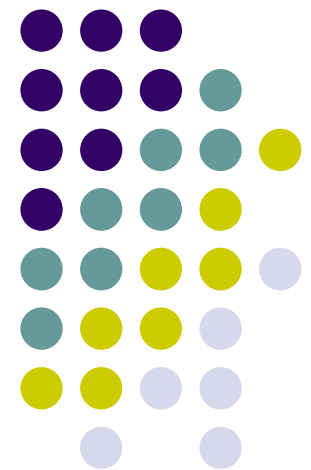
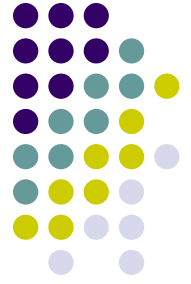


Collective Remittances in Mexico: Their Effect on the Labor Market for Males

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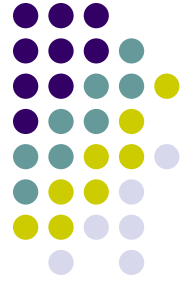




What are Collective Remittances?

- Migrants organize in the host country and agree to send, *collectively*, an amount of money to be used for community projects at their hometowns.
- Collective remittances have been spent, increasingly, in social and productive projects (urban infrastructure, clinics, schools, agriculture projects, etc).
- These investments have been so important that the Mexican government started a program to contribute to these projects as well: *Programa 3x1 para migrantes*.

Collective Remittances and the *3x1 Program*



- Origin: Zacatecas, 1992, *1x1 Program*. Collective remittances matched with money from the municipality government.
- 2002: SEDESOL incorporates *3x1 Program For Migrants*, as part of the National Development Plan during President Fox's administration.
- A strategy against poverty in marginalized areas through projects that promote local development.
- This objective has been questioned: no prior selection by the government. Initiatives must come from the municipality and its organization with the local migrants' clubs → A potential source of self-selection bias!

Classification of Projects Financed by Collective Remittances through *3x1 Program*



Urbanization

- Access to electricity
- Access to drinking water
- Sewer system
- Asphalt and pavement on streets
- Sidewalks & trimmings, renovation & redesigning of public parks and gardens

Production & Productivity Improvement

- Infrastructure for agricultural production
- Support to/Promotion of Trade, Agriculture, Fishing & Aquaculture (Production & Productivity)
- Roads in rural areas
- Connection of rural roads to freeways
- Development of irrigation systems
- Protection of rivers and streams

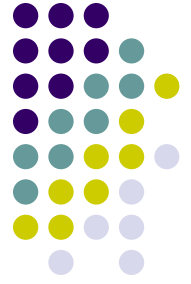
Health & Social Infrastructure

- Improvements/Renovation of dwellings
- Infrastructure for hospitals
- Clinics & Health centers
- Community services, Social assistance, Community Development
- Improvements/Renovation of Historical & cultural sites
- Environmental preservation/Ecological projects

