

NTA Virtual Global Meeting on Population and the Generational Economy

Labor market informality, gender and time inequality in Colombia

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Introduction

- NTTA uses the 2016 National Time Survey (ENUT).
 - The latest available for Colombia
 - Nation-wide representative
- Household characterization to explore the relation between time use , labor market participation, informality and the role of gender per household head.
 - 2018 Census data estimates that about 4 out of 10 households are female-headed.
 - 46.8% of the Colombian workforce is employed in the informal sector.

Average Household Structure

	Female-headed households	Male-headed households	p-values
Household head Age	51.688 [16.538]	49.043 [15.698]	0.000
Household head Partner (=1)	0.197 [0.398]	0.792 [0.406]	0.000
Household members	3.066 [1.719]	3.365 [1.640]	0.000
Household members under age 12	0.545 [0.864]	0.607 [0.865]	0.000
Household members under age 18	0.880 [1.117]	0.931 [1.093]	0.000
Subsidized Social Security (=1)	0.487 [0.500]	0.453 [0.498]	0.000
Unsatisfied Basic Needs Score	0.419 [0.822]	0.411 [0.784]	0.284

Standard Deviations in Brackets

- Male-headed household tend to be larger in Colombia.
- Female household heads usually do not cohabitate with partner.
- A larger proportion of households with female head have subsidized social security, **which we use as a proxy for labor market informality.**
- We do not find significant average difference in economic wealth (as measured by UBN) across genders of the household head.

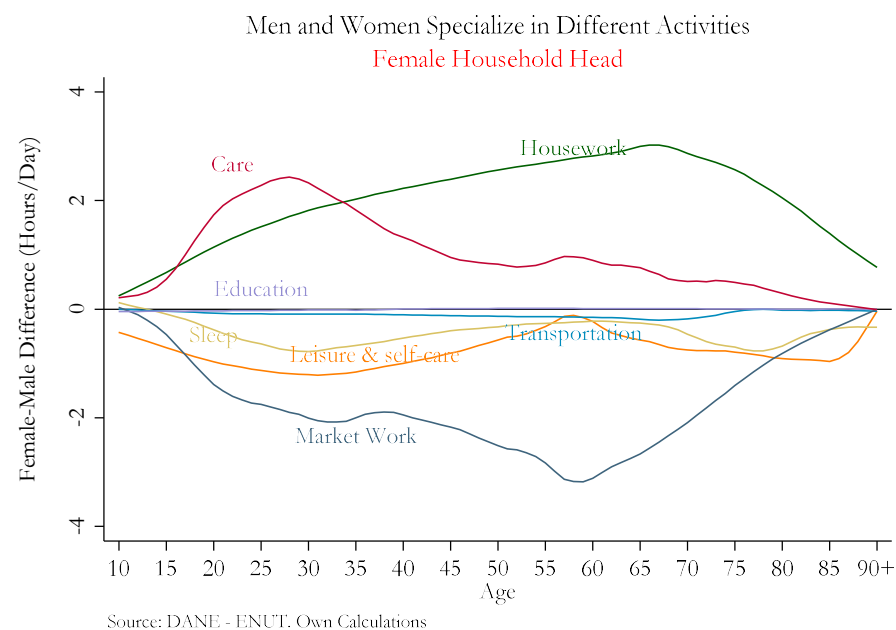
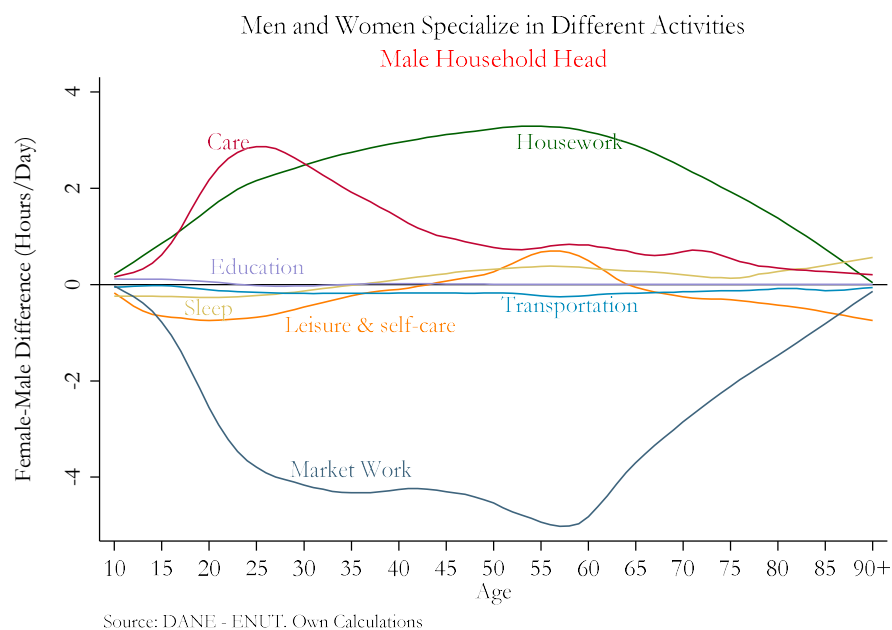
Households' average characteristics per household head gender

