

Individual and structural characteristics of informality in North Lima

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Our goals:

- ✓ Describing the characteristics of informality at individual and family level in both Lima Norte and Lima Metropolitana
- ✓ Measuring the effects on earnings of:
 - the educational level
 - the “choice” of being informal

What's informality?

- Born as a concept to describe **urban labor dynamics** in Third World countries
- Problems of:
 - **statistical definition** and measurement
 - **conceptual boundaries**: who is the informal worker? How to judge the phenomenon?
- **International comparability** among surveys is compromised by:
 1. Different kinds of data sources
 2. Different geographic coverage
 3. Divergent interpretations of informality
- **Common practice** is measuring informality compatibly with the available data sources.

Our data:

We use 2 surveys:

- ✓ ELHO – Encuesta Local de Hogares –
- ✓ ENAHO – Encuesta Nacional de Hogares –

They have a very similar questionnaire.

ELHO

- conducted in 2005 by OSEL LN
- refers to Comas, Puente Piedra, Ventanilla
- sample of approximately 1,500 viviendas
- 4,861 individual interviews

ENAHO

- conducted in 2005 by MTPE
- refers to Lima, Callao and 25 more cities
- we only consider the data referred to the Province of Lima and the Province of Callao
- 8,249 individual interviews

Our main variables:

- Basic variables on income, educational level and working conditions (MTPE methodology)

- NEW VARIABLES on:

Educational aspects:

- ✓ *study_y* : schooling years (numerical)
- ✓ *newnivel* : educational level (ordinal)
- ✓ levels of father's and mother's education (dummies)

Formality / Informality:

- ✓ Legal approach
- ✓ Social approach
- ✓ Retirement approach

Working situation:

- ✓ *Tipo_occ*: kind of job (ordinal)
- ✓ *Exp*: years of working experience (numerical)
- ✓ *AP/EP*: working in public or private sector (dummies)

AND MORE
CAN BE DONE!

Defining informality

MTPE definition includes:

- ✓ Workers in firms with less than 10 employees
- ✓ Non remunerated family workers
- ✓ Independent workers (excluding professionals and technicians)

VS.

