Recent Internal Migration & Labour Market Outcomes

Exploring the 2008 & 2010 National Income Dynamics Study (NIDS) panel data

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Context

1. Youth unemployment:

Rankin and Roberts (2011:128) report that in 2005 "**half of those in the labour force cohort aged 15-24 years were unemployed**".

2. Rural unemployment:

In many parts of **rural provinces** like the Eastern Cape, the level of unemployment was in many instances reported to be **as high as 60%**.

Complicating situation further in rural areas & among youth **are the lack of skills, low levels of school education, lack of work experience and low social capital** (Duff and Fryer, 2005).

3. Education & skills training

Work experience during training is one of many foci. Building strong links between firms & training institutions ?? (White Paper, 2014) – Will this help?

Possible question: How, When or If an **FET qualification** can (will) **replace a Matric** certificate **as a signal** in the labour market – (NTC = 0 in NIDS)

1. Main objectives & broad questions

- Within the LMIP – paper **explores the NIDS** data - through recent migration
- Main research question: are there links BETWEEN **recent** migrations of individuals (x) AND employment status/labour market outcomes (y)
- What are the links & how big?
- What effects do other x – variables (age, education, gender, marriage, etc.) have?
- Some implications for research, data & strategies

2. Outline

3. Migration, Labour & Development
4. Migration: Developing countries
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3. Migration, Labour & Development

- Early models of development (e.g. Lewis, 1954; Harris & Todaro, 1969) linked migration to urban areas with process of economic development
- Assumption of unlimited labour supply would migrate to urban region induced by higher urban wage
- Capital improvement & investment in urban region ensures employment & higher wages compared to rural sector
- With Labour Supply > Absorption - profit maximization by Capital – decreases wage rate until U/R wage differential = zero
- Lack of wage incentive limits migration (with perfect information)
- Some stable equilibrium level (rural migration rate = 0, with urban wage – rural wage)

3. Migration, Labour & Development

- Later models considered **imperfect information** cases:
- Overly responsive migration rate to urban job stimulation could lead to **urban unemployment & reduction in productivity** (Todaro paradox)
- Migrants would (besides wage) also consider: probability of finding a job; cost of moving, **informal sector, investing in education** to limit risk (Riadh, 1998; Banerjee, 1991; Roberts, 2001; Kochar, 2004)
- A more dynamic model – with non-stationary nature of growth – adjustments to changes in prices (education & capital) (Bond & Wang, 1996)
- Empirical data support some theoretical explanations to migration & growth

4. Migration, Labour & Development: Developing countries

- In Africa during 60s & 70s 50% of urban growth was due to rural-urban migration
- Rate was about 25% in 80s & 90s.
- In India, 35% of urban growth was due to rural-urban migration of over 20 million individuals (Lull et al., 2006)

- **Some relevant policy questions:**

- **Is migration desired**: given urban **unemployment, collapse of service** provision, **unrest** & geographical **disparities**?
- Should governments act on **excess migration or the wage incentive**?
- Should policy create **rural jobs or** increase **urban opportunities** or both **and how**?

- South Africa:

- Black rural migration in S.A. was **controlled by legislation** (e.g. Spiegel, 1980; Stark & Lucas, 1988; Posel, 2004; 2011, etc.)
- After 1994: **assumption** was migration **would be permanent**
- Studies focused less on internal migration & **more on immigration** challenges (Posel, 2004)
- Cornwell & Inder (2004) migration & labour market **using OHS data ('93 & 94)**
- Finn et al. (2012) **welfare increases** (by ave. Hh incomes) by moving NIDS data
- This paper: **recent internal migration effects on employment status** NIDS 2008 vs. 2010

5. The NIDS datasets

- Brown et al (2012) describe the data & collection methods in detail
- 2008: baseline wave **28 247 individuals in 7301 Hh**
- 2010: Second wave **28 641 individuals in 6 809 Hh**
- **21 098 common** in both waves
- Attrition (~21%) factors: loss of contact, refusals, deceased (but some those lost in 2010 were found in 2012 3rd wave)
- This analysis is at individual level & uses the **adult questionnaire – and the 21 098 common cases**

6. Definitions: variables

- **Employment status (dependent categorical variable):**
- Not in labour force/ Inactive
- Broadly **unemployed**
- **Informally** (self) employed (no contracts, no business reg)
- **Formally** (self) employed (written contracts, business reg)