	Males			Females		
	Male-headed households	Female-headed households	p-values	Male-headed households	Female-headed households	p-values
Sanitary Facilities (=1)	0.772	0.814	0.000	0.784	0.830	0.000
Knows how to read (=1)	0.951	0.953	0.243	0.958	0.945	0.000
Age	40.234	32.222	0.000	37.353	42.655	0.000
Score UBN	0.120	0.158	0.000	0.122	0.121	0.600
Poor(=1)	0.083	0.122	0.000	0.081	0.085	0.087
Housework Production (Hrs./Week)	7.333	5.371	0.000	22.381	19.235	0.000
Care Production (Hrs./Week)	5.959	4.622	0.000	14.591	11.694	0.000
Housework Consumption (Hrs./Week)	12.613	11.971	0.000	12.565	13.347	0.000
Care Consumption (Hrs./Week)	3.062	3.890	0.000	3.878	3.290	0.000

Source: Own Calculation from ENUT-2016

- Women in female-headed households dedicate less time to unpaid housework and care production than women in male-headed households.
 - The reduction in care activities is larger than the reduction in unpaid housework activities.
- Men in male-headed households dedicate more time to care production, mainly because men in female-headed households tend to be children and elderly.

Use of time per gender of the household head



Men and Women Specialization: Area under the curve

	Male-headed households	Female-headed households
Leisure & self-care	-17.451	-62.139
Care	87.64	79.364
Housework	175.977	161.823
Transportation	-11.82	-7.352
Market Work	-248.054	-137.915
Sleep	9.591	-34.395
Education	1.282	-0.313

Households' characteristics per market work formality

	Males			Females		
	Formal Market Work	Informal Market Work	p-values	Formal Market Work	Informal Market Work	p-values
Sanitary Facilities (=1)	0.907	0.652	0.000	0.913	0.685	0.000
Knows how to read (=1)	0.984	0.917	0.000	0.982	0.919	0.000
Age	38.659	37.453	0.000	40.593	38.849	0.000
Score UBN	0.108	0.154	0.000	0.099	0.147	0.000
Poor(=1)	0.074	0.115	0.000	0.063	0.104	0.000
Housework Production (Hrs./Week)	6.674	6.942	0.002	19.288	22.790	0.000
Care Production (Hrs./Week)	5.885	5.294	0.000	12.352	14.293	0.000
Housework Consumption (Hrs./Week)	11.876	13.040	0.000	12.406	13.490	0.000
Care Consumption (Hrs./Week)	3.455	3.104	0.000	3.638	3.579	0.524

Source: Own Calculation from ENUT-2016

Households' characteristics per market work formality

- We use subsidized social security as a proxy to measure informality in the job market.
- We find that women within households that participate in informal market work produce more housework and care time.
- As expected, both women and men that participate in the informal market work are poorer than formal market work households.