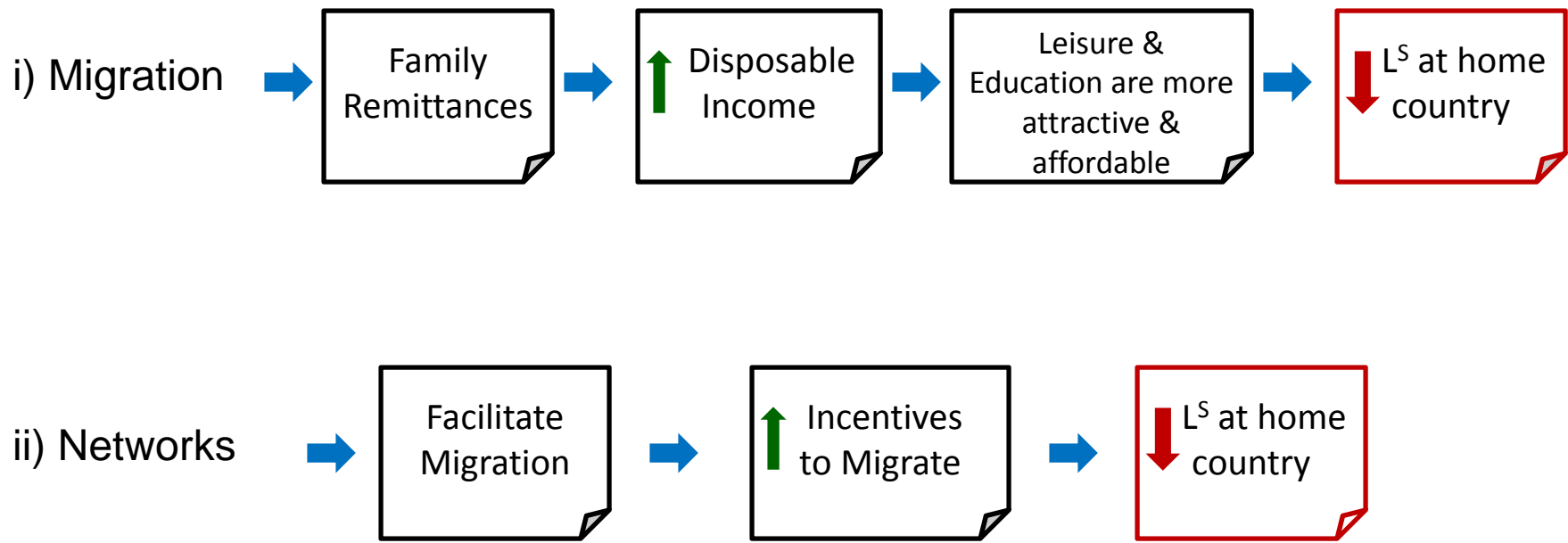
Schools & Sports Facilities/Infrastructure

- Improvement/Construction of Schools
- Improvement/Construction of Sports Facilities

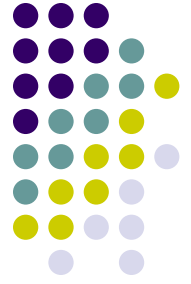
Remittances & Migrants' Networks: Traditional approaches



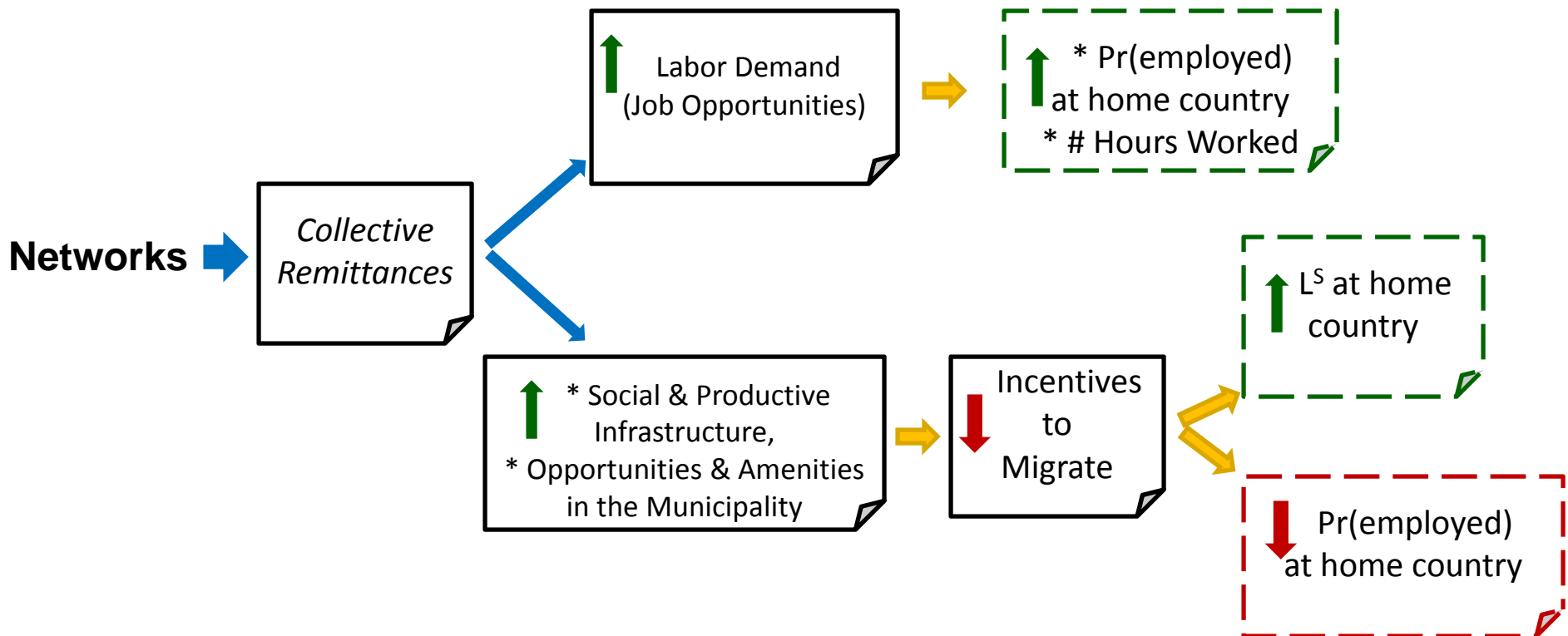
- Analysis of the effect of migration and remittances on labor supply in the home country have been studied before.