- **Explanatory variables):**

- **Migration (categorical) – geo-code (StatsSA):**
- Rural-Urban: Rural (2008) & Urban (2010)
- Urban-Rural: Urban (2008) & Rural (2010)
- Rural – Rural & Urban – Urban: other moves
- Same location: did not move
- **Gender**
- **Age groups: (15-30; 31-45; 46-60; above 60) years old**
- **Education (possess Matric, possess no Education)**
- **Marital status (Married or not)**
- **Race (African or Coloured or White or Asian/India)**

7. Propositions - words

- Some expectations from theory:

1. On average: rural-urban migrants perform worse than locals in formal employment (e.g. search time, low networks) **[Pf<f]**

2. Same migrants perform well in informal employment – (temporary employment - not well desired) **[Pn>n]**

1. Same migrants are mostly unemployed in comparison (same factors) **[Pu>u]**

7. Formally derived propositions

- Given the definition of the labour force:

  $L = F + N + U$……(1)

If:
f= annual formal urban employment rate
λ (lambda) = rate of migration
ϒ (gamma) = annual turnover in formal urban jobs

Formally: probabilities of migrants in labour force are as follows (last slide for stepwise derivation)

- formal employment

  $Pf = \text{L Dem}/\text{L Sup} = f(\Upsilon+\lambda) / (1+ \lambda - f(1- \Upsilon)) < f$ ……(2)

- Probability in informal employment:

  $Pn = \text{L Dem/L Sup}\ n(1-Pf)/ (1-f) > n$……(3)

- Probability in unemployment:

  $Pu = u(1-Pf) / (1-f) > u$ ……(4)

8. Some descriptive tables

- Migrations that could be detected from publically available data (n=1632)
- Majority were either urban-urban or rural-rural migrations (some within the same geocode)

Table 1: Migration by gender

Migration pattern by gender in %					
Gender	Rural to urban n = 221	Urban to rural n = 131	Did not move n = 14301	**General (all) migration** n = 1632	**Sample** n = 19 596
Males	100 (45.25%)	51 (38.93%)	6009 (42.02%)	**735 (45.04%)***	**8311 (42.41%)**
Female	121 (54.75%)	80 (61.07%)	8292 (57.98%)	**897 (54.96%)***	**11285 (57.59%)**

- Posel (2009) reported that with changes in Hh dynamics more and more women have been migrating compared
- Note that across the two waves the sub samples are still small (n=221 for rural-rural migration) – most likely an under estimation in the public data, however.

8. Some descriptive tables

- Migrants earned higher incomes (esp. U-R & R-U)
- Compared to everyone they spent more years at school (esp. U-R & R-U)

Table 2: Median monthly wages (Rands) and years of schooling by migration and age groups

Income by migration and age						
Migration		**Rural to Urban areas**	**Urban to Rural areas**	**Did not move**	**All movements**	**Sample**
Earned income	Median	R 2050 (Std. 2941) (n=83)	R 2060 (Std. 3859) (n=43)	R 1689 (Std. 3507) (n=3777)	R 2000 (Std. 2615) (n=371)	R 1800 (Std 8322) (n=5053)
Years in school	Median	11 (Std. 3.89)	11 (Std. 4.30)	9 (Std. 4.93)	10 (Std. 4.59)	9 (Std. 4.85)
Age		**15 - 30 years**	**31 - 45 years**	**46 - 60 years**	**61 - 76 years**	**Sample**
Earned income	Median	R 1580 (Std. 2452) (n= 1560)	R 1900 (Std. 5244) (n= 2053)	R 1800 (Std 14465.76) (n=1315)	R 1435 (Std. 6683) (n=122)	R 1800 (Std 8322) (n=5053)
Years in school	Median	10 (Std. 3.2) (n=8313)	10 (Std. 5.0) (n=4697)	7 (Std.6.8) (n=3581)	3 (Std. 4.1) (n=2315)	9 (Std. 4.8) (19595)

- (15-30) & (31 to 45) were also more likely to migrate (see next table)
- But (15-30) earned lowest incomes, while (31-45) earned highest incomes

8. Some descriptive tables

- Younger groups more likely to migrate

Table 3: Relative migration by age groups

Migration			
Age group	**Did not move**	**All types of migration**	**Total**
15-30	5,457 (39%)	1117 **(58%)**	6,574 (42%)
31-45	3,392 (25%)	514 **(27%)**	3,906 (25%)
46-60	2,937 (21%)	180 **(11%)**	3,147 (20%)
61 and above	2,012 (15%)	75 **(4%)**	2,100 (13%)
Total	13,798 (100%)	1,577 (100%)	15,727 (100%)