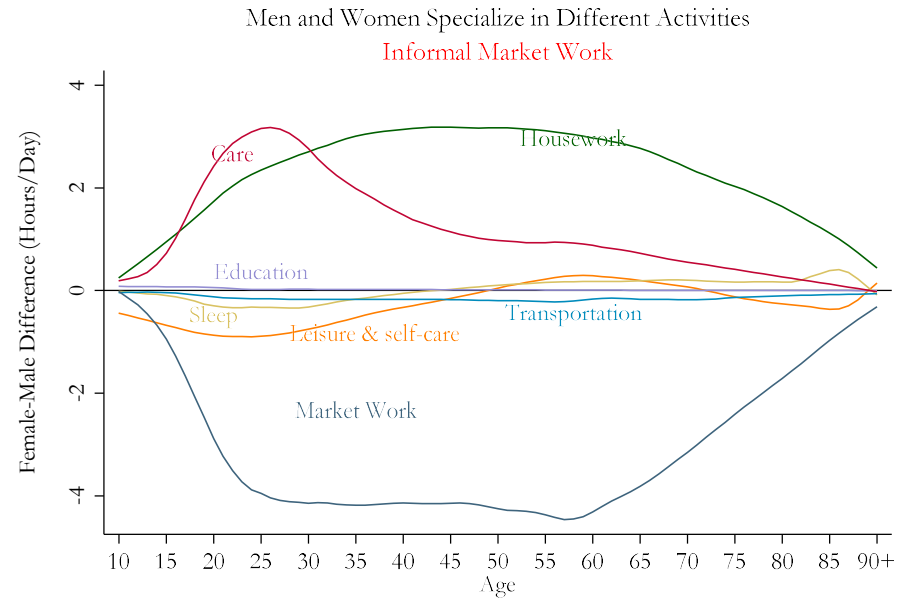
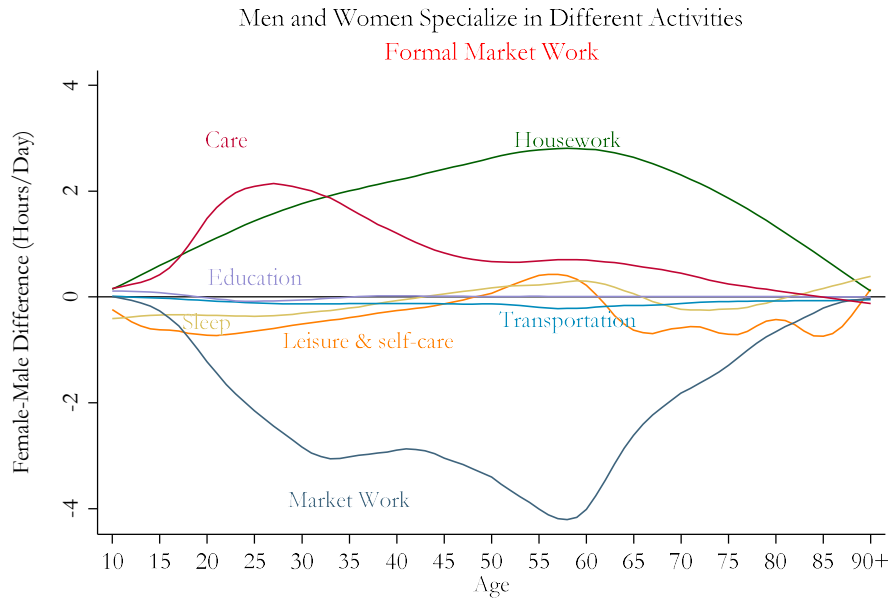
Households' characteristics per market work formality

Household Informality	Individual Informality		Head of Household		Head of Household Partner	
	Formal (=1)	Informal (=1)	Formal (=1)	Informal (=1)	Formal (=1)	Informal (=1)
Formal (=1)	0.49	0.02	0.52	0.02	0.54	0.01
Informal (=1)	0.06	0.43	0.07	0.4	0.05	0.4

Informal households are those where the majority of members belong to the subsidized social security program.

Source: Own Calculations from ENUT 2016.

