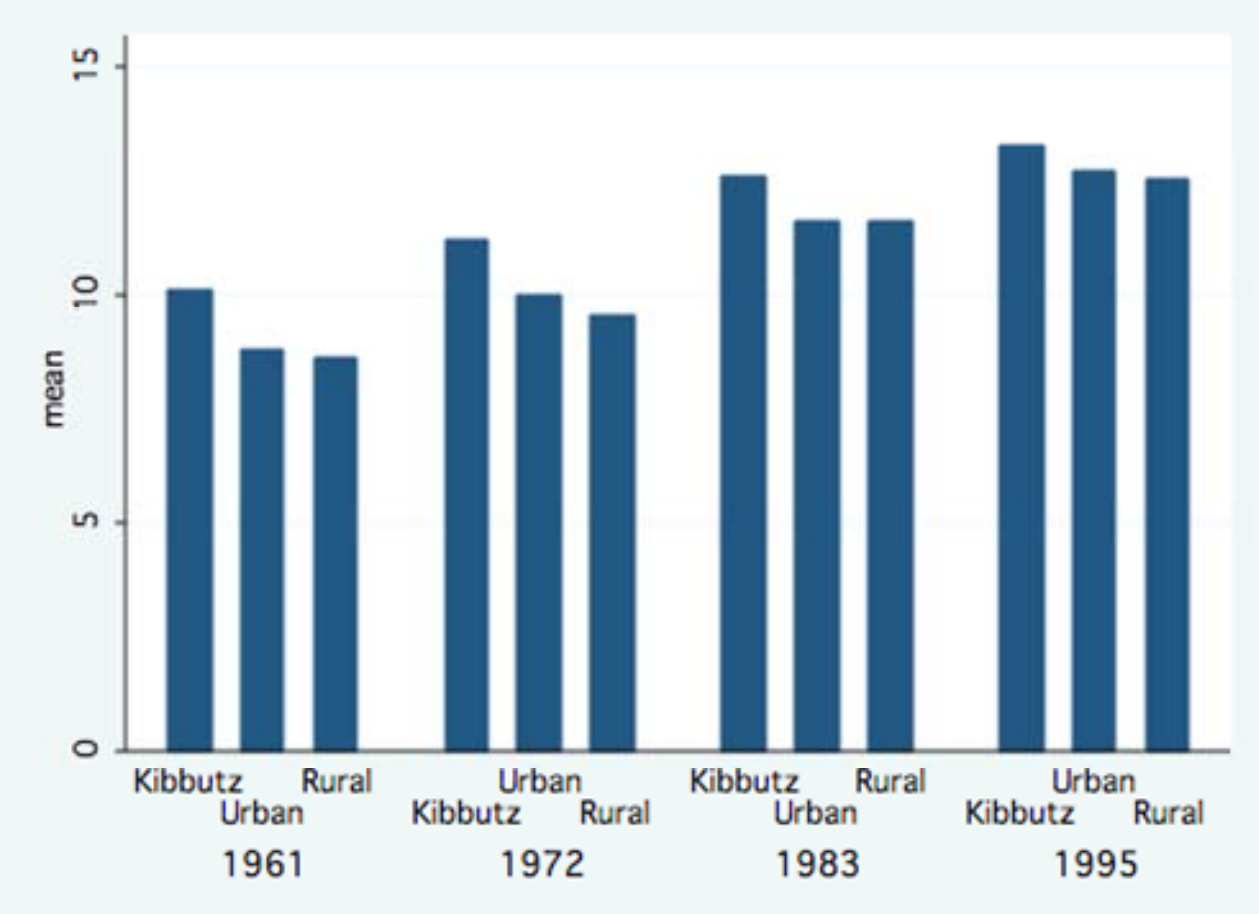
- Data source: population censuses 1961-1995

Are work ethics low in kibbutzim?

- Evidence is mixed…
- Members have always worried about “parasites” who don’t work hard and free ride on others
- Sociological studies (e.g. Palgi 1984, Shimony et al 1994) have found members actually have more work motivation than non-members

Do kibbutz members invest less in education?

- Kibbutz members are actually more educated



Part III: How did kibbutzim thrive despite incentive problems?
[detailed version]

Conceptual framework: striving for equality while mitigating incentive problems [model]

- These incentive problems do not exist in purely capitalist (no redistribution) environments…
- Equal sharing provides better insurance and safety net for poor and unfortunate…
- But incentive problems are inherent issues in an equal sharing society with an exit option
- Design society to deal with incentive issues while providing insurance

Kibbutzim's design mitigates incentive problems

- Kibbutzim actively designed their norms/institutions to deal with incentive issues
- Dealing with brain drain in exit:
  - communal property as a "bond" that increases the cost of exit
  - other lock-in devices such as local public goods
- Dealing with adverse selection in entry:
  - strict limits on entry; screening; "trial period"
  - admitting individuals with similar prospects (*ex ante* "homogeneous")
  - costly signals of commitment…

How did kibbutzim mitigate shirking?

- Social sanctions effective in small communities…

"Nobody said a word to him. But in the evening, in the dining hall, the atmosphere around him was such that the following morning he got up and left the Kvutza [Kibbutz]" (Near, 1992, p. 38)

How did kibbutzim mitigate shirking?

- Encouraging easy-to-monitor occupations (orange picking, cotton picking…)

How did kibbutzim mitigate shirking?

- Improving information flows (limited privacy, gossip)
- Increasing interaction (living in close proximity, interacting repeatedly, limiting population size)
- Rotation of prestigious leadership positions…

The role of ideology

- Ideology matters: members with strong socialist ideology don't shirk and don't leave
- Instilling ideology is key: important in avoiding opportunistic behavior
- But ideology declines with each generation, and concerns about incentives become more important
  - Living in a kibbutz becomes default rather than choice
- Ideology played a bigger role in the creation of kibbutzim, economics plays a bigger role in their persistence

Part IV: Why did some kibbutzim shift away from equal sharing and others not?

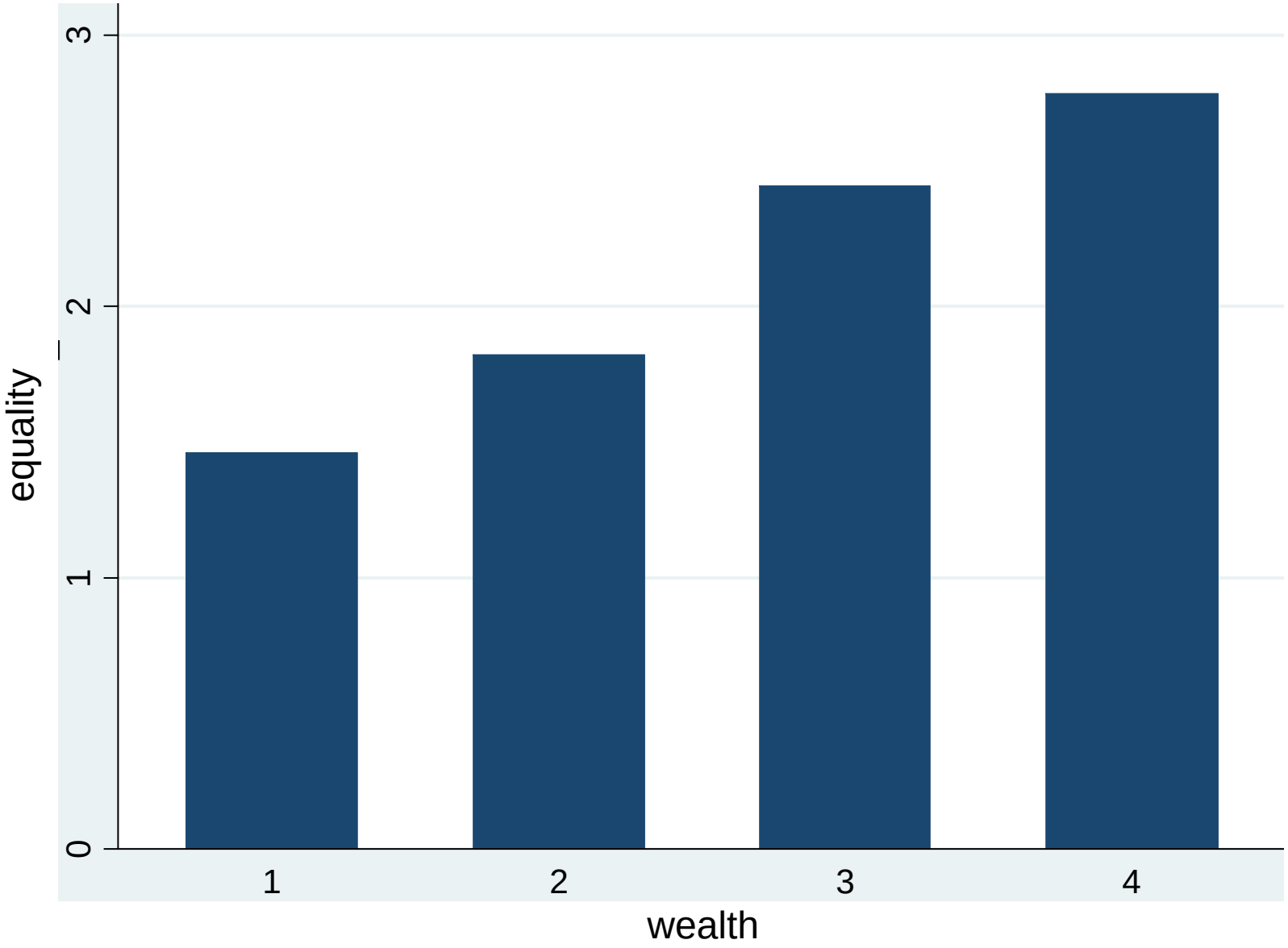
An empirical test of the limits of equality