Migrants' Networks & Collective Remittances: An Alternative Approach



- Investments due to collective remittances may increase opportunities and amenities in the Mexican communities in such a way that it affects migration decision and local labor markets.

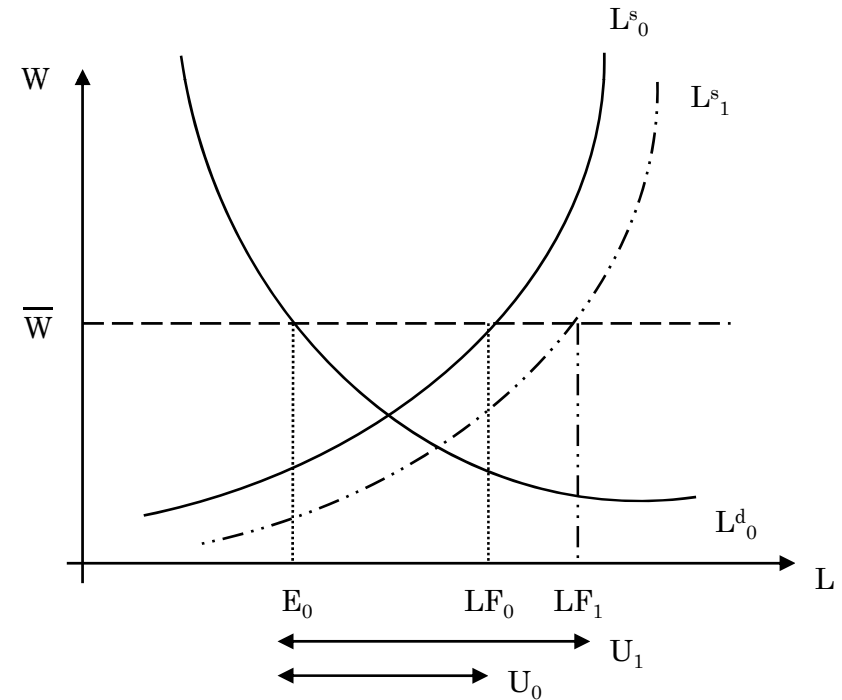
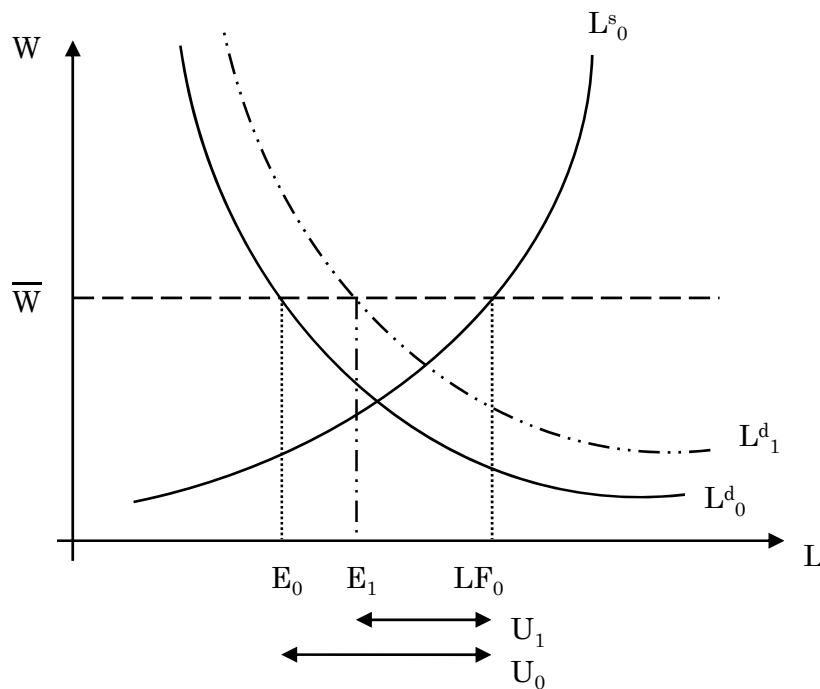