8. Some descriptive tables

- Representation of all migrants increased from inactive groups to formally employed

Table 4: Labour market by migration categories

	Migration type			
Employment status	Non-movers	All migrants	Rural to urban	Urban to rural
Economically inactive	7,484 (93.8%)	389 (4.9%)	70 (0.9%)	37 (0.46%)
Unemployed (broad)	1752 (90.7%)	120 (6.21%)	35 (1.81%)	24 (1.24%)
Informally employed	1263 (89.4%)	114 (8.0%)	28 (1.98%)	8 (0.57%)
Formally employed	2016 (87.2%)	222 (9.39%)	49 (2.07%)	31 (1.31%)

9. Sum of descriptions

- **Gender** has **minimal effect** on migration-but still **dominated by males**
- **Migration** was associated with **higher** individual **earned incomes**
- Migration was **highest among younger** age-groups
- **Positive** relationship between **income and age** until 60 years old
- Migrants were **represented more** (proportionately) in **informal & formal employment** [except for U-R migrants in informal employment] (small sub-sample)

10. Multinomial model - construct

- The model confirms some of the descriptions
- It is based on probabilities of particular groups being found in four employment categories (status)
- **The employment stati (dependent variable) are:**

- Economically inactive
- Unemployed
- Informal employment
- Formal employment

- **Particular groups are identified by other categorical variables (explanatory variables):**

- Migration categories
- Gender
- Age-groups
- Martial status
- Race
- Education

10. Multinomial model - construct

- **Employment status =** f (migration; gender; age; possession of matric certificate; possession of zero education; marital status; race)
- A dependent variable with **four categories**, has a model with **three parts**:
- Form: Ln [**Pr(k-1)**/**Pr(k)**] = ß (k-1) + X1…..

1. Natural log (Pr unemployment) / (**Pr economically inactive**) =…
2. Natural log (Pr informal employment)/(**Pr economically inactive**) =
3. Natural log (Pr formal employment) / (**Pr economically inactive**) =

- Same applies to independent variable categories: odds in other categories are compared with odds in the first category
- In words: the model presents the log odds of being found in a particular group against the log odds of being found in the first group
- Odds (P/(1 – P)) mean that coefficients can be above 1 (not just P)

10. Multinomial model - construct

Employment status = f (migration; gender; age; possession of matric certificate; possession of zero education; marital status; race), which is:

Ln (P (LM-unemployment))/(P (LM-economically inactive)) = b1 + b2 (m=2) + b3 (m=3) + b4 (m=4) + b5 (g=1) + b6 (age=2) + b7 (age=3) b8 (age=4) + b9 (om=1) + b10 (no-educ=1) + b11 (mar=1) + b12 (r=2) + b13 (r=3) + b14 (r=4)

Ln (P (LM-informal employment))/(P (LM-economically active)) = b1 + b2 (m=2) + b3 (m=3) + b4 (m=4) + b5 (g=1) + b6 (age=2) + b7 (age=3) b8 (age=4) + b9 (om=1) + b10 (no-educ=1) + b11 (mar=1) + b12 (r=2) + b13 (r=3) + b14 (r=4)

AND

Ln (P (LM-formal employment))/(P (LM-economically inactive)) = b1 + b2 (m=2) + b3 (m=3) + b4 (m=4) + b5 (g=1) + b6 (age=2) + b7 (age=3) b8 (age=4) + b9 (om=1) + b10 (no-educ=1) + b11 (mar=1) + b12 (r=1) + b13 (r=3) + b14 (r=4)