The limits of equality: empirical test

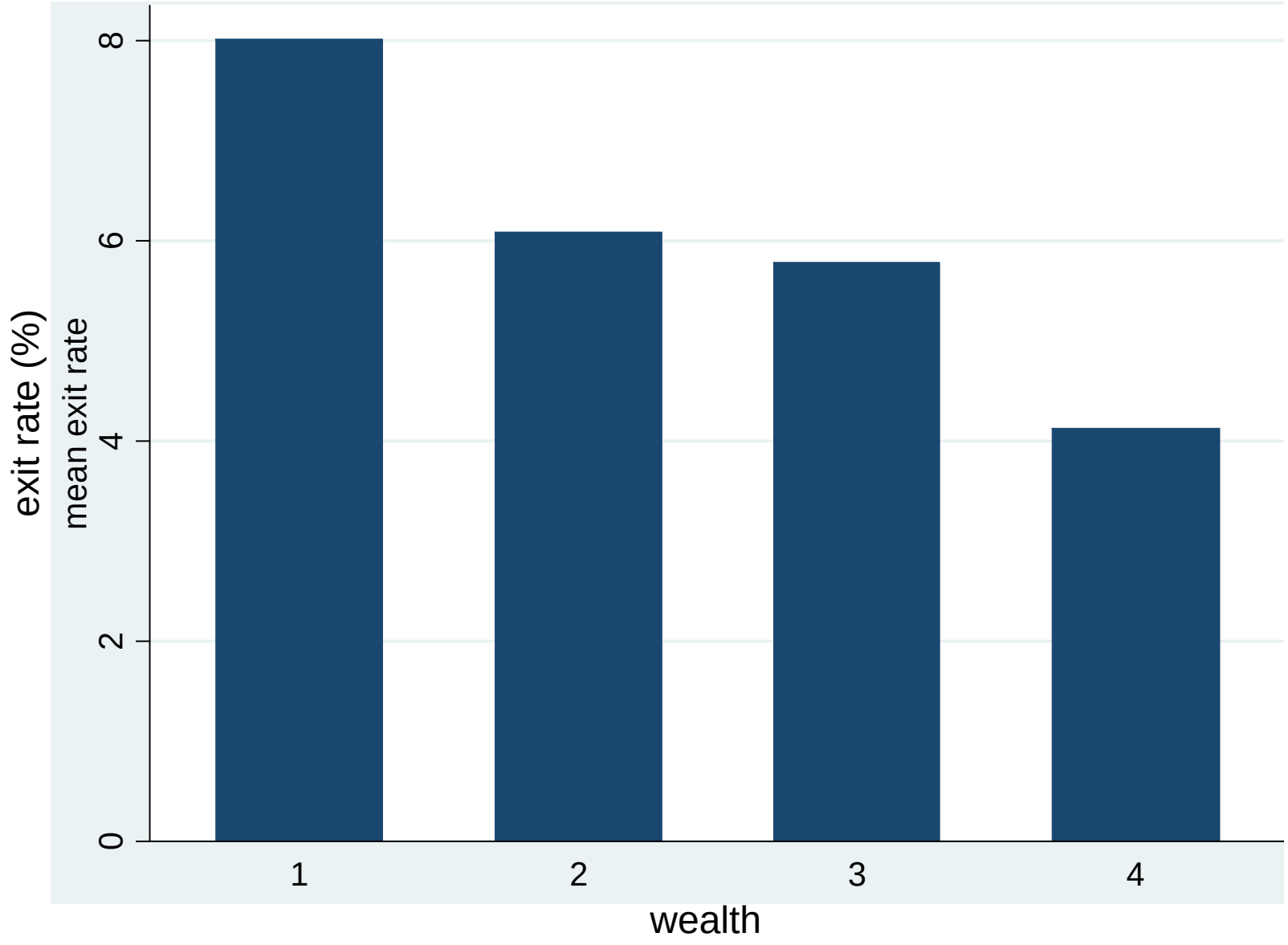
[Econometric details]

- Recent events provide opportunity to test the determinants of equality…
  - Data source: newly-assembled kibbutz-level data
- Higher communal wealth leads to more equality
  - Identification: Equality and wealth were similar pre; financial stress reduced wealth in some kibbutzim more than in others…
- Higher ideology (as measured by movement affiliation and voting for socialist parties) is associated with more equality
- No correlation between membership size and equality

Higher wealth, more equality

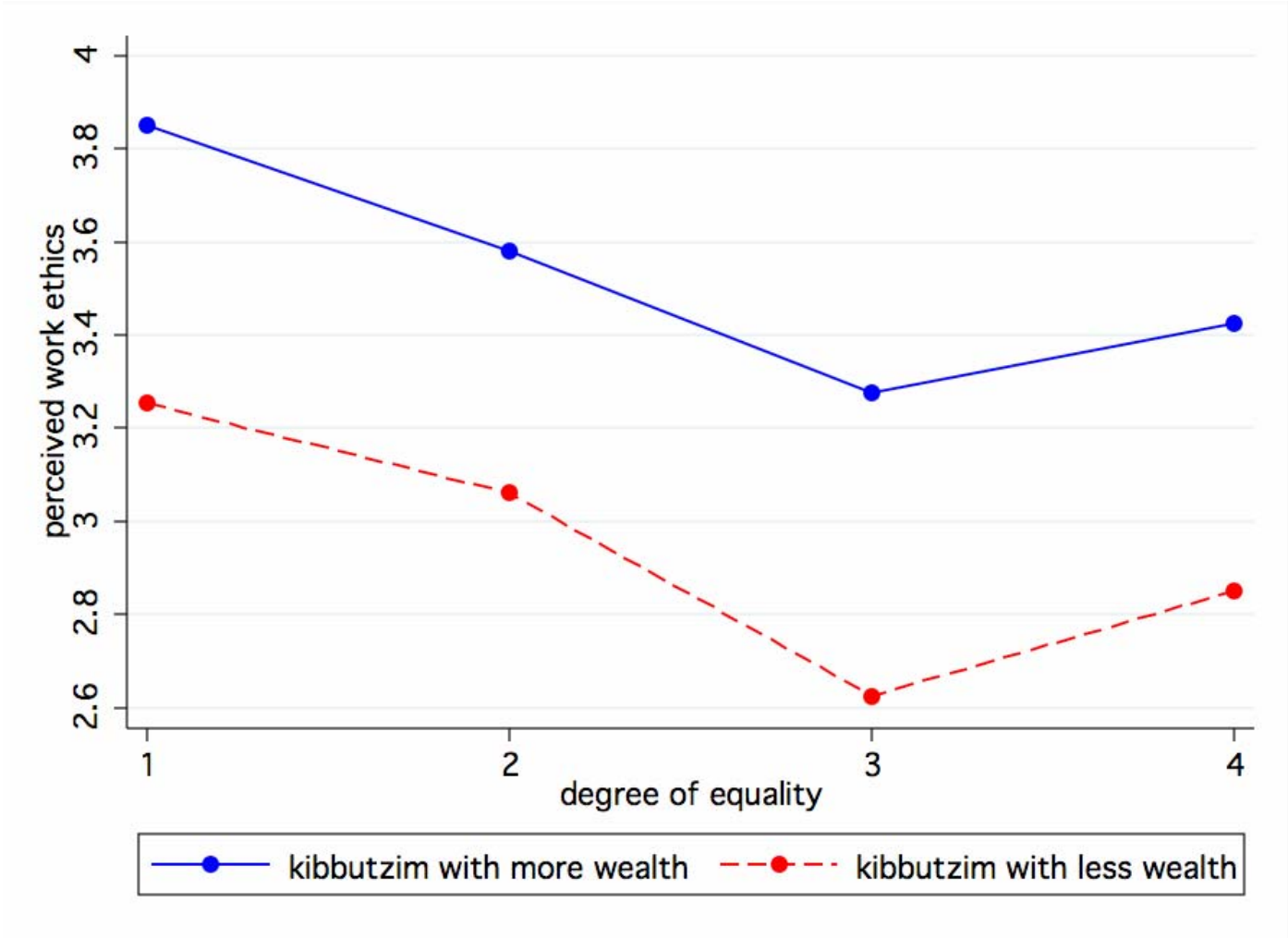


Higher wealth, lower exit rates



Part V: Did the shift away from equal sharing reduce incentive problems?