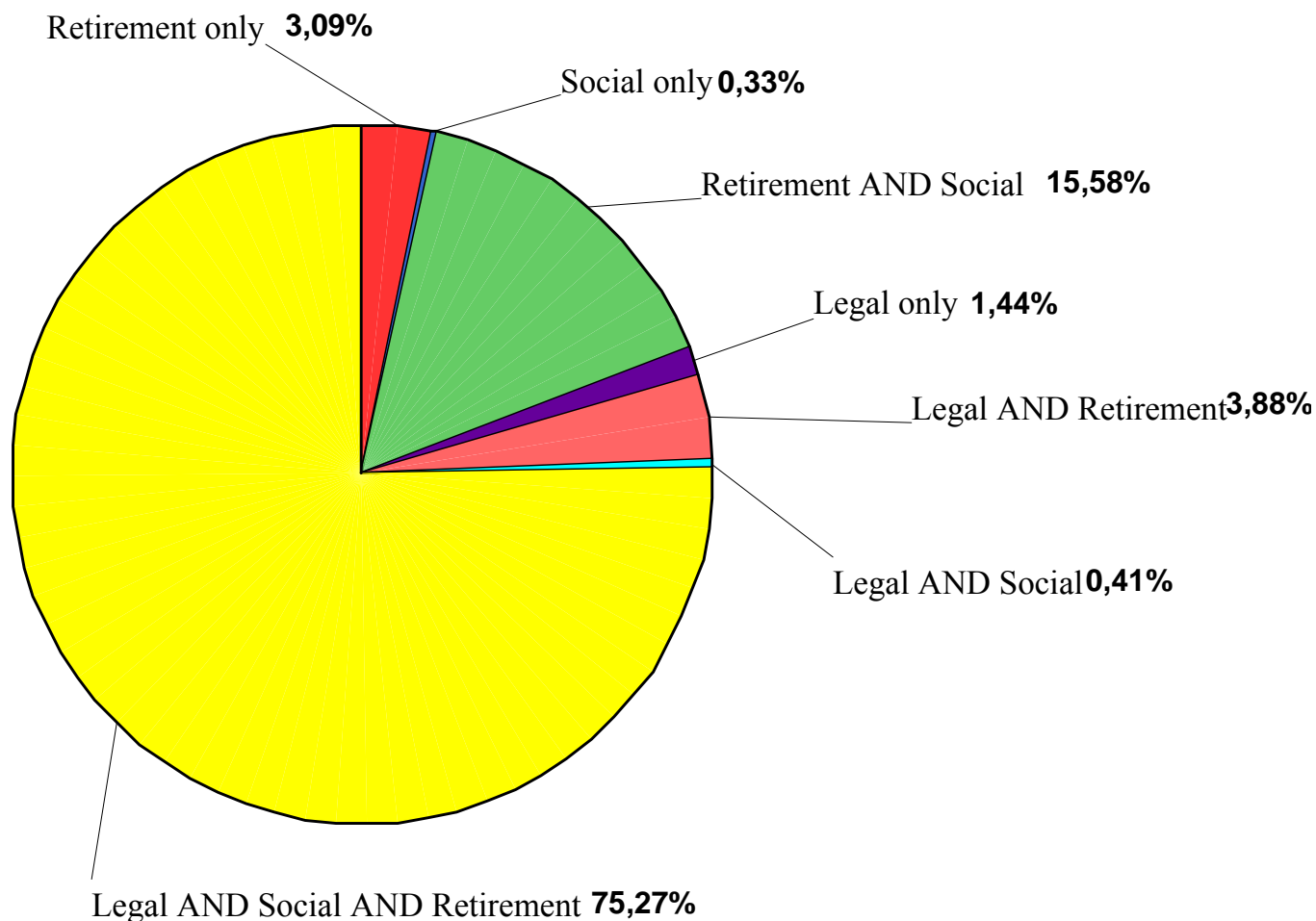
We adopt **THREE different definitions**:

- ✓ **Legal** approach:
existence of signed contract or firm registration (RUC)
- ✓ **Social** approach:
presence of social insurance
- ✓ **Retirement** approach:
existence of a retirement scheme

↓

+ 5.2% for the informal sector
in Lima Metropolitana
from 1990 to 2004

Overlapping Informality



Results

Education and working condition

(% values)

	Unemployed	Underemployed	Adequately Employed	Total
a) area OSEL- Lima Norte				
Sin titulo	9.1	58.4	32.5	100.0
Titulo de primaria	11.0	55.9	33.1	100.0
Titulo de secundaria	10.5	50.0	39.5	100.0
Superior no universitaria completa	6.6	37.1	56.4	100.0
Superior universitaria completa	5.9	21.1	72.9	100.0
Total	9.8	48.3	42.0	100.0
b) Lima Metropolitana				
Sin titulo	10.2	66.1	23.8	100.0
Titulo de primaria	11.7	53.2	35.0	100.0
Titulo de secundaria	12.9	44.1	43.0	100.0
Superior no universitaria completa	11.2	28.1	60.7	100.0
Superior universitaria completa	5.2	15.4	79.4	100.0
Total	11.3	40.9	47.8	100.0

Education and kind of job

(% values)

Kind of job Educational level	Entrepreneur	Independent worker	Dependent worker	Non remunerated family worker	Total
	a) Area OSEL – Lima Norte				
Sin título	2.8	10.5	3.3	8.6	6.0
Título de primaria	25.2	26.2	18.9	33.4	22.4
Título de secundaria	53.0	51.1	52.8	50.2	52.1
Superior no universitaria completa	13.9	8.6	14.5	5.8	12.1
Superior universitaria completa	5.0	3.5	10.5	1.9	7.4
Total	100.0	100.0	100.0	100.0	100.0
b) Lima Metropolitana					
Sin título	2.7	8.2	3.1	9.3	4.9
Título de primaria	12.7	24.3	13.3	30.2	17.4
Título de secundaria	53.4	52.1	50.0	53.1	51.0
Superior no universitaria completa	11.2	8.3	15.0	4.3	12.3
Superior universitaria completa	20.0	7.1	18.7	3.1	14.5
Total	100.0	100.0	100.0	100.0	100.0