Time use per formal paid work

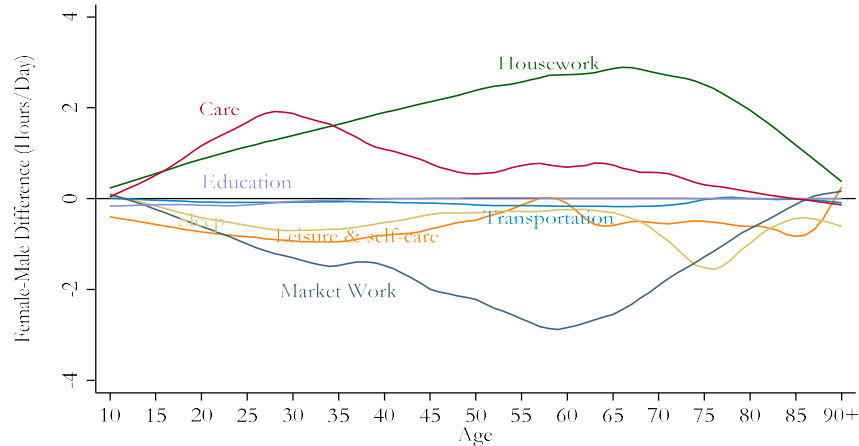


Men and Women Specialization: Area under the curve

	Formal Market Work	Informal Market Work
Leisure & self-care	-29.379	-21.854
Care	66.218	93.236
Housework	143.621	183.651
Transportation	-8.93	-11.603
Market Work	-167.363	-248.349
Sleep	-6.039	1.586
Education	0.407	1.567

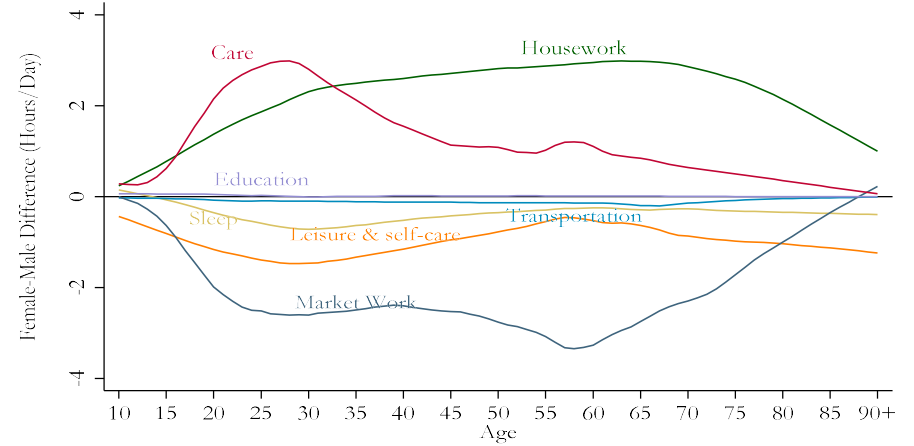
Time use by the sex of the household head and market work formality

Men and Women Specialize in Different Activities
 Female Household Head & Formal Market Work



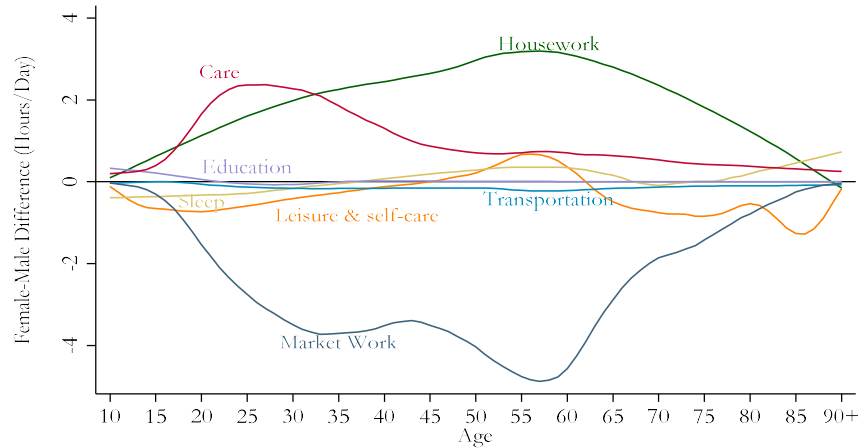
Source: DANE - ENUT. Own Calculations

Men and Women Specialize in Different Activities
 Female Household Head & Informal Market Work