Potential Effects of Collective Remittances on Local Labor Markets for Males

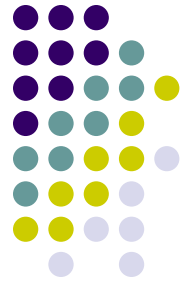


- Labor Demand
 - H_0^1 : Increase the probability of being employed.
 - Potentially: increase the number of hours worked.
- Incentives to Migrate & Labor supply
 - H_0^2 : Make more attractive to stay in the municipality and decrease the desire to migrate.
 - H_0^3 : Incentivize more people to stay in the municipality and increase the probability of participating in the labor force.

Potential Effects of Collective Remittances Through 3x1 Program



Data



- 2006 Evaluation of Program *3x1 para Migrantes*, SEDESOL
 - Information for all the projects financed by collective remittances and government funds in 18 states and 735 municipalities during 2002-2006
- INEGI & CONAPO
 - GDP at the state level 2001-2005
 - Index of Marginalization and Index of Migration Intensity, based on National Census 2000
- MxFLS 2002 & 2005
 - Individual and household level data
 - Males older than 24 years in 2002
 - 6,937 individuals from 6,282 households present in both waves

Data



- 136 municipalities in the MxFLS sample, 38.24% participated in the *3x1 Program* during 2002-2005 with at least one project.
- 351 projects were financed with collective remittances and government funds through the *3x1 Program*.
- Average total investment by municipality:
 - 2002 → US\$ 120,760
 - 2003-2005 → US\$ 245,250

Empirical Strategy

Some issues we have to take into account



- **Self-selection to participate in *3x1 Program***
 - Participation is not randomized.
 - Aparicio & Meseguer (2009): Those municipalities that are poorer, with higher migration intensity, more populated and ruled by an authority from the PAN have a higher probability of participation in the program.
- My strategy:
 - Intensive margin analysis: only those 52 municipalities that participate in the program during 2002-2005 with at least one project.
 - Inclusion of control variables that are the potential source of selectivity bias.
 - Panel data to control for those time invariant non-observable characteristics.

Empirical Strategy

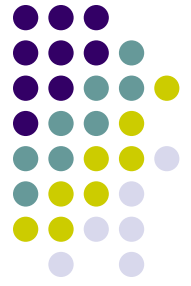
Some issues we have to take into account



- Other factors, besides collective remittances, that affect labor and migration decisions and may be a potential problem of omitted variables or endogeneity.
- Assumption: A detailed set of control variables and the use of fixed effects estimations with panel data is helpful to isolate the effect of collective remittances on the dependent variables of interest.
 - Influence of household's migration networks.
 - Household characteristics.
 - Household shocks.
 - Individual characteristics.

Empirical Strategy

Some issues we have to take into account



- Different cohorts of the male population may have different characteristics that make them to react different to the variables that affect the decision to work or to participate in the labor force.
- Sample split in two cohorts:
 - males older than 24 years old but younger than 46,
 - and males older than 45 years.

Empirical Specifications



- Panel Data Analysis
 - Linear Probability Model with Fixed Effects at the individual level with standard errors clustered at the municipality level.