Kibbutzim with greater equality have lower work ethics

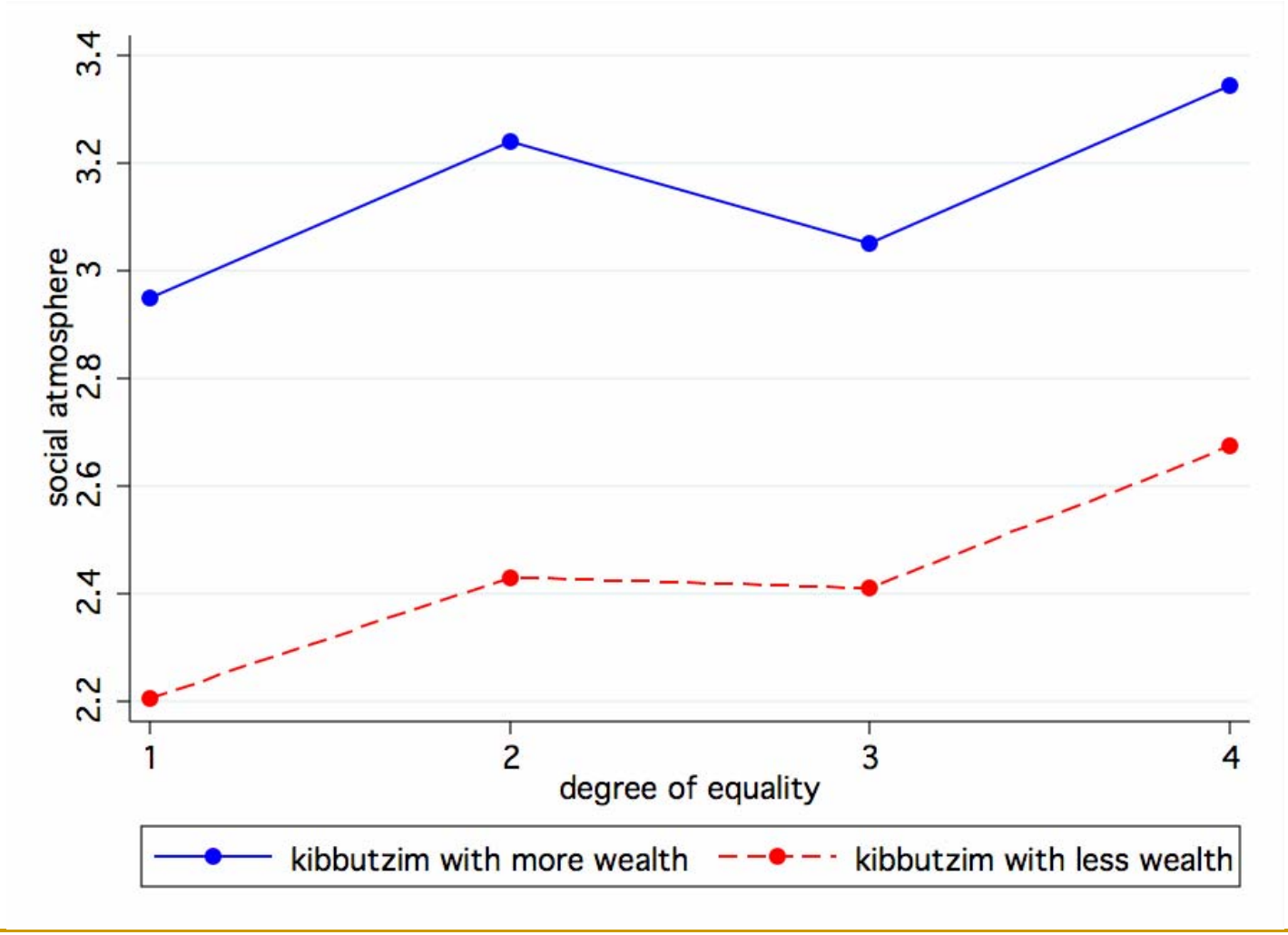


- Data source: surveys of public opinion

High school students study harder once their kibbutz shifts away from equal sharing [research details]

- Students post reform:
  - are 3% points more likely to graduate
  - are 6% points more likely to achieve a matriculation certificate that meets university entrance requirements
  - get an average of 3.6 more points in their exams
- Effect is: driven by students whose parents have low schooling; larger for males; stronger in kibbutzim that reformed to greater degree

But… kibbutzim with greater equality have better social atmosphere



Part VI: Implications beyond kibbutzim

Implications beyond kibbutzim

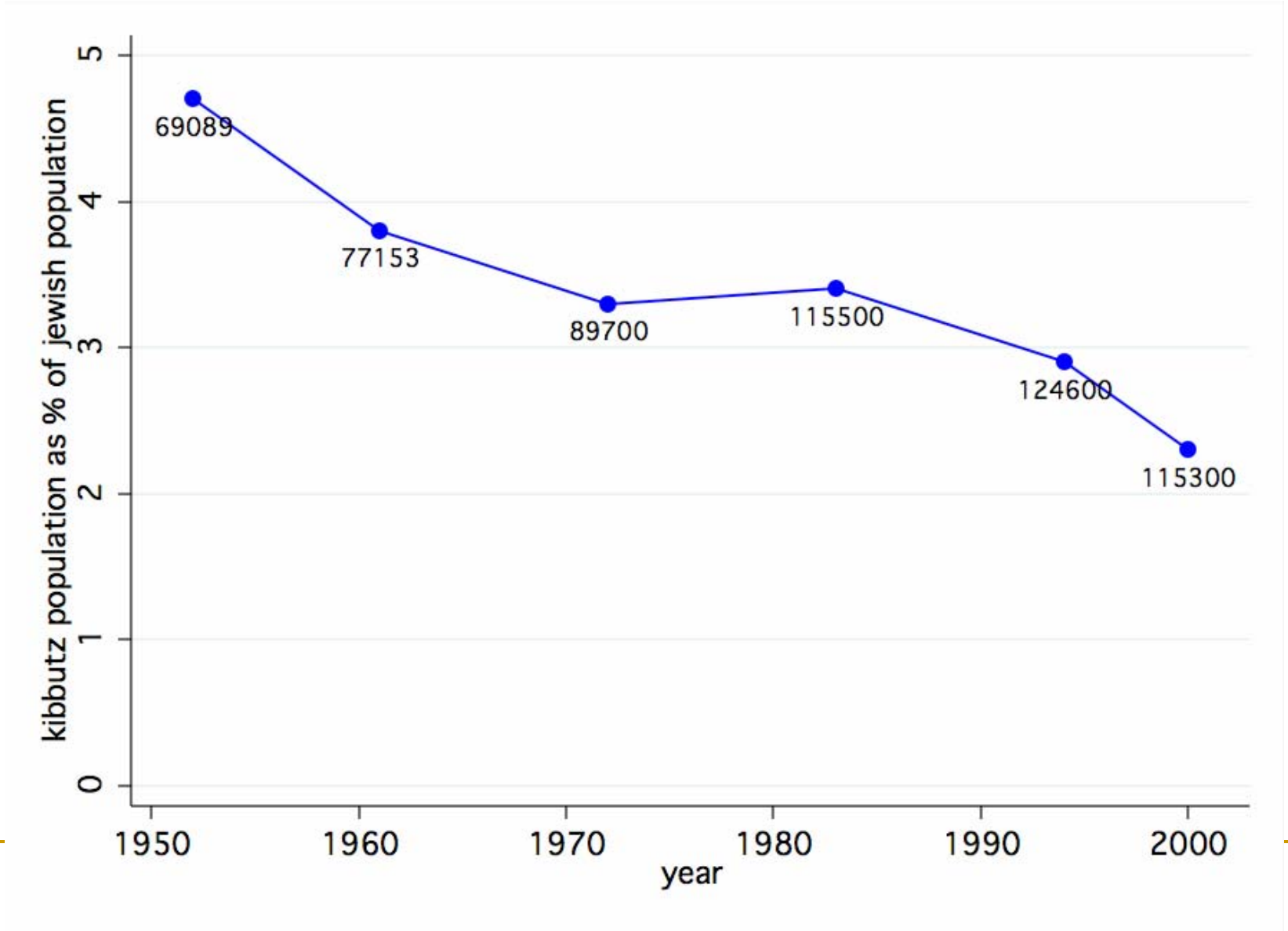
- Equality-incentives tradeoff is central. Lessons for:

1. Other communes ; hunters and gatherers
2. Organizations: professional partnerships, labor managed firms, cooperatives, academic departments…
3. Communist countries, welfare states
4. Migration: selection of migrants
5. Development: village economies and group lending in developing countries
6. Public: mobility limits redistribution
7. Problem of “commons”: common ownership of property as a solution rather than only a problem…

THE END

Links from presentation to details

Kibbutz population [back]



A model of kibbutzim [back][1/3]

A model of kibbutzim [back][2/3]

- Social planner offers contracts to maximize utility of *ex ante* identical members (who give in their assets to the planner)
- Social planner is subject to (BC), (PC), (IC; solved assuming Kendel and Lazear 1992 cost of shirking)
- Planner's wealth increases cost of exit and facilitates equal sharing
- Presence of ideologically committed members facilitates equal sharing

A model of kibbutzim: insurance vs. participation [back][3/3]

- ***Ex ante*, individuals with similar expected ability would like insurance**

  "The main characteristic of the kibbutzim (at the outset) was homogeneity. Kibbutzim were established by young unattached individuals who shared a comparatively long period of social, ideological and vocational training" (Talmon, 1972, p.2)

- **But, *ex post*, members who realize they are more productive than average might leave**

- **To allow equal sharing, members "post a bond" that makes exit costly: give all private property to the kibbutz**: "Each Kibbutz member must live inside the Kibbutz, bring to the possession of the Kibbutz… any income and assets he owns and/or receives from any source" (Kibbutz's bylaws)

Brain drain: Econometric details [back] [1/7]

Summary statistics: movers are more educated and skilled [back] [2/7]

TABLE 1
Summary statistics

Variable	(1) Stayed in Kibbutz	(2) Kibbutz-to-city migrants	(3) Kibbutz-to-other rural migrants	(4) City natives	(5) City-to-kibbutz migrants	(6) City-to-other rural migrants
1983 monthly earnings	-	-	-	32,120	25,877	31,211
				(20,276)	(18,168)	(20,111)
At least high school diploma	0.500	0.615	0.630	0.507	0.642	0.692
	(0.500)	(0.488)	(0.486)	(0.500)	(0.481)	(0.462)
High-skill	0.084	0.099	0.099	0.141	0.066	0.149
	(0.278)	(0.300)	(0.300)	(0.348)	(0.250)	(0.357)
Low-skill	0.226	0.149	0.086	0.084	0.073	0.061
	(0.418)	(0.357)	(0.283)	(0.277)	(0.261)	(0.239)
Age	36.295	29.500	29.963	33.327	26.570	28.434
	(8.719)	(7.900)	(7.279)	(8.719)	(5.998)	(6.574)
Age squared	1393.3	932.4	950.1	1186.7	741.7	851.7
	(648.8)	(532.0)	(477.6)	(618.1)	(363.4)	(423.5)
Male	0.494	0.550	0.543	0.576	0.556	0.533
	(0.500)	(0.498)	(0.501)	(0.494)	(0.498)	(0.499)
Married	0.796	0.523	0.704	0.743	0.344	0.641
	(0.403)	(0.500)	(0.459)	(0.437)	(0.477)	(0.480)
Family Size	3.570	2.576	3.136	4.068	3.311	3.687
	(1.627)	(1.663)	(1.730)	(1.506)	(1.588)	(1.528)
Born in Israel	0.669	0.752	0.654	0.538	0.775	0.731
	(0.471)	(0.433)	(0.479)	(0.499)	(0.419)	(0.444)
Israel's north region	0.524	0.508	0.568	0.072	0.066	0.105
	(0.500)	(0.501)	(0.498)	(0.259)	(0.250)	(0.307)
Israel's south region	0.199	0.256	0.259	0.118	0.139	0.105
	(0.400)	(0.437)	(0.441)	(0.323)	(0.347)	(0.307)
Observations	1,234	262	81	20,617	151	610

