DETERMINANTS OF INTERNAL AND INTERNATIONAL MIGRATION IN RURAL PAKISTAN

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RESEARCH QUESTION

WHAT ARE THE DETERMINANTS OF INTERNAL AND INTERNATIONAL MIGRATION IN RURAL PAKISTAN? [1986-91 PANEL DATA]

• Migration entails a discrete dichotomous choice.

• A reduced-form approach, in which income or expectedincome is replaced by a vector of exogenous (in the case of NELM models, household human capital and wealth) variables, has been used in a number of studies using probit or logit estimation techniques (Taylor 1986, Emerson 1989, and Mora and Taylor 2006).



BACKGROUND AND MOTIVATION

- The officially recorded figure for remittances to developing countries reached \$404 billion in 2013 (World Bank).
- Pakistan is in the top 10 list (from \$1 billion in 2000 to \$15 billion in 2013) (Migration and Development brief 17).
- Pakistani total stock of international migration has increased from 3.97 million in 2004 to around 7 million in 2013 (BEOE).

DATASET

- The dataset was obtained from the International Food Policy Research Institute (IFPRI).
 - It is a longitudinal survey of households in rural Pakistan covering the period July 1986 October 1991.
 - It counts over 14 rounds of interviews with 927 households.
- The four selected districts are Faisalabad and Attock in Punjab, Badin in Sindh, and Dir in Khyber Pakhtunkhwa.
- The data is unique in providing detailed socio-demographic and economic information on a nationally representative sample of rural households in Pakistan.

The proportion of different types of households by districts and migration

Districts	Never Migrant Households	Internal Migrant Households	International Migrant Households	Total
Faisalabad (Punjab)	20%	25%	8%	20%
Attock (Punjab)	21%	24%	13%	21%
Badin (Sindh)	39%	16%	1%	30%
Dir (NWFP)	20%	34%	78%	29%
Total	67%	24%	9%	100%

Household frequency by region

	Province	District	Households number
	Punjab	Faisalabad	180
	Punjab	Attock	200
	Sindh	Badin	275
	NWFP	Dir	272
Total	3	4	927

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METHODOLOGY

- Multinomial logit, logit, probit, and various maximumlikelihood techniques for estimating discrete-continuous models are widely used to estimate migration-decision models at a micro-level (individual or household) (Taylor 1986, Emerson 1989, and Mora and Taylor 2006).
- We first estimate a binary logit model for migration and nonmigration.
- Then we estimate a three-regime multinomial logit model for non-migration, international migration, and internal migration.
- To assess the importance of each variable, it is useful to calculate the baseline probability of each destination at the means of all variables through odds ratios.

Variables	Coefficient	Odds Ratio	
Constant	-1.472**		
	(0.705)		
Household head's education	0.007	1.007	
	(0.017)	(0.017)	
Household head's age	-0.040		
	(0.025)	0.998	
Household head's age squared	0.0004	(0.008)	
	(0.0002)		
Number of children aged 0 to11 years	-0.158**	0.854**	
	(0.073)	(0.062)	
Male at age12-30	0.126	1.134	
	(0.080)	(0.091)	
Number of females aged 12 to 30 years	-0.130*	0.878*	
	(0.080)	(0.070)	
Household size	0.188***	1.207***	
	(0.062)	(0.075)	
Pre-migration Initial wealth			
Landholding in acres	-0.017***	0.983***	
	(0.005)	(0.005)	
Money Loaned to other	-0.050**	0.951**	
	(0.024)	(0.023)	
Money borrowed from formal source	-0.020*	0.980*	
	(0.010)	(0.010)	
Money borrowed from informal source	-0.071***	0.931***	
	(0.021)	(0.019)	
Money received from sale of animals	-0.163***	0.850***	
	(0.047)	(0.039)	
Post-migration Initial wealth	0.011	1 011	
Landholding in acres	0.011	1.011	
Monoy remitted to Polative	(0.007)	(0.007)	
Money remitted to Relative	(1,019)	(5 519)	
Monoy horrowed from formal sources	0.011**	1 011**	
Money borrowed from formal sources	(0.006)	(0.006)	
District (reference category is Faisalahad)	(0.000)	(0.000)	
District Attock	0.248	1 281	
	(0.173)	(0.222)	
District Badin	-0.935***	0.393***	
	(0.201)	(0.079)	
District Dir	0.772***	2.164***	
	(0.181)	(0.392)	
Other controls	Yes	(
Year effects	Yes		
Observations	3130		
Pseudo R2	0.2699		
Olysters in household	007		
Clusters in nousehold	831		

Determinants of migration (Logit Regression)

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LOGIT RESULTS

- Our results support the findings of several past studies, that landholding is a key determinant of the magnitude of migration, but emphasize that there are other key determinants.
- As a whole, we detect an intriguing <u>size-composition effect</u> on the household's probability of migration: an additional household member increases the odd of migration by 20%.
- Number of children and young women appear to have significant and negative effects on the odd of migration by 15% and 87%, respectively [dependency argument].
- Also, we see that a ten-acre reduction in pre-migration landholding increases the odd of migration by 2% [negotiating migration cost through landholding].

LOGIT RESULTS (CONT'D)

- The pre-migration money borrowed from formal, informal sector, and sale of animals is statistically significant and negatively related to migration [However, if these markets are accessible to household, then there is less need for migration].
- Only post-migration money borrowed from formal sources are positive and significant [<u>This positive interaction effect illustrates</u> <u>the importance of migration for securing loan</u>].
- All things being equal, the odds of migration tend to be higher for Dir district (2.2%) and it tend to be lower in the Badin district (0.39%) than in the Faisalabad (default) district [Probability of migration is lower for poorer districts].