Education and informality (legal)

(% values)

	Formal Workers	Informal Workers	Total
<i>a) Area OSEL – Lima Norte</i>			
Sin título	13.1	86.9	100.0
Título de primaria	19.7	80.3	100.0
Título de secundaria	28.4	71.6	100.0
Superior no universitaria completa	57.5	42.5	100.0
Superior universitaria completa	81.3	18.7	100.0
Total	32.9	67.1	100.0
<i>b) Lima Metropolitana</i>			
Sin título	23.7	76.3	100.0
Título de primaria	23.4	76.6	100.0
Título de secundaria	31.7	68.3	100.0
Superior no universitaria completa	60.0	40.0	100.0
Superior universitaria completa	85.3	14.7	100.0
Total	41.1	58.9	100.0

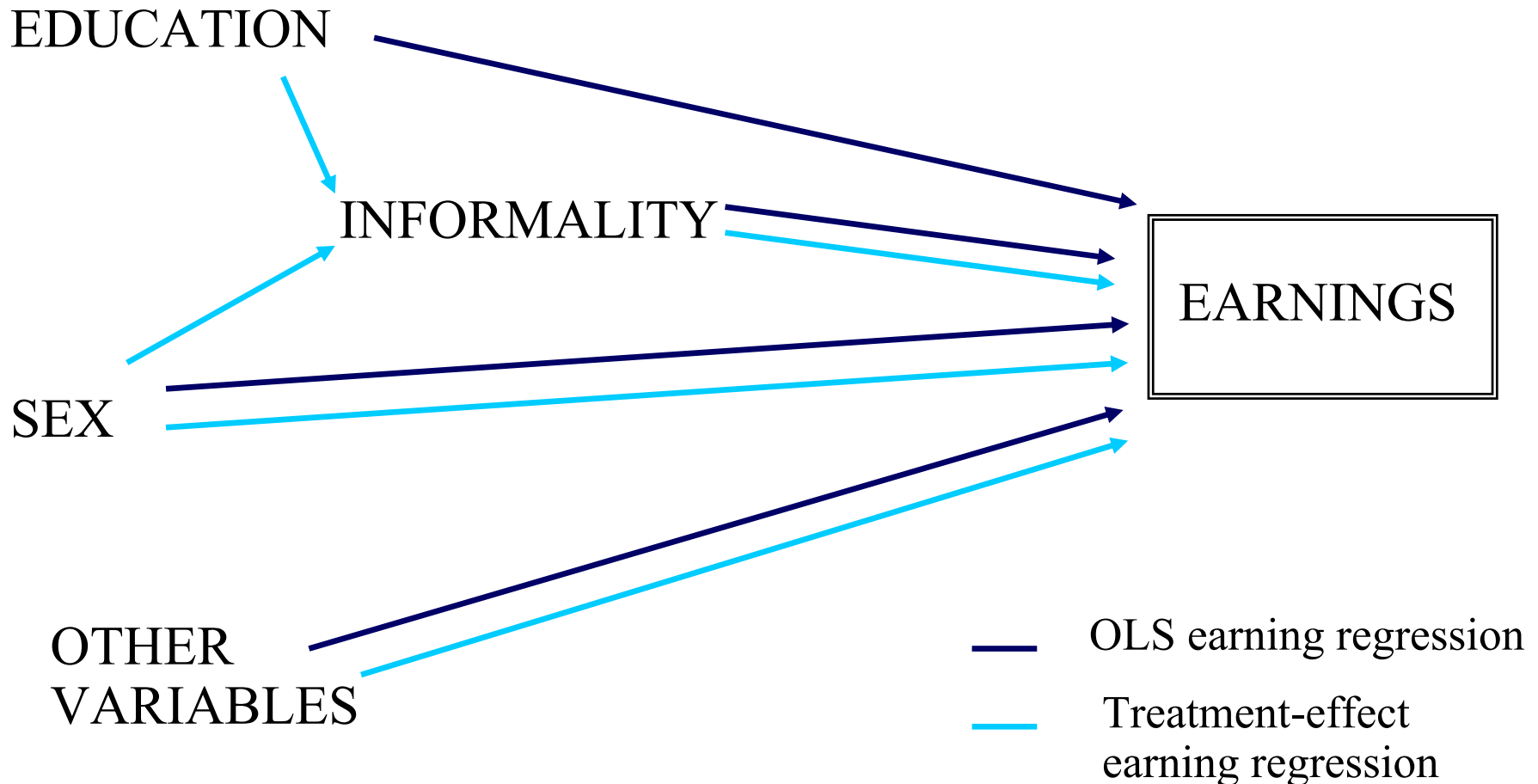
Informality and kind of job (2005)