Wage-based measure of skill [back] [3/7]

- Predicted log earnings upon moving
- 1995 city log earnings expected by a mover with certain 1983 observable characteristics
- OLS regression of 1995 city log earnings on education, occupation (high/low skill), and controls

Kibbutz leavers are more skilled than stayers; skill bias in exit from kibbutzim stronger than from other rural localities [back] [4/7]

TABLE 2

Exit from kibbutzim and other rural areas (logit and multinomial logit regressions), 1983-1995

	(1)	(2)	(3)		(4)	(5)	(6)	(7)
	Logit of exit from kibbutz		Multinomial logit of exit from kibbutz to:		Logit of exit to city of kibbutz members relative to residents of:			
			city	other rural	other rural areas		other non-metropolitan rural	
Variable								
Kibbutz*Predicted 1995 log earnings					0.777**	0.413*	0.965***	0.461**
					(0.326)	(0.223)	(0.334)	(0.229)
Kibbutz					-6.863**	-3.602*	-8.396***	-3.920**
					(2.772)	(1.900)	(2.838)	(1.954)
Predicted 1995 log earnings		1.922***	1.900***	1.986***	0.177	1.306***	-0.01	1.238***
		(0.284)	(0.314)	(0.500)	(0.225)	(0.222)	(0.237)	(0.232)
At least high school diploma	0.656***							
	(0.144)							
High-skill	0.502**							
	(0.233)							
Low-skill	-0.682***							
	(0.197)							
Age (/10)	-2.416***	-3.901***	-3.843***	-4.224***		-3.095***		-3.035***
	(0.744)	(0.797)	(0.865)	(1.550)		(0.517)		(0.536)
Age squared (/100)	0.201*	0.410***	0.413***	0.414*		0.329***		0.311***
	(0.103)	(0.110)	(0.120)	(0.218)		(0.073)		(0.076)
Male	0.137	-0.980***	-0.982***	-0.958**		-0.894***		-0.854***
	(0.144)	(0.224)	(0.247)	(0.399)		(0.146)		(0.149)
Married	-0.391*	-0.478**	-0.608**	0.035		-0.753***		-0.760***
	(0.228)	(0.229)	(0.253)	(0.410)		(0.124)		(0.126)
Family Size	-0.002	0.027	-0.002	0.119		0.041		0.051*
	(0.071)	(0.071)	(0.079)	(0.124)		(0.027)		(0.027)
Born in Israel	-0.297*	-0.492***	-0.382**	-0.798***		-0.506***		-0.494***
	(0.157)	(0.160)	(0.180)	(0.268)		(0.112)		(0.116)
Region dummies	Yes	Yes	Yes	Yes		Yes		Yes
Predicted Probability	0.175	0.176	0.134	0.039		0.212		0.202
Observations	1,577	1,577	1,577		3,091	3,091	3,044	3,044

Positive selection in exit: unobservables (e.g. motivation) [back] [5/7]

- Are kibbutz leavers positively selected in their *ex ante*-unobservable abilities? Specifically,

1. Do kibbutz migrants earn more than similar city "natives"?
2. Do kibbutz migrants earn more than similar other migrants?

$$ln(wage)_i = \alpha + \beta' X_i + \delta_1 KibbutzMigrant_i + \delta_2 AnyRuralMigrant_i + \varepsilon_i$$

Earnings in 1995 as function of 1983 characteristics

- Are these effects stronger for the less educated?

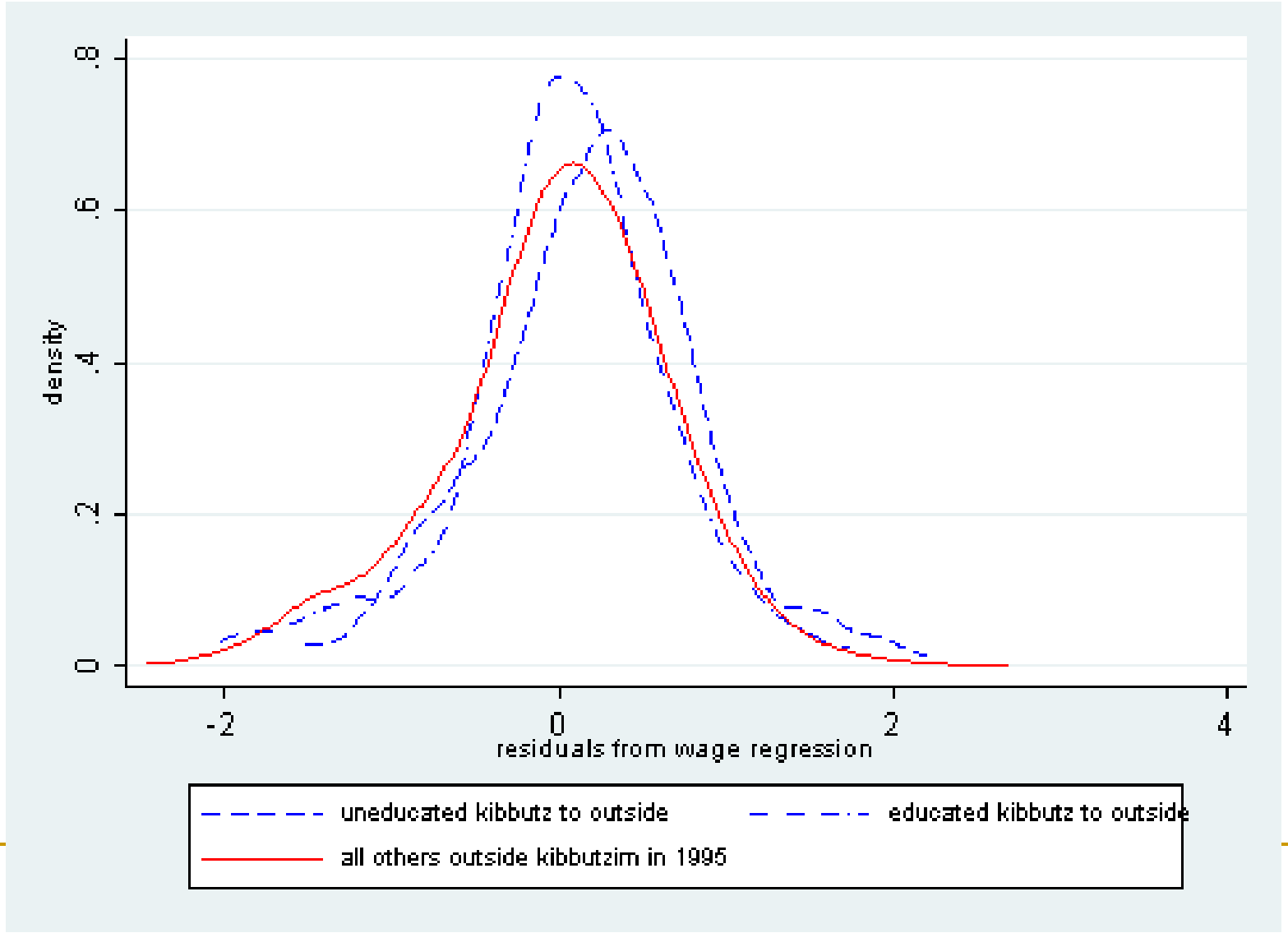
Kibbutz migrants earn more than city natives; and earn more than other rural migrants [back] [6/7]

TABLE 3

Earnings in 1995 of kibbutz-to-city migrants vs. other rural-to-city migrants (OLS regression)

	(1)	(2)	(3)	(4)	(5)	(6)
	Comparing kibbutz migrants with:					
Variable	city natives	city natives	other rural migrants		other rural migrants from outside metropolitan areas	
Kibbutz migrant	0.068	0.181***	0.098*	0.170**	0.110**	0.169*
	(0.043)	(0.068)	(0.054)	(0.086)	(0.055)	(0.087)
Kibbutz migrant*At least high school diploma		-0.184**		-0.113		-0.088
		(0.086)		(0.111)		(0.112)
Any migrant			-0.032	0.011	-0.044	0.012
			(0.035)	(0.054)	(0.037)	(0.055)
Any migrant*At least high school diploma				-0.073		-0.099
				(0.071)		(0.073)
At least high school diploma	0.357***	0.359***	0.357***	0.361***	0.358***	0.362***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
High-skill	0.363***	0.362***	0.363***	0.362***	0.363***	0.362***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Low-skill	-0.226***	-0.226***	-0.226***	-0.226***	-0.226***	-0.226***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Age (/10)	0.870***	0.871***	0.869***	0.871***	0.869***	0.871***
	(0.042)	(0.042)	(0.042)	(0.042)	(0.042)	(0.042)
Age squared (/100)	-0.121***	-0.121***	-0.121***	-0.121***	-0.121***	-0.121***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Male	0.600***	0.600***	0.601***	0.601***	0.601***	0.601***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Born in Israel	0.113***	0.113***	0.113***	0.113***	0.113***	0.113***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.264	0.264	0.265	0.265	0.265	0.265
Observations	21,150	21,150	21,132	21,132	21,132	21,132