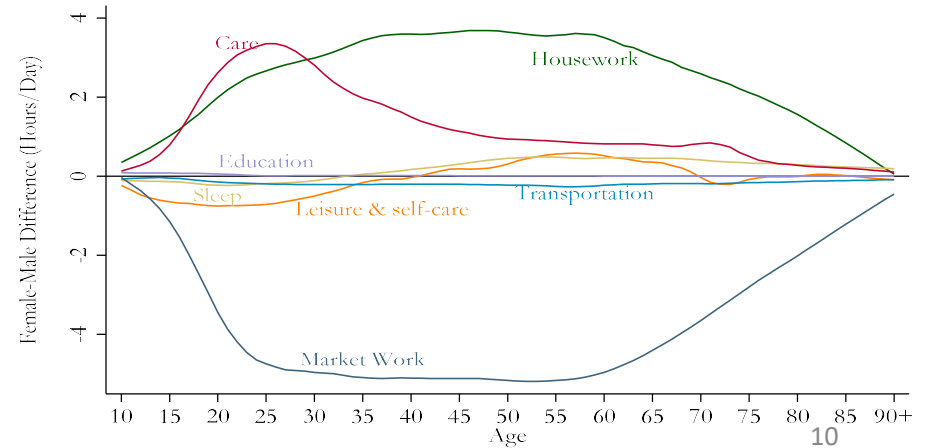
Source: DANE - ENUT. Own Calculations

Men and Women Specialize in Different Activities
 Male Household Head & Formal Market Work



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Men and Women Specialize in Different Activities
 Male Household Head & Informal Market Work



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Time use by household head gender and market work formality

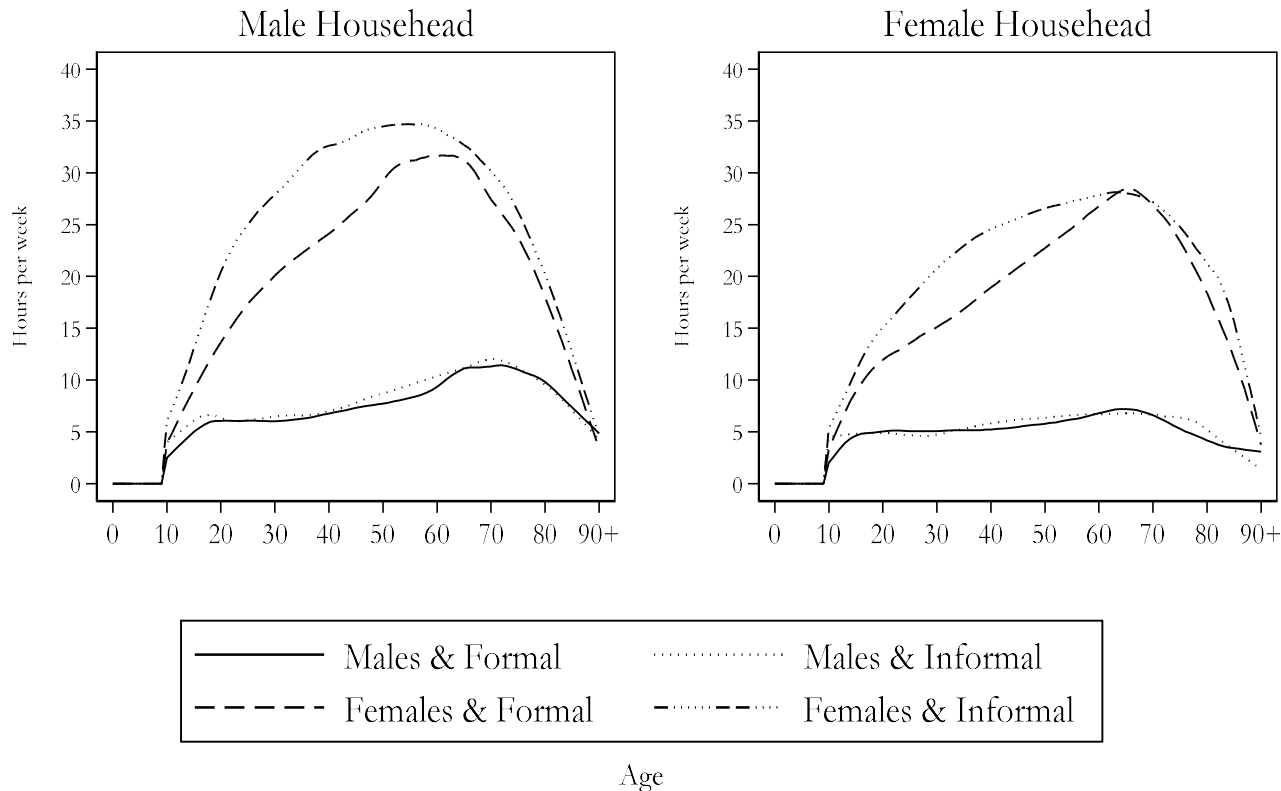
Men and Women Specialization: Area under the curve