	Employer	Independent worker	Dependent worker	Non remunerated family workers (TFNR)	Total
a) Area OSEL – Lima Norte					
% informals – legal	51.9	89.5	52.3	100.0	67.1
% informals – social	87.3	92.0	62.7	97.4	75.8
% informals – retirement	92.7	96.7	68.5	98.8	81.0
b) Lima Metropolitana					
% informals – legal	39.2	85.9	43.4	100.0	59.2
% informals – social	71.3	86.9	55.2	88.8	67.6
% informals – retirement	84.1	95.6	58.2	98.7	73.2

Characteristics of the informal worker (legal)

	a) Area OSEL – Lima Norte			b) Lima Metropolitana		
	Formal Workers	Informal Workers	Total	Formal Workers	Informal Workers	Total
N° of cases	123,995	252,349	376,344	1,396,732	2,003,580	3,400,312
Presence of another “formal” worker in the family (legal approach, %)	45.0	26.3	32.5	51.3	34.2	39.7
Presence of another “formal” worker in the family (social approach, %)	50.0	15.4	23.7	52.4	20.9	31.1
Age (years)	36.7	35.7	36.0	37.9	35.1	36.2
Working experience (years)	18.5	19.7	19.3	19.2	18.7	18.9
Schooling years	12.1	10.0	10.7	12.8	10.4	11.4
Monthly earnings (soles)	1,185	558	765	1,477	536	922
Earnings per hour (soles)	23.5	11.4	15.4	30.0	12.3	19.6
Father’s high educational level (%)	10.9	4.1	6.4	--	--	--
Mother’s high educational level (%)	5.9	2.4	3.5	--	--	--
Duration of present job (years)	6.8	5.5	5.9	7.5	5.4	6.2

Education, informality and earnings



Education, informality and earnings/1

Basic Mincer coefficients (without other characteristics):

	Total	Formal	Informal
NORTH LIMA	8.6%	12.7%	3.6%
METROPOLITAN LIMA	11.3%	12.8%	4.5%

Education, informality and earnings/2

a) an OLS earning regression (Lima Norte)

```
regress LN_EPH STUDY_Y EXP EXPQUAD INF_PRI SEXO MOTHER_H FATHER_H, robust
Linear regression
Number of obs = 2304
F( 7, 2296) = 69.88
Prob > F = 0.0000
R-squared = 0.1925
Root MSE = .6575
```

LN_EPH	Coef.	t
STUDY_Y	.0538444	10.11
EXP	.0170005	4.65
EXPQUAD	-.0002141	-2.71
INF_PRI	-.3900393	-12.21
SEXO	-.28255	-9.54
MOTHER_H	.2771964	2.91
FATHER_H	.137743	2.01
_cons	2.267528	25.62