Kernel densities of 1995 wages of kibbutz-to-outside movers and others outside, 1995 [back] [7/7]



Adverse selection: Econometric details [back] [1/5]

Individuals with higher wages are less likely to enter a kibbutz – logit of entry [back] [2/5]

TABLE 4

Entry to kibbutz vs. moving from city to other rural areas (logit and multinomial logit regressions), 1983-1995

	(1)	(2)	(3)		(4)	
	Logit of moving to kibbutz		Multinomial logit of moving from city to:			
Variable	from either city or other rural area		kibbutz	other rural area	kibbutz	other rural area
Pre-entry (1983) log wage (/10)	-4.285***	-2.678*	-4.240***	-0.941	-2.073	0.215
	(1.241)	(1.381)	(1.335)	(0.649)	(1.506)	(0.769)
At least high school diploma		0.842***			0.692***	0.785***
		(0.246)			(0.265)	(0.118)
High-skill		-0.556			-0.396	0.151
		(0.373)			(0.379)	(0.140)
Low-skill		0.164			0.181	0.002
		(0.362)			(0.386)	(0.198)
Age (/10)		2.406*			2.614	-0.584
		(1.436)			(1.626)	(0.605)
Age squared (/100)		-0.410*			-0.466*	-0.027
		(0.221)			(0.253)	(0.089)
Male		0.363			0.209	0.173
		(0.225)			(0.241)	(0.110)
Married		-0.891***			-0.855***	0.214*
		(0.244)			(0.264)	(0.128)
Family size		-0.205***			-0.245***	-0.107***
		(0.074)			(0.083)	(0.038)
Born in Israel		1.010***			0.866***	0.377***
		(0.288)			(0.300)	(0.116)
Region dummies	No	Yes	No	No	Yes	Yes
Predicted Probability	0.005	0.003	0.005	0.026	0.002	0.019
Observations	16,789	16,789	15,948		15,948	

Alternative test for negative selection in entry [back] [3/5]

- Do kibbutz entrants earn lower pre-entry wages than non-entrants?

- Do kibbutz entrants earn lower pre-entry wages than other city-to-rural migrants?

Pre-entry earnings (with and without interaction with education):

$$ln(wage)_i = \alpha + \beta' X_i + \delta_1 \left(KibbutzEntrant \right)_i + \delta_2 (AnyRuralEntrant)_i + \varepsilon_i$$

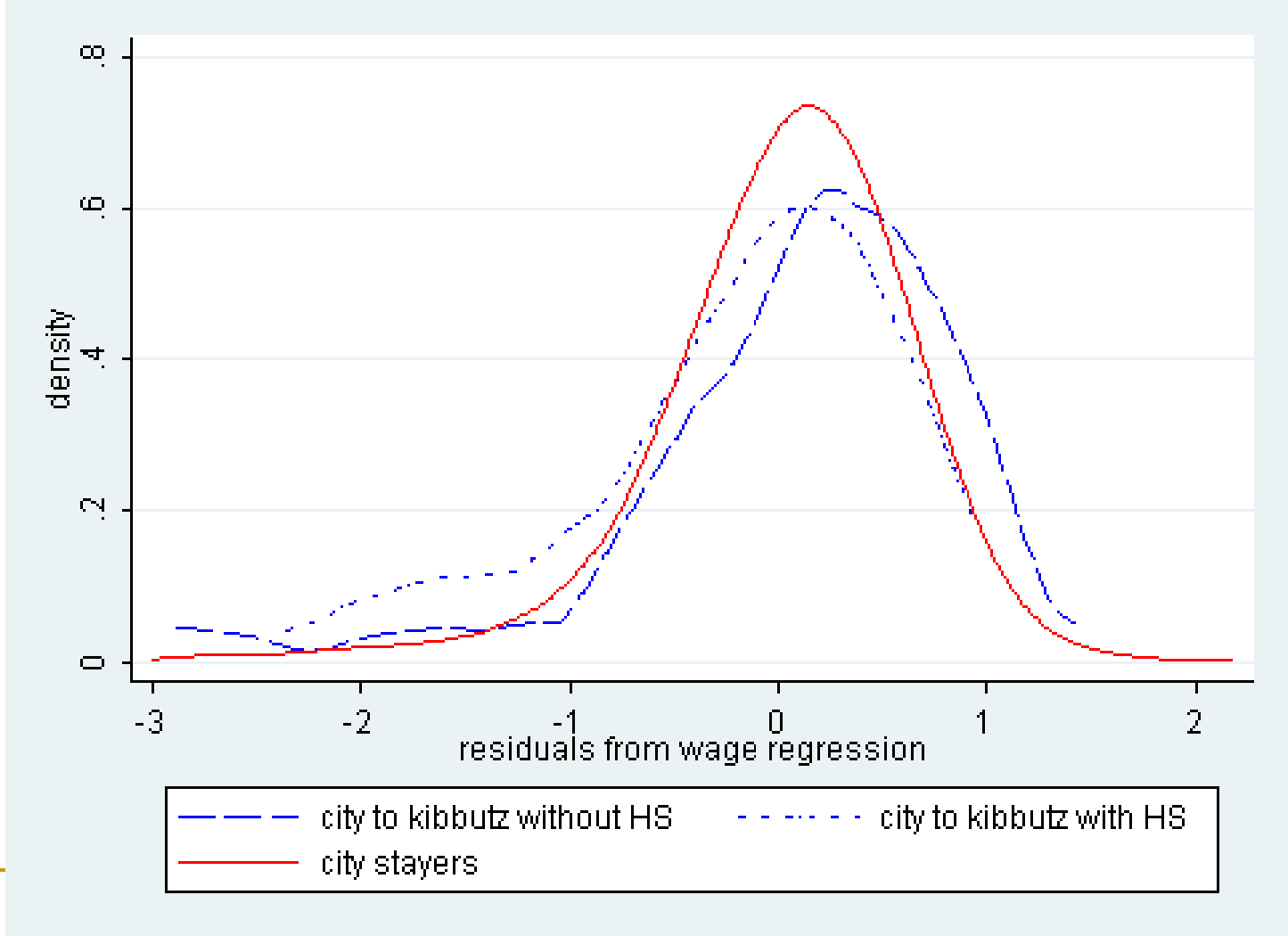
Kibbutz entrants earn less than non-entrants; earn less than other migrants [back] [4/5]

TABLE 5

Pre-entry earnings of city-to-kibbutz migrants, city-to-other rural migrants, and non-migrants (OLS regression), 1983

	(1)	(2)	(3)	(4)	(5)	(6)
	Comparing kibbutz entrants with:					
	non-entrants			city-to-other rural migrants		
Variable						
Entered kibbutz	-0.027***	-0.016**	0.003	-0.022**	-0.016**	-0.016
	(0.009)	(0.007)	(0.013)	(0.009)	(0.008)	(0.014)
Entered kibbutz * At least school diploma			-0.028*			-0.000
			(0.016)			(0.017)
Any migrant				-0.005	-0.000	0.019***
				(0.004)	(0.003)	(0.006)
Any migrant * At least high school diploma						-0.028***
						(0.007)
At least high school diploma		0.021***	0.021***		0.021***	0.021***
		(0.001)	(0.001)		(0.001)	(0.001)
High-skill		0.028***	0.028***		0.028***	0.028***
		(0.001)	(0.001)		(0.001)	(0.001)
Low-skill		-0.027***	-0.027***		-0.027***	-0.027***
		(0.002)	(0.002)		(0.002)	(0.002)
Age		0.112***	0.112***		0.112***	0.112***
		(0.005)	(0.005)		(0.005)	(0.005)
Age squared		-0.013***	-0.013***		-0.013***	-0.013***
		(0.001)	(0.001)		(0.001)	(0.001)
Male		0.054***	0.054***		0.054***	0.054***
		(0.001)	(0.001)		(0.001)	(0.001)
Born in Israel		0.007***	0.007***		0.007***	0.007***
		(0.001)	(0.001)		(0.001)	(0.001)
Region dummies	No	Yes	Yes	No	Yes	Yes
R^2	0.001	0.279	0.279	0.001	0.279	0.280
Observations	15,948	15,948	15,948	15,948	15,948	15,948

Kernel densities of 1983 wages of kibbutz entrants and city stayers [back] [5/5]



How do I measure equality? [back]

Kibbutzim self-categorized into 4 categories:

- **Equal-sharing**: “Traditional Kibbutz” (15%)
- **Wide safety net**: “Combined model” (35%)
- **Narrow safety net**: “Safety net model” (49%)
- **No safety net**: “Community settlement” (<1%)

Investment in human capital: Research design [back][1/20]