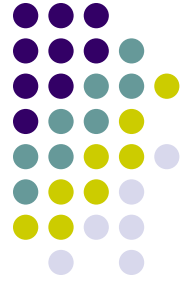
$$P(\text{employed} = 1)_{ihmt} = \alpha_i + IT'_{ihmt} \beta_1 + I'_{ihm} \beta_2 + HT'_{hmt} \gamma_1 + CR'_{mt} \delta_1 + M'_m \delta_2 + \varepsilon_{ihmt}$$

$$P(\text{wants_to_migrate} = 1)_{ihmt} = \alpha_i + IT'_{ihmt} \beta_1 + I'_{ihm} \beta_2 + HT'_{hmt} \gamma_1 + CR'_{mt} \delta_1 + M'_m \delta_2 + \varepsilon_{ihmt}$$

$$P(\text{being_in_the_labor_force} = 1)_{ihmt} = \alpha_i + IT'_{ihmt} \beta_1 + I'_{ihm} \beta_2 + HT'_{hmt} \gamma_1 + CR'_{mt} \delta_1 + M'_m \delta_2 + \varepsilon_{ihmt}$$

$$i=1, \dots, N; \quad h=1, \dots, H \\ m=1, \dots, 52; \quad t=2002, 2005$$

Empirical Specifications



- Censored Regression Model (TOBIT) to analyze the effect of collective remittances on the number of weekly hours worked.

$$Hours^*_{ihmt} = \alpha + IT'_{ihmt} \beta_1 + I'_{ihm} \beta_2 + HT'_{hmt} \gamma_1 + CR'_{mt} \delta_1 + M'_m \delta_2 + u_i + \varepsilon_{it}$$

$$Hours_{ihmt} = 0 \quad \text{if} \quad Hours^*_{ihmt} \leq 0$$

$$Hours_{ihmt} = Hours^*_{ihmt} \quad \text{if} \quad Hours^*_{ihmt} > 0$$

$$i=1, \dots, N; \quad h=1, \dots, H \\ m=1, \dots, 52; \quad t=2002, 2005$$

Results: Employment



$$P(\text{employed} = 1)_{ihmt} = \alpha_i + IT'_{ihmt} \beta_1 + I'_{ihm} \beta_2 + HT'_{hmt} \gamma_1 + CR'_{mt} \delta_1 + M'_m \delta_2 + \varepsilon_{ihmt}$$

Probability of Being Employed

	All sample		Cohort [25,45] y.o.		Cohort [46,...] y. o.	
	(1)	(2)	(3)	(4)	(5)	(6)
Total per-capita amount invested in the Municipality	0.164		0.116		0.227	
	(2.55)**		(1.37)		(2.39)**	
<i>Total per-capita amount invested in the Municipality, by Type of Project</i>						
Urbanization		0.031		0.006		0.066
		(0.23)		(0.04)		(0.30)
Social & Health Infrastructure		-0.900		-0.658		-1.058
		(2.44)**		(1.57)		(1.72)*
Improve Schools & Sports Facilities		1.701		1.644		1.783
		(2.68)**		(2.20)**		(1.71)*
Improve Production & Productivity		-0.202		-0.102		-0.191
		(0.97)		(0.37)		(0.62)



Results: Migration Decisions

$$P(\text{wants_to_migrate} = 1)_{ihmt} = \alpha_i + IT'_{ihmt} \beta_1 + I'_{ihm} \beta_2 + HT'_{hmt} \gamma_1 + CR'_{mt} \delta_1 + M'_m \delta_2 + \varepsilon_{ihmt}$$

Desire to Migrate

	All sample		Cohort [25,45] y.o.		Cohort [46,...] y. o.	
	(1)	(2)	(3)	(4)	(5)	(6)
Total per-capita amount invested in the Municipality	0.051		0.043		0.049	
	(0.97)		(0.43)		(0.96)	
<i>Total per-capita amount invested in the Municipality, by Type of Project</i>						
Urbanization		0.148		0.316		-0.056
		(1.35)		(1.72)*		(0.46)
Social & Health Infrastructure		-0.336		-0.746		0.153
		(1.11)		(1.49)		(0.46)
Improve Schools & Sports Facilities		-0.222		-0.848		0.628
		(0.43)		(0.95)		(1.11)
Improve Production & Productivity		-0.091		-0.268		-0.050
		(0.53)		(0.81)		(0.30)