Table 5: Multinomial logistical results

			Number of obs = 11887 LR chi2(39) = 3279.23 Prob > chi2 = 0.0000 Log likelihood = -11544.169 Pseudo R2 = 0.1244					
Labour market or Employment status			Coef.	Std. E.	z	P>z	(95% Conf. Int.)	
Economically inactive			(base outcome)					
A. Unemployed								
	Migration Base (NM Non- migration)							
		G_M (general)	.1682041	.1155931	1.46	0.146	-.0583541	.3947623
		R_U (rural-urban)	.4174881	.2216065	1.88	0.060	-.0168526	.8518288
		U_R (urban-rural)	.7313968	.2887255	2.53	0.011	.1655053	1.297288
	Gender							
		Female	-.175764	.0568197	-3.09	0.002	-.2871287	-.0643994
	Age group (years)							
		31-45	.6748517	.0709991	9.51	0.000	.535696	.8140073
		46-60	-.2805962	.0929405	-3.02	0.003	-.4627563	-.098436
		60 -	-2.133988	.1692709	-12.61	0.000	-2.465753	-1.802223
	Matric only							
		Yes	.6738075	.0716241	9.41	0.000	.5334269	.8141882
	Zero education							
		Yes	-.2650915	.1105993	-2.40	0.017	-.4818621	-.048321
	Married							
		Yes	-.0765846	.0801261	-0.96	0.339	-.2336288	.0804597
	Race							
		Coloured	.3787695	.0812777	4.66	0.000	.2194681	.5380709
		Asian/India	.0946028	.2724272	0.35	0.728	-.4393447	.6285503
		White	-.7540456	.3017053	-2.50	0.012	-1.345377	-.1627141
	Const.		-1.301904	.0531465	-24.50	0.000	-1.406069	-1.197739
B. Informally employed								
	Migration							
		G_M	.6229008	.1247275	4.99	0.000	.3784394	.8673622
		R_U	.9323562	.2462526	3.79	0.000	.4497099	1.415003
		U_R	-.0255408	.454927	-0.06	0.955	-.9171813	.8660996
	Gender							
		Female	-.5771745	.0641892	-8.99	0.000	-.7029831	-.4513658
	Age group (years)							
		31-45	1.637275	.0832172	19.67	0.000	1.474172	1.800378
		46-60	1.128644	.0949569	11.89	0.000	.9425323	1.314757
		60 -	-1.117069	.1666692	-6.70	0.000	-1.443735	-.7904033
	Matric only							
		Yes	.4519775	.0922506	4.90	0.000	.2711696	.6327854
	Zero education							
		Yes	-.2470879	.1043584	-2.37	0.018	-.4516265	-.0425492
	Married							
		Yes	.0341046	.0778902	0.44	0.661	-.1185573	.1867666
	Race							
		Coloured	.5111629	.0881343	5.80	0.000	.3384228	.683903
		Asian/India	-.1480777	.3266133	-0.45	0.650	-.788228	.4920726
		White	.3627149	.2132918	1.70	0.089	-.0553294	.7807591
		Const.	-2.094782	.0689277	-30.39	0.000	-2.229878	-1.959686
C. Formally employed								
	Migration -							
		G_M	.716334	.1169931	6.12	0.000	.4870317	.9456363
		R_M	.9499513	.2312583	4.11	0.000	.4966934	1.403209
		U_M	.9639022	.3083955	3.13	0.002	.359458	1.568346
	Gender							
		Female	-1.083004	.0620088	-17.47	0.000	-1.204539	-.961469
	Age group (years)							
		31-45	1.733811	.0799942	21.67	0.000	1.577026	1.890597
		46-60	1.191432	.0948392	12.56	0.000	1.00555	1.377313
		60 -	-1.570538	.1972201	-7.96	0.000	-1.957082	-1.183994
	Matric only							
		Yes	1.536889	.0749345	20.51	0.000	1.39002	1.683757
	Zero education							
		Yes	-.8999681	.1346775	-6.68	0.000	-1.163931	-.6360049
	Married							
		Yes	.4088154	.0754866	5.42	0.000	.2608644	.5567664
	Race							
		Coloured	1.028536	.0788806	13.04	0.000	.8739329	1.183139
		Asian/India	.1372684	.265886	0.52	0.606	-.3838585	.6583954
		White	.4269532	.1847148	2.31	0.021	.0649189	.7889874
		Const.	-2.125495	.0667204	-31.86	0.000	-2.256265	-1.994725

Some results: odds of **informal** employment versus inactive - B

- **Migration**, esp. R-U positively (0.9323) & reliably (p=0.00) affected chances of being informally employed against staying economically inactive
- U-R Migration, on the other hand, decreased (-0.2554), but the pattern was not statistically reliable (p=0.955).
- Other reliable (although marginal) effects on finding informal employment against being inactive:

- **age groups (15 to 30) and (31 to 45)** relative odds of 0.0832 and 0.0945 marginal
- Being older (above 60 years old) reliably (p=0.00) and markedly (-1.117) decreased the odds
- Possessing a **Matric** improved (0.452) reliably (p=0.00)
- But having **no education** limited **(-0.247)** those chances at above 95% (p=0.018)
- Effects of being informally employed vs. inactive were negative from **being female (-0.577) (p=0.00).**
- In this sense having **no education had similar effects to being female** in the model
- Being married was not a reliable predictor (p=0.66)
- Only being Coloured reliably (p=0.00) predicted (by 0.5112 points) improved chances of being informally employed

Some results: odds of **formal** employment versus inactive - C

- A**ll migration** types improved the chances of finding formal work from being economically inactive reliably (min p=002)
- More so than for informal employment, **being female** had reliably **negative effects** on improving chances of being formally employed (-1.083, p=0.00).
- This effect was **worse than having no education** (-0.899)
- Possessing a **Matric** had the second highest positive impact (behind 30-45) age-group on improving formal employment
- Marriage also improve reliably the chances of being formally employed
- Except for Asians, race was also a statistically significant factor in being formally employed
- Compared to being Black: being Coloured or White improved individual chances of formal employment

11. Results

- In sum: **migration led** to better labour market **outcomes**
- R-U migration also led to better opportunities in both formal and informal employment
- **Negative effects** came from being **female**, much **younger & older** AND **no education**
- Data supports partially the postulations made
- R-U migrants outperform non-migrants in informal & formal sectors
- It was found that [**Pf>f**; **Pn>n & (Pu>u ~ p=0.06)**] as opposed to **postulation** (**Pf<f** and **Pn>n & Pu>u**)
- The patterns indicate a level of interconnectedness of related measures

12. Discussion & some implications

- Limitation: **migration is not always motivated by desire to find jobs – but it can come from having found a job**
- The data does **not capture the endogenous nature** of the links
- So: the estimates presented may be over states
- Youth are migrating but without endowments including Matric - remain unemployed or outside LF
- U-R migrants find work in formal sector vs. informal sector – needs further exploration [public servant jobs? Teachers/doctors?] – sub-sample still small – (3rd & 4th NIDS wave?)
- Interconnectedness: means interventions have a greater chance of effecting bigger if targeting more than one variable
- For example: since migration pays – strategies may limit associated risks – matric, incomes for youth (subsidies?), increase support for females
- Race still a factor: White predict better formal employment outcomes, Coloured better informal markets, Indian data – small & not reliable

Thank you

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Appendix

In the formal sector, the pool of people seeking formal jobs (i.e. supply of labour) would include those whose jobs just turned over (i.e. ϒF), those in the informal sector (N), the unemployed (U) and the recent migrants (λL).

The Labour Supply = U + N + λL + ϒF

The number of available formal jobs (demand for labour) would include turned over jobs (ϒF), growth of the formal sector jobs (λF)[1].

The Labour Demand = ϒF + λF = F(ϒ + λ)

If there is no discrimination of any kind in the market, then everyone looking for a job stands the same chance of getting one. This implies that the probability of a migrant finding a job equals to the total number of available jobs (demand for labour) over the total number of job seekers (supply of labour).

$$Pf = F(\Upsilon + \lambda)/ (U + N + \lambda L + \Upsilon F) \quad \ldots\ldots(1)$$

From equation (1) we have: $L - F = U + N$

Hence equation (3) can be rearranged into:

$$Pf = F(\Upsilon + \lambda)/ (L - F + \lambda L + \Upsilon F) \quad \ldots\ldots(2)$$

If both numerator and denominator are divided by L, we have:

$$Pf = f(\Upsilon + \lambda)/ (1 + \lambda - f(1-\Upsilon)) \quad \ldots\ldots(3)$$[2]

The above equation indicates the probability of a migrant becoming employed in the formal sector. With formal jobs taken (1-Pf), the probability of finding a job in the informal sector again equals the number of available jobs (demand for labour) over the number of job seekers (supply of labour).