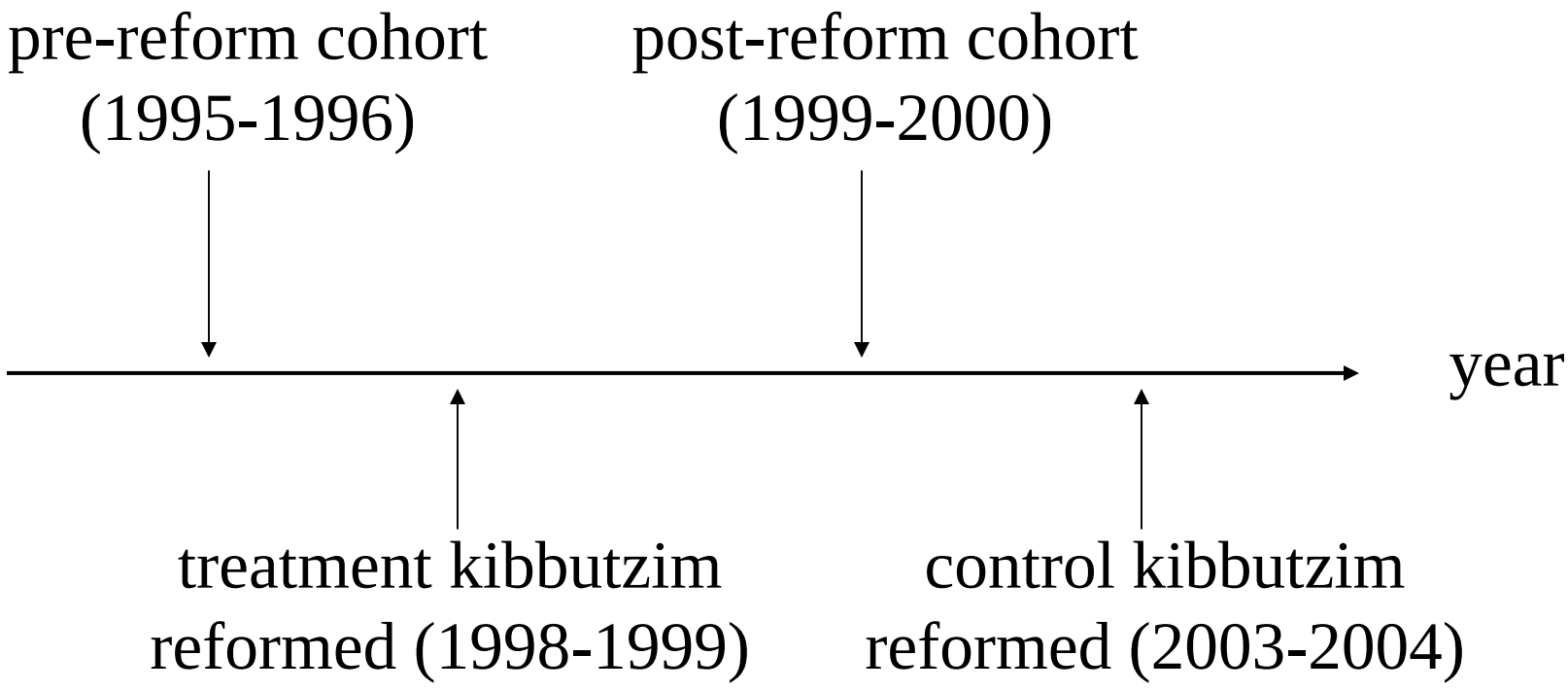
How responsive is education to changes in return? [back][2/20]

Difference-in-differences approach:

1st diff (treatment/control): students in kibbutzim that reformed:

(a) early are “treatment group”, (b) late are “control group”

2nd diff (post/pre): affected vs. unaffected cohorts of students



Investment in human capital: Tables [back][3/20]

Example: wage by education of all working members in one particular kibbutz pre and post reform (T1) [back][4/20]

		Pre reform	Post reform	
	Obs	Mean/Median wage	Mean wage	Median wage
High school	44	8,661	7,980	6,929
BA	36	8,661	8,592	7,695
MA	20	8,661	10,060	9,750
PhD	2	8,661	10,881	10,881

Post reform wage by education of all working members in 2 kibbutzim (T2). **Dep Var: Ln(wage)** [back][5/20]

Years of schooling	0.080	0.083		
	(0.021)	(0.021)		
High school			Omitted	Omitted
BA			0.318	0.306
			(0.088)	(0.090)
MA			0.443	0.456
			(0.135)	(0.135)
PhD			0.584	0.639
			(0.283)	(0.285)
Age and Age^2	No	Yes	No	Yes
Kibbutz FE	Yes	Yes	Yes	Yes

Distribution of kibbutzim and students, by year of reform and cohort (T3) [back][6/20]

	Year of reform	
	1998-2000	2003-2004
	Treatment	Control
A. 10th grade students in 1995-1996		
Kibbutzim	74	33
Students	1,100	601
B. 10th grade students in 1999-2000		
Kibbutzim	74	33
Students	1,043	605

Balancing tests: students' characteristics (T4)[back][7/20]

10th grade students in:	1995 and 1996			1999 and 2000		
	Treatment	Control	Difference	Treatment	Control	Difference
Male	0.495 (0.500)	0.507 (0.500)	-0.013 (0.027)	0.523 (0.500)	0.536 (0.499)	-0.012 (0.023)
Father's years of schooling	13.26 (2.776)	13.59 (2.841)	-0.328 (0.264)	13.60 (2.525)	14.12 (2.973)	-0.523 (0.419)
Mother's years of schooling	13.42 (2.47)	13.71 (2.44)	-0.292 (0.174)	13.94 (2.23)	14.08 (2.25)	-0.140 (0.229)
Number of siblings	2.56 (1.357)	2.65 (1.358)	-0.094 (0.199)	2.53 (1.249)	2.77 (1.581)	-0.239 (0.280)
Ethnic origin: Africa/Asia	0.105 (0.306)	0.103 (0.304)	0.001 (0.016)	0.091 (0.228)	0.079 (0.270)	0.012 (0.021)
Ethnic origin: Europe/America	0.346 (0.476)	0.379 (0.486)	-0.033 (0.035)	0.360 (0.480)	0.306 (0.461)	0.054 (0.033)
Immigrants from non-FSU countries	0.016 (0.127)	0.015 (0.122)	0.001 (0.006)	0.013 (0.115)	0.013 (0.114)	0.000 (0.006)
Immigrants from FSU countries	0.013 (0.112)	0.017 (0.128)	-0.004 (0.007)	0.031 (0.173)	0.023 (0.150)	0.008 (0.009)

Balancing tests: pre-reform outcomes (T4)

[back][8/20]

10th grade students in 1995 and 1996

	Treatment	Control	Difference
High school completion	0.951 (0.216)	0.967 (0.180)	-0.016 (0.011)
Mean matriculation score	70.62 (23.25)	72.48 (21.04)	-1.862 (1.309)
Matriculation certification	0.549 (0.498)	0.569 (0.496)	-0.020 (0.036)
University qualified matriculation	0.516 (0.500)	0.536 (0.499)	-0.019 (0.035)

Treatment-control and between-cohort differences in students' exit rates (T5) [back][9/20]

10th grade students in	Treatment	Control	*Difference*
1995-96	0.056 (0.231)	0.042 (0.200)	*0.015* *(0.016)*
1999-2000	0.052 (0.222)	0.038 (0.191)	*0.014* *(0.011)*
Difference	*-0.002* *(0.010)*	*-0.001* *(0.011)*	

Treatment-control differences in pre-reform time trends: linear model (T6) [back][10/20]

	Matriculation certificate		Mean matriculation score	
	(1)	(2)	(3)	(4)
Time trend	0.025 (0.011)	0.026 (0.010)	1.225 (0.478)	1.287 (0.451)
Treatment x Time trend	-0.008 (0.013)	-0.006 (0.012)	-0.267 (0.580)	-0.361 (0.547)
Treatment	0.005 (0.050)	-	0.681 (2.270)	-
Kibbutz FE	No	Yes	No	Yes

Treatment-control differences in pre-reform time trends: cohort dummies model (T6) [back][11/20]

	Matriculation certification		Mean matriculation score	
	(1)	(2)	(3)	(4)
Treatment x 1994	-0.022 (0.076)	-0.005 (0.070)	2.178 (3.481)	2.329 (3.295)
Treatment x 1995	-0.011 (0.075)	0.003 (0.070)	-1.716 (3.446)	-1.782 (3.255)
Treatment x 1996	-0.030 (0.075)	-0.008 (0.070)	0.403 (3.446)	0.024 (3.255)
Treatment x 1997	0.036 (0.075)	0.051 (0.070)	1.765 (3.446)	0.816 (3.259)
Treatment x 1998	-0.087 (0.075)	-0.074 (0.069)	-2.019 (3.416)	-1.962 (3.221)
Treatment	-0.002 (0.053)	-	-0.358 (2.424)	-
Kibbutz FE	No	Yes	No	Yes

Results: effect of the reform on educational outcome (T7) [back][12/20]

	High School Completion	Mean Matriculation Score	Matriculation Certification	University Qualified Matriculation
Difference-in-differences regressions				
Simple difference-in-differences	0.033 (0.016)	3.112 (1.517)	0.029 (0.035)	0.040 (0.035)
Controlled difference-in-differences	0.033 (0.015)	3.546 (1.604)	0.049 (0.035)	0.060 (0.035)

Cohorts of 10th Grade Students pre reform (T7)

[back][13/20]

	High School Completion	Mean Matriculation Score	Matriculation Certification	University Qualified Matriculation
Simple DID	0.011 (0.015)	0.213 (1.527)	-0.016 (0.036)	-0.025 (0.036)
Controlled DID	0.011 (0.015)	0.304 (1.544)	-0.013 (0.035)	-0.027 (0.035)

Controlled DID by parental education (T8)

[back][14/20]

	High School Completion	Mean Matriculation Score	Matriculation Certification	University Qualified Matriculation
Mother's education				
Low	0.049 (0.024)	6.175 (2.553)	0.116 (0.053)	0.100 (0.053)
High	0.014 (0.019)	0.329 (2.114)	-0.031 (0.047)	0.002 (0.048)
Father's education				
Low	0.033 (0.027)	5.879 (2.781)	0.093 (0.055)	0.086 (0.055)
High	0.031 (0.017)	1.701 (1.924)	0.010 (0.046)	0.034 (0.047)

Heterogeneous effect by gender (controlled DID, T8)

[back][15/20]