Mincer coefficient = 0.0538

Informality coefficient = - 0.39

Education, informality and earnings/3

b) a treatment effects earning regression (Lima Norte)

```

SEXO EDAD SINTIT PRIMARIA SECUNDARIA SUP_NO_A SUP_UN_A) robust
Treatment-effects model -- MLE                               Number of obs   =       2304
                                                            Wald chi2(7)    =       472.84
Log pseudolikelihood = -3566.1841                          Prob > chi2     =       0.0000

```

	Coef.	z

LN_EPH		
SEXO	-.3396081	-10.45
STUDY_Y	.0340569	5.82
EXP	.0158619	4.29
EXPQUAD	-.0002257	-2.85
MOTHER_H	.2577249	2.76
FATHER_H	.1041126	1.54
INF_PRI	-.9481108	-13.06
_cons	2.978836	24.32

INF_PRI		
SEXO	-.2192147	-3.61
EDAD	-.0043513	-1.79
PRIMARIA	-.3024341	-2.21
SECUNDARIA	-.5105563	-3.79
SUP_NO_A	-1.109663	-7.26
SUP_UN_A	-1.846344	-10.67
_cons	1.601242	8.17

✓ **Mincer coefficient** = 0.034

✓ **Informality coefficient** = - 0.948

Dependent vs. independent workers

```
. treatreg LN_EPH SEXO STUDY_Y EXP EXPQUAD MOTHER_H FATHER_H if
TIPO_OCC==..., treat(INF_PRI= SEXO EDAD PRIMARIA SECUNDARIA SUP_NO_A
SUP_UN_A) robust
```

INDEPENDENT

(tipo_occ=2)

	Coef.	z
LN_EPH		
SEXO	-.2155108	-4.08
STUDY_Y	.0113904	1.24
EXP	.011428	1.52
EXPQUAD	-.0001961	-1.34
MOTHER_H	.5520591	2.93
FATHER_H	-.0197983	-0.14
INF_PRI	-.9511924	-6.30
_cons	3.135743	12.62
INF_PRI		
SEXO	-.089064	-0.68
EDAD	-.0174848	-3.14
PRIMARIA	-.5234653	-1.72
SECUNDARIA	-.734599	-2.49
SUP_NO_A	-1.313638	-3.78
SUP_UN_A	-2.515162	-6.82
_cons	2.93337	6.24

DEPENDENT

(tipo_occ=3)

	Coef.	z
LN_EPH		
SEXO	-.4628774	-9.82
STUDY_Y	.0608417	8.26
EXP	.0136654	3.41
EXPQUAD	-.0001914	-2.23
MOTHER_H	.1235841	1.39
FATHER_H	.1402111	1.95
INF_PRI	-.980799	-11.31
_cons	2.853712	18.29
INF_PRI		
SEXO	-.552686	-7.00
EDAD	-.017531	-5.17
PRIMARIA	.1750174	1.05
SECUNDARIA	-.0318983	-0.19
SUP_NO_A	-.4744123	-2.39
SUP_UN_A	-.9584326	-4.31
_cons	1.655842	6.87



Conclusions

- ✓ Our pure Mincerian coefficients are in line with those indicated in the literature.
- ✓ We have checked the hypothesis of a “*two-channels* influence” of educational level on earnings:
 1. directly → affecting earnings once treated the effects of informality
 2. indirectly → augmenting the probability to be informal
- ✓ This “*two channels* influence” is verified for dependent workers, but NOT for independent workers.
- ✓ Informality affects earnings very strongly, confirming what emerged in the descriptive analysis.
- ✓ Informality in Lima Norte shows more PREALC/OIT features than Maloney/Levenson ones.



Further analysis

- Considering, in a similar model, the **participation effect for women** in labor market. The rate of participation could reasonably hide a selection bias about the choice of informality.
- Running two different regressions for **formal workers and informal ones**, to obtain different coefficients for the two populations.
- **Other variables** (family context, innate ability, working experience and schooling years) could influence formal and informal workers in different ways. Perhaps a quantile regression model can help to let these differences emerge.



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INTERNATIONAL WORKSHOP ON INFORMALITY

Lima, December 6, 2006