$$Pn = (1 - Pf)N/ (N + U) \quad \ldots\ldots(4)$$

From equation (1) $L - F = N + U$

So that:

$$Pn = n(1 - Pf)/ (1 - f) \quad \ldots\ldots(5)$$

The probability of being unemployed comes from what is left when all jobs are taken in the market:

i.e. Pu = 1 − Pf − Pn

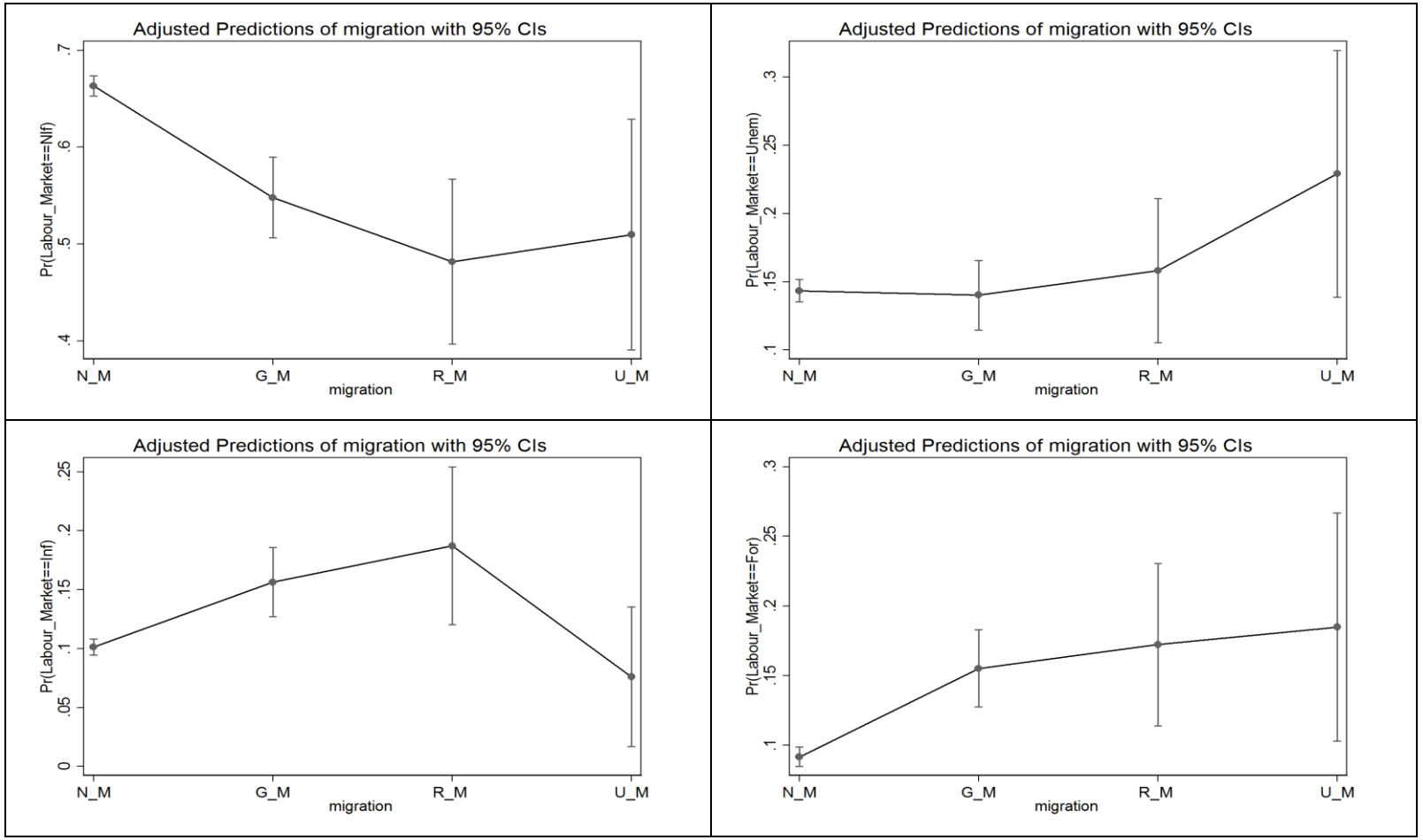
Substitute equations (5) and (6): Pu = (1 - f - n) (1 - Pf) / (1 − f)

With u = constant (U/L) rate of unemployment, which is proportionate to all other rates across time:

$$Pu = u(1 - Pf)/ (1 - f) \quad \ldots\ldots(6)$$

[1] We know that growth in the labour force is λL (new migrants) and proportion (F/L) is constant, therefore growth in the formal sector is λF.

[2] Numerator: F(ϒ+λ)/L = F/L(ϒ+λ)= f (ϒ+λ) and Denominator: 1-f+λ+ϒf = 1+λ+ϒf-f = 1+λ-f(1-ϒ)



Graph 2: The marginsplot of the relative probabilities of the four labour market outcomes