	High School Completion	Mean Matriculation Score	Matriculation Certification	University Qualified Matriculation
Sample stratification by gender				
Male	0.052	4.820	0.060	0.056
	(0.023)	(2.505)	(0.051)	(0.051)
Female	0.011	2.549	0.027	0.034
	(0.019)	(2.037)	(0.049)	(0.049)

Controlled DID by level of reform intensity (T9)

[back][16/20]

	High School Completion	Mean Matriculation Score	Matriculation Certification	University Qualified Matriculation
Intensity of exposure				
Three years of partial reform (N=313)	0.016 (0.020)	1.239 (2.202)	0.036 (0.045)	0.025 (0.045)
One year of full reform (N=114)	0.053 (0.024)	3.744 (2.485)	0.009 (0.058)	-0.020 (0.059)
Two years of full reform (N=211)	0.054 (0.018)	5.621 (1.925)	0.031 (0.047)	0.083 (0.047)
Three years of full reform (N=405)	0.029 (0.019)	4.288 (2.055)	0.082 (0.043)	0.100 (0.043)

Controlled DID by level of reform intensity (T9)

[back][17/20]

	High School Completion	Mean Matriculation Score	Matriculation Certification	University Qualified Matriculation
Intensity of exposure: partial vs. full				
Three years of partial reform (N=313)	0.16 (0.021)	1.285 (2.221)	0.035 (0.045)	0.026 (0.045)
Three years of full reform (N=405)	0.030 (0.019)	4.431 (2.064)	0.084 (0.045)	0.103 (0.043)

Controlled DID: by level of intensity, by mother's education (T10) [back][18/20]

	High school completion	Mean matriculation score	Matriculation certification	University qualified matriculation
Low				
Partial reform	0.026	2.792	0.109	0.085
	(0.033)	(3.612)	(0.069)	(0.069)
Full reform	0.044	8.255	0.196	0.168
	(0.033)	(3.421)	(0.067)	(0.068)
High				
Partial reform	0.006	-0.246	-0.047	-0.036
	(0.027)	(2.899)	(0.063)	(0.064)
Full reform	0.008	-0.011	-0.034	0.023
	(0.024)	(2.624)	(0.058)	(0.059)

Controlled DID: by level of intensity, by father's education (T10) [back][19/20]

		High school completion	Mean matriculation score	Matriculation certification	University qualified matriculation
Low					
	Partial reform	0.025 (0.036)	0.996 (3.990)	-0.015 (0.072)	-0.035 (0.071)
	Full reform	0.027 (0.035)	9.547 (3.591)	0.205 (0.069)	0.190 (0.069)
High					
	Partial reform	0.016 (0.024)	2.964 (2.576)	0.091 (0.061)	0.096 (0.062)
	Full reform	0.026 (0.024)	-0.207 (2.508)	-0.006 (0.057)	0.035 (0.058)

Controlled DID: by level of intensity, by gender (T11) [back][20/20]

	High school completion	Mean matriculation score	Matriculation certification	University qualified matriculation
Male				
Partial reform	0.018	1.085	0.028	0.007
	(0.034)	(3.460)	(0.067)	(0.067)
Full reform	0.042	6.017	0.100	0.096
	(0.030)	(3.211)	(0.063)	(0.063)
Female				
Partial reform	0.017	2.201	0.045	0.037
	(0.021)	(2.702)	(0.064)	(0.064)
Full reform	0.008	2.832	0.035	0.048
	(0.026)	(2.710)	(0.062)	(0.063)

Part III: How do kibbutzim mitigate incentive problems? [detailed version] [back] [1/3]

Mitigating brain drain [back] [2/3]

Mitigating brain drain with lock-in devices [back] [3/3]

- Theory highlights role of sunk contributions
- No private property, no bequests, no private savings, can't accept outside gifts (reparations from Germany…)
- Local public goods such as swimming pools, tennis courts, parks, cultural center
- Work inside kibbutz, limiting knowledge of outside option
- Exit from kibbutzim lower than from other rural areas, suggesting lock-in devices useful

Mitigating adverse selection

Adverse selection among entrants

- Theory highlights role of homogeneity
- Main sources of entry before 1970s were youth movements, and the army through service in units called Nahal
- Such individuals had similar expected productivity, and would find equal sharing attractive as it provides insurance
- However, when applicants from the outside seek to enter equal sharing arrangements, we expect low-ability individuals to apply (adverse selection)

Mitigating adverse selection

- Highly restricted entry from outside (when kibbutzim experimented with open door in early 1980s, many members complained about low ability of entrants…)
- Centralized screening…
- “Trial periods”…
- Concerns about adverse selection rationalize various costly signals of commitment to kibbutz, norms of serving in combat units in army

Mitigating moral hazard

How to mitigate moral hazard

- Social sanctions effective in small communities…

"Nobody said a word to him. But in the evening, in the dining hall, the atmosphere around him was such that the following morning he got up and left the Kvutza [Kibbutz]" (Near, 1992, p. 38).

How to mitigate moral hazard

- Members rarely expelled (but “work organizer” could assign less desirable job…)
- Kibbutzim institutional design mitigates moral hazard by supporting social sanctions and reducing monitoring costs

1. Making effort observable (orange picking…)
2. Improving information flows (limited privacy, gossip)
3. Increasing interaction (living in close proximity, interacting repeatedly, limiting population size)

- Rotation of prestigious leadership positions…

Measures of wealth [back]

1st measure: "economic status" in 1989

Kibbutzim were divided (by Gov. & banks) into 3 groups:

1. Strong (economically) and do not need assistance
2. "Reasonable" economic position
3. Bad economic position and can't repay debt

2nd measure: "credit rating" by D&B

- A number from 1 (weak) to 4 (strong):

  1 (24%), 2 (27%), 3 (28%), 4 (21%)

Measures of wealth [back]

3rd measure: “credit rating” by D&B

- A number from 1 (weak) to 100 (strong)

4th measure: fixed capital per member

5th measure: assets per member

6th measure: “wealth score” based on factor component analysis of 5 measures

Measures of ideology [back]

1. Movement affiliation
2. % votes in elections for left wing parties
2. Decline in % votes in elections for left wing parties
3. “Ideology score”

How do I measure equality? [back]

Kibbutzim self-categorized into 4 categories:

- **Equal-sharing**: “Traditional Kibbutz” (15%)
- **Wide safety net**: “Combined model” (35%)
- **Narrow safety net**: “Safety net model” (49%)
- **No safety net**: “Community settlement” (<1%)

The determinants of equality: Econometric details [back] [1/4]

TABLE 3:

The higher the wealth, the higher the degree of equality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Estimation Method	Ordered Probit	Ordered Probit	Ordered Probit	Ordered Probit	Ordered Probit	Ordered Probit	Ordered Probit	Ordered Probit	Ordered Probit	Ordered Probit	Ordered Probit
Dependent Variable	Degree of equality	Degree of equality	Degree of equality	Degree of equality	Degree of equality	Degree of equality	Degree of equality	Degree of equality	Degree of equality	Degree of equality	Degree of equality
Wealth:											
Credit rating (1-4)	0.397***										
	(0.111)										
Economic strength (1-4)		0.377***									
		(0.103)									
Credit rating (1-100)			0.019***								
			(0.005)								
Fixed capital per member				4.459***							
				(1.569)							
Assets per member					2.032***						
					(0.613)						
Wealth score						0.479***	0.476***	0.453***	0.490***	0.471***	0.462***
						(0.107)	(0.097)	(0.108)	(0.110)	(0.111)	(0.112)
Ideology:											
Most socialist movement (Artzi)								0.446**			
								(0.214)			
% votes to socialist parties									0.026		
									(0.021)		
Ideological decline:											
decline in % votes to socialist parties										-0.036**	
										(0.016)	
Ideology score											0.317**
											(0.130)
Controls:											
Group size	0.001*	0.001	0.001*	0.001*	0.001	0.0008		0.0008	0.0004	0.0001	0.0002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.0009)		(0.0009)	(0.0009)	(0.0010)	(0.0010)
Year established	-0.012	-0.014	-0.019*	-0.020	-0.025**	-0.013		-0.015	-0.016	-0.017	-0.017
	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)	(0.013)		(0.013)	(0.014)	(0.014)	(0.014)
Average household size	-0.858	-0.875	-0.863	-0.767	-0.903	-1.205*		-1.067*	-1.081*	-1.163*	-1.016
	(0.555)	(0.556)	(0.543)	(0.586)	(0.597)	(0.620)		(0.625)	(0.632)	(0.633)	(0.635)
Land per member	0.022**	0.020**	0.019**	0.022**	0.021**	0.019*		0.020**	0.019*	0.020**	0.020**
	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)		(0.010)	(0.010)	(0.010)	(0.010)
Members' average age	-0.083***	-0.081**	-0.085***	-0.061*	-0.074**	-0.060		-0.068*	-0.051	-0.046	-0.052
	(0.032)	(0.032)	(0.031)	(0.035)	(0.035)	(0.037)		(0.038)	(0.038)	(0.038)	(0.038)
Observations	188	188	184	159	156	147	151	147	142	142	142