Results: Labor Force Participation



$$P(\text{being_in_the_labor_force} = 1)_{ihmt} = \alpha_i + IT'_{ihmt} \beta_1 + I'_{ihm} \beta_2 + HT'_{hmt} \gamma_1 + CR'_{mt} \delta_1 + M'_m \delta_2 + \varepsilon_{ihmt}$$

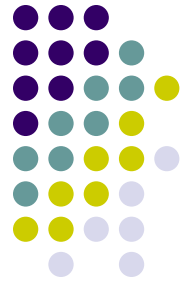
Probability of Participation in Labor Force

	All sample		Cohort [25,45] y.o.		Cohort [46,...] y. o.	
	(1)	(2)	(3)	(4)	(5)	(6)
Total per-capita amount invested in the Municipality	0.180		0.102		0.257	
	(3.06)***		(1.51)		(2.78)***	

Total per-capita amount invested in the Municipality, by Type of Project

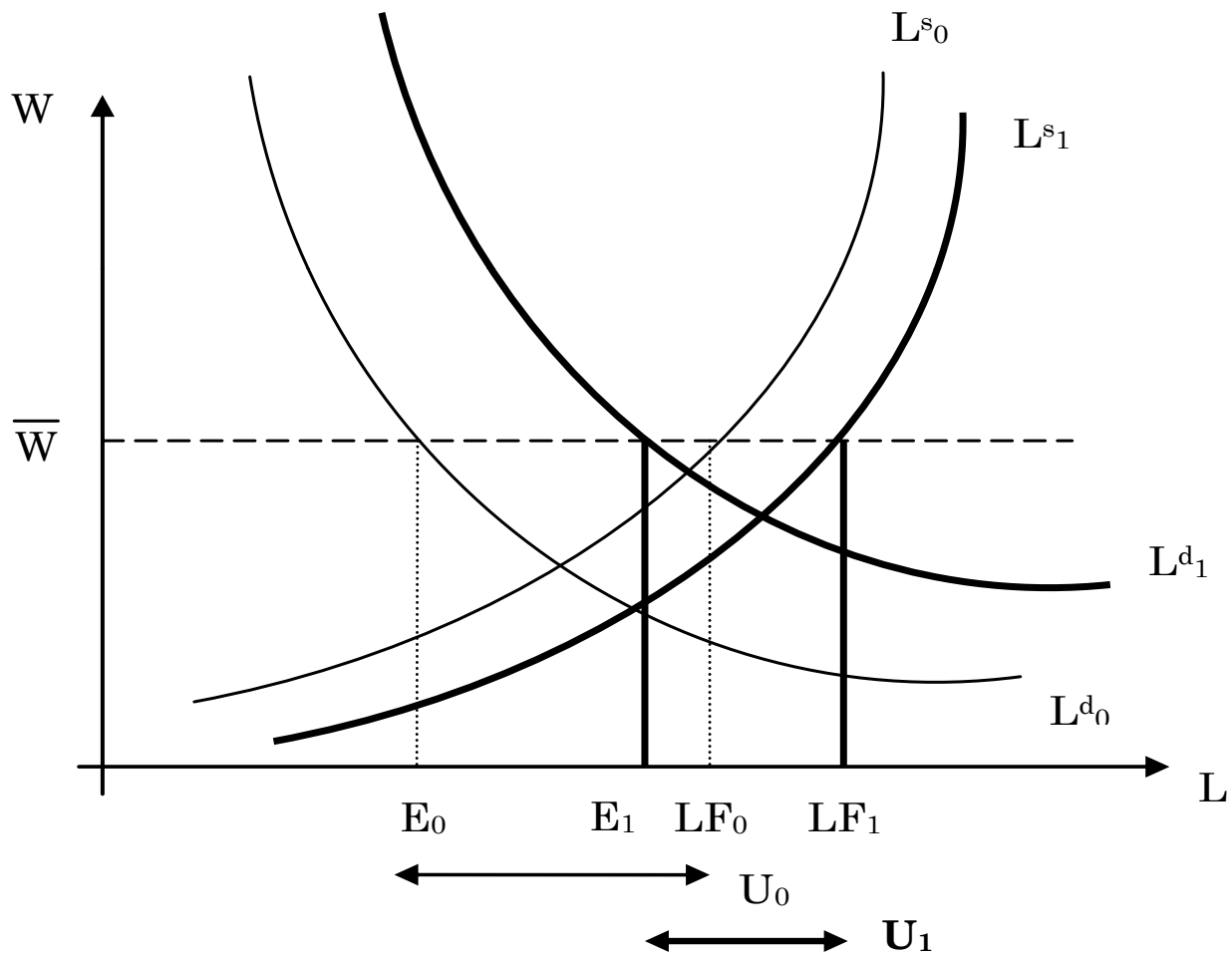
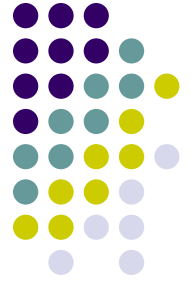
Urbanization		0.013		-0.058		0.087
		(0.10)		(0.47)		(0.40)
Social & Health Infrastructure		-0.326		0.022		-0.568
		(0.96)		(0.06)		(0.94)
Improve Schools & Sports Facilities		1.534		1.339		1.586
		(2.63)***		(2.25)**		(1.55)
Improve Production & Productivity		-0.036		-0.075		0.043
		(0.19)		(0.34)		(0.14)