	Formal Market Work		Informal Market Work	
	Male-headed households	Female-headed households	Male-headed households	Female-headed households
Leisure & self-care	-28.98	-47.53	-5.92	-78.31
Care	76.73	61.89	97.86	95.79
Housework	153.91	144.79	202.69	178.00
Transportation	-10.26	-6.79	-13.93	-8.07
Market Work	-197.18	-110.96	-296.67	-161.89
Sleep	4.74	-42.61	15.12	-29.72
Education	1.87	-2.58	1.42	1.23

Source: Own Calculation from ENUT-2016

Household Production Profiles

Household Production By Sex of the Household Head and Market Work Formality
Colombia: 2016-2017



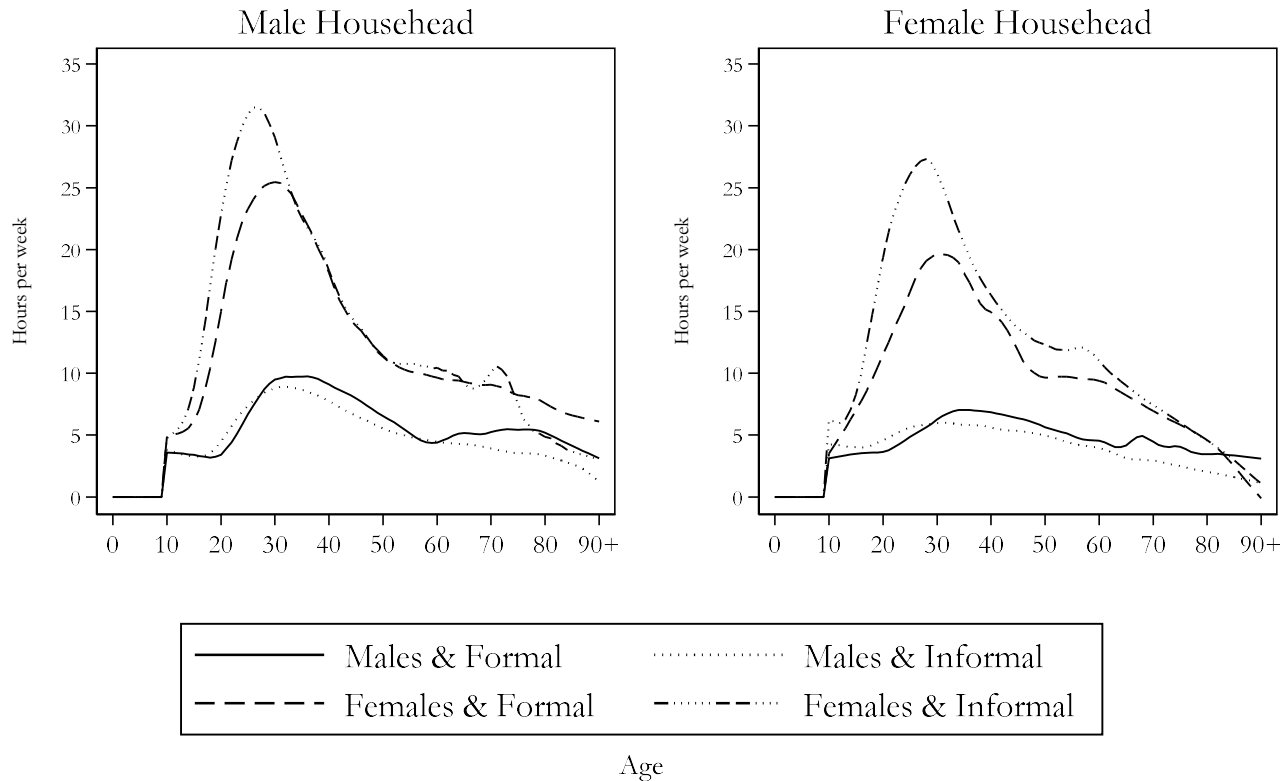
- Women in informal male-headed households produce the most housework at all ages.
- Men, between 15 and 80 years old, produce the least less housework independent of the household head gender.
- It seems informality pushes households to dedicate more time to housework production activities.