TABLE 4

The role of ideology in determining the degree of equality

Estimation Method	(1) Probit	(2) Probit	(3) Probit	(4) Probit	(5) Probit	(6) Probit	(7) Probit	(8) Probit	(9) Probit	(10) Probit	(11) Probit
Dependent Variable	Equal-sharing	Equal-sharing	Equal-sharing	Equal-sharing	Equal-sharing	Equal-sharing	Equal-sharing	Equal-sharing	Equal-sharing	Equal-sharing	Equal-sharing
Wealth:											
Credit rating (1-4)	0.118***										
	(0.032)										
Economic strength (1-4)		0.100***									
		(0.030)									
Credit rating (1-100)			0.005***								
			(0.002)								
Fixed capital per member				0.801*							
				(0.490)							
Assets per member					0.366*						
					(0.190)						
Wealth score						0.115***	0.134***	0.099***	0.106***	0.089***	0.087***
						(0.033)	(0.031)	(0.032)	(0.033)	(0.032)	(0.031)
Ideology:											
Most socialist movement (Artzi)								0.190***			
								(0.078)			
% votes to socialist parties									0.008		
									(0.007)		
Ideological decline:											
decline in % votes to socialist parties										-0.014***	
										(0.005)	
Ideology score											0.110***
											(0.036)
Controls:											
Group size	0.0004*	0.0004*	0.0004*	0.0006**	0.0005*	0.0004		0.0004	0.0003	0.0002	0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0003)		(0.0003)	(0.0003)	(0.0003)	(0.0003)
Year established	-0.008**	-0.008**	-0.009***	-0.011***	-0.012***	-0.009**		-0.010**	-0.011**	-0.012***	-0.012***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)		(0.004)	(0.004)	(0.004)	(0.004)
Average household size	0.015	0.007	-0.035	-0.032	-0.044	-0.118		-0.056	-0.035	-0.075	-0.018
	(0.157)	(0.159)	(0.158)	(0.192)	(0.196)	(0.191)		(0.183)	(0.183)	(0.173)	(0.171)
Land per member	0.003	0.003	0.003	0.004	0.004	0.003		0.003	0.003	0.002	0.002
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)		(0.003)	(0.003)	(0.003)	(0.003)
Members' average age	-0.032***	-0.032***	-0.034***	-0.035***	-0.037***	-0.029**		-0.035***	-0.027**	-0.028**	-0.031**
	(0.010)	(0.010)	(0.010)	(0.012)	(0.012)	(0.013)		(0.012)	(0.012)	(0.012)	(0.012)
Observations	188	188	184	159	156	147	151	147	142	142	142

TABLE 5:

The higher the wealth, the lower the exit rates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Estimation Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Dependent Variable	Exit rates	Exit rates	Exit rates	Exit rates	Exit rates	Exit rates	Exit rates	Exit rates	Exit rates	Exit rates	Exit rates	Exit rates
Wealth:												
Credit rating (1-4)	-0.779***	-0.887***			-0.729***	-0.773***			-0.691***	-0.731***		
	(0.182)	(0.179)			(0.192)	(0.189)			(0.194)	(0.193)		
Economic strength (1-4)			-0.494***	-0.558***			-0.425**	-0.435**			-0.383**	-0.379**
			(0.168)	(0.168)			(0.178)	(0.176)			(0.180)	(0.181)
Ideology:												
% votes for socialist parties					-0.016	-0.019	-0.018	-0.022				
					(0.015)	(0.016)	(0.016)	(0.017)				
Ideological decline:												
decline in % votes for socialist parties									0.039*	0.041*	0.045*	0.050**
									(0.023)	(0.023)	(0.023)	(0.024)
Controls:												
Artzi Movement	-3.510***	-3.727***	-3.586***	-3.818***	-3.470***	-3.723***	-3.546***	-3.802***	-3.354***	-3.610***	-3.400***	-3.652***
	(0.290)	(0.307)	(0.297)	(0.317)	(0.305)	(0.319)	(0.311)	(0.328)	(0.318)	(0.331)	(0.325)	(0.340)
Group size	-0.002*	No	-0.003**	No	-0.002*	No	-0.003*	No	-0.002	No	-0.002	No
	(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)	
Year established	-0.024	No	-0.018	No	-0.025	No	-0.018	No	-0.023	No	-0.015	No
	(0.018)		(0.018)		(0.018)		(0.018)		(0.018)		(0.018)	
Average household size	-0.457	No	-0.627	No	-0.408	No	-0.594	No	-0.359	No	-0.538	No
	(0.896)		(0.918)		(0.927)		(0.948)		(0.920)		(0.939)	
Land per member	0.029*	No	0.031**	No	0.030**	No	0.033**	No	0.030**	No	0.034**	No
	(0.014)		(0.015)		(0.015)		(0.015)		(0.015)		(0.015)	
Members' average age	-0.137***	No	-0.133**	No	-0.127**	No	-0.121**	No	-0.133**	No	-0.127**	No
	(0.052)		(0.054)		(0.054)		(0.056)		(0.054)		(0.056)	
Observations	184	187	184	187	178	180	178	180	177	179	177	179
R-squared	0.58	0.50	0.56	0.46	0.58	0.50	0.56	0.47	0.58	0.51	0.56	0.48

Beyond kibbutzim: detailed discussion

Beyond kibbutzim

- Other communes; hunters and gatherers
- Organizations: professional partnerships, cooperatives
- Development: village economies and group lending in developing countries, communist countries, welfare states
- Labor: migration literature on selection of migrants
- Public: mobility limits redistribution
- Problem of “commons”: common ownership of property as a solution rather than only a problem…

Lessons for other communes [back][1/6]

- Think communes aiming at equality/sharing
- Economic approach: communities striving for equality while mitigating the inherent problems associated with a high degree of equality:
  - brain drain
  - moral hazard
  - adverse selection

On the (lack of) stability of communes… [back][2/6]

- These inherent problems meant most communes in history were short-lived
- Communes that were better able to structure themselves to solve these problems, such as the Hutterites, lasted longer and were more successful
- Communes' attempts to solve these problems explain many of their common key features

The role of ideology and/or religion [back][3/6]

- Ideology and religion play important roles in alleviating:
  - brain drain: they increase members' perceived value of living in the commune, thereby alleviating brain drain
  - adverse selection: they serve as hard-to-fake signals of commitment to the commune, thereby excluding free riders in entry
  - moral hazard: they promote loyalty and norms of cooperation
- Religious communes tend to last longer… Rituals enhance stability…

Brief background on US communes [back][4/6]

- American communes have existed continuously since the mid-1700s
- US was a relatively attractive setting:
  - Freedom of religion (often religiously oppressed in Europe)
  - Abundance of land and opening up of West enabled communes to acquire land at fairly low prices, with space for their isolation
- Long-lived communes: Shakers, Harmony, Zoar, Amana, Oneida and Hutterite communes
- Socialist communes began to appear in US in the 1820s
- More communes were established by socialist European migrants, e.g. by the Icaria movement (founded in France)

Equal sharing and incentives in communes

[back][5/6]

- Combining equal sharing with free exit threatens the stability of communes through brain drain
- Evidence that more literate exited from and illiterate entered Shakers commune
- Evidence that moral hazard was a key concern
- Institutional design reflected attempt to maintain sharing while mitigating incentive problems…

Communes and the outside world [back][6/6]

- All communes struggled to find a balance between isolation and integration/assimilation
- Isolation alleviates incentive problems…but limits economic development…
- Three ways communes adapted to modernization:
  - Collapse…
  - Increased integration (kibbutz)…
  - Increased isolation (hutterites)…

Lessons for professional partnerships [back][1/2]

- Professional partnerships are often based on revenue sharing
- Revenue sharing provides insurance
- Partners have outside option and might leave
- Partners can’t recover some of their share upon leaving (e.g. customers)

Lessons for professional partnerships [back][2/2]

- Tendency for brain drain
- Sharing rule reflects tradeoff between insurance & brain drain
- “Lock in” required to make exit costly
- Mutual monitoring to prevent shirking and allow insurance

Lessons for village economies in developing countries [back]

- Village economies are often based on a large degree of equality (risk sharing), but not full equal sharing
- Could one reason be the exit option and imperfect monitoring?
- Could kibbutzim's institutional design shed light on microfinance institutions such as group lending?

Lessons for migration [back][1/5]

- Does redistribution/wage-compression encourage the exit of more productive individuals and entry of less productive ones?

Are migrants positively or negatively selected? [back][2/5]

- Big debate in migration literature…
- View 1: migrants are always positively selected, because to make the move, you have to be motivated
- View 2: depends on the earnings inequality (returns to skills) in the origin vs. destination (based on the Roy model)

Borjas' selection hypothesis [back][3/5]

Selection depends on differences in earnings inequality (redistribution) between origin and destination:

- Origin more equal than destination - positive selection
- Origin less equal than destination - negative selection

Testing selection hypothesis [back][4/5]

- Hypothesis generated a lot of attention

- But, its relevance was widely criticized:

1. Earnings inequality poorly measures returns to skills
2. Most studies only observe migrants at destination
3. No empirical evidence of negative selection

Using kibbutzim to test selection hypothesis [back][5/5]

- Internal migration from/to Israeli kibbutzim between 1983-1995

- Kibbutzim suitable to test selection hypothesis:

1. Kibbutzim were based on intensive redistribution (equal sharing) ⟶ offered lower skill-premia than cities
2. I compare movers to/from kibbutzim with stayers
3. Test selection on both observables and unobservables

Public finance: mobility limits redistribution [back]

- Individuals might move between states to take advantage of or avoid redistributive policies

- Kibbutz experience suggests such mobility limits redistribution/ equality…

Data Appendix

- Making all the kibbutz-level data I can publicly available
- This will allow other scholars to do more interesting research than I did…

Data sources: individual level

- Population censuses (1961, 1972, 1983, 1995, 2011?)
- Linked 1983-1995 censuses
- Labor forces surveys (annual 1979-2005)
- Education and occupation of applicants (1995-2000)

Data sources: kibbutz level

- Degree of equality (year and degree of shift from equal sharing)
- Economic condition, wealth per member (post reform)
- Ideology: movement affiliation, voting for socialist parties in national elections (since 1950s)
- Population, membership, exit rates (since 1960s)
- Land per member, average household size, age distribution (post reform)
- Education (by gender/exit status) since 1979
- Balance sheets (1937-1947, 2002)