Variables	Internal	Relative Risk	International	Relative Risk
	Migration	Ratio	Migration	Ratio
Constant	-1.695***		-4.134***	
	(0.678)		(1.521)	
Household head's education	-0.009	0.991	0.047	1.048
	(0.017)	(0.017)	(0.036)	(0.038)
Household head's age	-0.025		-0.052	
	(0.0250)	0.999	(0.047)	0.998
Household head's age squared	0.0003	(0.008)	0.0005	(0.154)
	(0.0003)	0.000t	(0.0004)	
Number of children aged 0 to11	-0.118*	0.888*	-0.323**	0.724**
	(0.070)	(0.062)	(0.143)	(0.104)
Male at age12-30	0.175**	1.191**	-0.067	0.935
	(0.0777)	(0.091)	(0.156)	(0.146)
umber of females aged 12 to 30	-0.226***	0.798***	0.145	1.156
Joursehold size	(0.077)	(0.062)	(0.147)	(0.170)
	(0.058)	(0.070)	$(0.239^{})$	(0.156)
re-migration Initial wealth	(0.000)	(0.070)	(0.120)	(0.150)
Landholding in acres	-0.013***	0.987***	-0.113*	0.893*
	(0.004)	(0.004)	(0.065)	(0.058)
Ioney Loaned to other	-0.063	0.939	0.007	1.007
	(0.050)	(0.047)	(0.066)	(0.067)
loney borrowed from formal	0.002	1.001	0.016	1.016
ources	(0.006)	(0.006)	(0.012)	(0.012)
loney borrowed from informal	-0.059***	0.943***	-0.119**	0.887**
ources	(0.022)	(0.021)	(0.053)	(0.047)
ioney received from sale of	-0.168***	0.845	-1.181	0.307
nimais	(0.042)	(0.035)	(0.772)	(0.237)
rost-migration initial wealth	_			
andholding in acres	0.009	1.009	0.015	1.016
	(0.007)	(0.007)	(0.011)	(0.011)
Money remitted to Relative	1.939**	6.955**	3.112	22.472
	(0.941)	(6.546)	(2.069)	(46.486)
Money borrowed from formal	0.002	1.001	0.016	1.016
sources	(0.006)	(0.006)	(0.012)	(0.012)
District (reference category is Fai	salabad)			
Attock	0.158	1.171	1.023*	2.781*
	(0.170)	(0.199)	(0.565)	(1.572)
Badin	-0.968***	0.380***	-1.837	0.159
	(0.193)	(0.073)	(1.276)	(0.203)
Dir	0.060	1.061	2.727***	15.28***
	(0.185)	(0.196)	(0.518)	(7.92)
Other controls			Yes	
lear effects			Yes	
	100			
Jbservations	3130			
Pseudo R2	0.2993			
Log nseudo-likelihood	-1858 93			
	-100.00			
Wald Chi2 (58)	785.27			

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= "1" Internal Migrant = "2" International Migrant = "0" Never Migrant Determinants of migration: (Multinomial Logit Regression) Base category for Migration

MULTINOMIAL LOGIT RESULTS

- Household's heads in rural Pakistan are less likely to engage in internal and international migration (life cycle and experience).
- At household level, children aged below 11 and females aged 12-30 reduce the odd of internal migration (11% and 22%, respectively). Whereas, for international migration the <u>dependency argument</u> only holds for children (28%).
- Male aged 12-30 positively related to odd of internal migration only (19%).
- Larger families tend to favour both internal and international migration (19% and 30%, respectively), but with different probabilities [intra-household risk diversification strategy].

MULTINOMIAL LOGIT RESULTS (CONT'D)

- Also, only pre-migration landholding needs to be depleted for both types of migration, but the effect of international migration is much greater (<u>11% for international and 1% for internal migration</u>).
- In addition, a pre-migration loan (informal borrowing) has negative and significant effect on the probability of internal and international migration (5.5% and 11%, respectively).
- Pre-migration money raised by selling animals negatively affect internal migration only [(10% and 15%, respectively), poverty trap argument].
- All things being equal, international migration is positively related to Attock and Dir district, whereas, internal migration is negatively related to Badin district than to the Faisalabad (default) district [Probability of migration is lower for poorer <u>districts</u>].

OVERALL CONCLUSIONS

- We find that internal migrant households are somehow <u>different</u> from the international migrant households and wealth is a discriminating factor.
- Viable migration policy in Pakistan (<u>reducing cost of migration</u>) and well connected rural credit market.
- We find evidence of a linkage between pre-migration wealth and internal or international <u>migration is negotiated through</u> <u>sacrificing the landholding</u>.
- The level of regional development is not a clear-cut driver of migration. <u>Historical practices</u> and <u>existing migration networks</u> seem to be more important than regional development.

LIMITATIONS

There are several limitations of the study.

- First is the time period of the study. Although the data set is detailed, it relates to a time period that might be useful for policy formulation now, as the Pakistani economy has changed significantly and the flow of international migration has increased in recent years.
- The second problem is that the data was not rich enough to find migrant-specific information, though the household level information is very detailed.
- The cross-sectional data is always subject to potentially severe biases in direction that are not obvious a priori. Reverse causation is a major concern because it is difficult to separate the crosssectional relationship between remittances and average remittances but an instrumental variable approach could separate that correlation.

Thank you for your attention! Any comments or suggestions are highly appreciated!