Note: Household production includes laundry, cooking, hh maintainance, repair and management, pet care, shopping and, transportation time.

Source: DANE - ENUT. Own Calculations

Production Care Profiles

Production Care By Sex of the Household Head and Market Work Formality
Colombia: 2016-2017



- Production care profiles show a similar pattern to that of the household production profiles.
- Results suggest that women in informal male-headed households produce more care time at almost every age.
- While formal males produce slightly more care time than informal males.

Source: DANE - ENUT. Own Calculations

Preliminary Regression Analysis

Dependent Variable:	(1) Unpaid Housework (Hrs/Week)	(2) Unpaid Housework (Hrs/Week)	(3) Child Care (Hrs/Week)	(4) Child Care (Hrs/Week)
Woman (=1)	15.11*** (0.108)	12.40*** (0.104)	7.609*** (0.118)	5.344*** (0.100)
Age	0.866*** (0.00876)	0.656*** (0.00881)	0.302*** (0.0135)	0.325*** (0.0120)
Age ²	-0.00822*** (0.000117)	-0.00517*** (0.000116)	-0.00408*** (0.000159)	-0.00388*** (0.000141)
Constant	-10.80*** (0.145)	-9.292*** (0.154)	-1.207*** (0.254)	-2.249*** (0.232)
Observations	68,905	71,056	56,300	60,667
R-squared	0.544	0.504	0.546	0.609
Sub-sample	Informal	Formal	Informal	Formal
Household FE	Yes	Yes	Yes	Yes

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Exploratory Regression Analysis

- Regression results are consistent with NTTA profiles' evidence
- Our results suggest that women in formal and informal households dedicate more time to unpaid housework and childcare activities than men.
- Columns (1) and (2) together suggest the gender gap between men and women is wider in informal households than in formal ones. This results are also consistent for childcare in columns (3) and (4).

Conclusions

- Female-headed households are smaller than male-headed households, mainly because the household head is single.
- Women in female-headed households usually produce less housework and care time than females in male-headed households.
- Nevertheless, women in the formal female-headed households dedicate less time to housework and care activities than women in informal female-headed households -> double pressure for informal women
- Informality and the sex of the household head do not seem to affect significantly the time men dedicate to housework and care activities.

Gracias

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Appendix A: Unsatisfied Basic Needs Score

- Colombia's Unsatisfied Basic Needs (UBN) index uses 15 different variables to measure poverty across the country.
- Unfortunately, ENUT's doesn't have complete information for all 15 variables the UBN index needs.
- We compute an approximate UBN score using the 9 available variables in ENUT.
- Although we can't fully verify the validity of our score, it does correctly correlate with main variables like household size, household income, health problems, among others.

Appendix B: Integrals Calculation

- To compute the area under the curve of male and female differences in the use of time we use Stata command `integ`.
- We compute the difference by sex and use Friedman's Super Smoother (`supsmooth`) to obtain the smooth difference in time use by age and category.
- `integ` first fits the smoothed points with a cubic spline which is then analytically integrated to give an approximation for the integral of smoothed function.
- For more information on the cubic spline method see **Press et al. (2007). *Numerical Recipes: The Art of Scientific Computing*. 3rd ed. New York: Cambridge University Press.**