Results



- If probability of being employed increased even when the emigration did not reduce, this may suggest that, at least in the short run, municipalities experience an increase in the labor demand.
- Since the labor force participation also increases with collective remittances, it may be the case that the labor supply increased but in a lower magnitude than the change in the labor demand.
- The unambiguous final effect would be a decrease in the local unemployment levels.

Results





Results: Number of Hours Worked

$$Hours_{ihmt}^* = \alpha + IT'_{ihmt} \beta_1 + I'_{ihm} \beta_2 + HT'_{hmt} \gamma_1 + CR'_{mt} \delta_1 + M'_m \delta_2 + u_i + \varepsilon_{it}$$

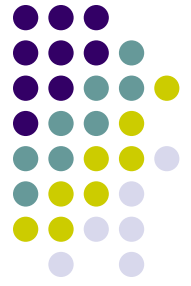
$$Hours_{ihmt} = 0 \quad \text{if} \quad Hours_{ihmt}^* \leq 0$$

$$Hours_{ihmt} = Hours_{ihmt}^* \quad \text{if} \quad Hours_{ihmt}^* > 0$$

Number of Hours Worked Weekly

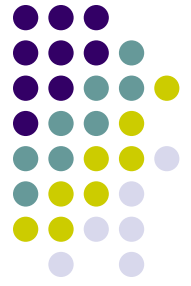
	All sample		Cohort [25,45] y.o.		Cohort [46,...] y. o.	
	(1)	(2)	(3)	(4)	(5)	(6)
Total per-capita amount invested in the Municipality	2.465		1.445		3.977	
	(1.02)		(0.38)		(1.21)	
<i>Total per-capita amount invested in the Municipality, by Type of Project</i>						
Urbanization		-2.616		-9.045		8.761
		(0.54)		(1.51)		(1.04)
Social & Health Infrastructure		12.737		33.556		-13.037
		(0.81)		(1.72)*		(0.50)
Improve Schools & Sports Facilities		44.282		79.009		-16.500
		(1.47)		(2.05)**		(0.33)
Improve Production & Productivity		-14.208		-11.530		-13.771
		(1.43)		(0.77)		(1.01)

Results



- There is no empirical evidence to support a possible effect of total per capita amount of collective remittances on labor supply measure by number or hours worked.
- However, analyzing in detail by the type of project that has been funded, younger males may increase their worked hours ⇒ reduction in unemployment and underemployment!
- In general, these implications should be taken with caution: Projects of different types have a negative effect on the dependent variables discussed above.

Conclusions



- Collective remittances through the *3x1 Program* have a positive and statistically significant effect on the probability of **being employed** and on the probability of **participating in the labor force**, but its effect is null on the **desire to move out** of the municipality.
- But analyzing by type of project, evidence seems ambiguous to support my set of hypothesis.
 - Remarkable: Potential positive externality from projects related to schools and sports infrastructure.
- One possible explanation for the weakness of the impact: 2002-2005 is a short period of time for expecting important (either qualitative or quantitative) effects.
 - Productive investment may have a multiplicative effect in the short run, but three years maybe are not enough time to allow these projects to “mature” or develop enough to see changes in local labor markets.