



Unequal Expectations – gender inequality in salary expectations of university students

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Labour Market in Mozambique

	% GDP	% Employment	
		All workers	Secondary Educ. or Higher
Agriculture and Fisheries	23.8	72.8	25.2
Extractive and Manufacturing Industries	15.6	3.4	6.5
Energy and Construction	4.3	0.3	0.8
Trade and Financial Services	17.6	9.5	19.8
Other Services	38.6	14.0	47.7

Source: INE (2019, 2015)

Sector	MT		USD	
	Mean	Median	Mean	Median
Agriculture	23,078.00	16,786.00	577.21	419.84
Extractive and Manufacturing Industries	20,695.00	14,820.00	517.61	370.67
Transport, Energy, IT and Communications	37,171.00	22,479.00	929.69	562.23
Trade, Financial Services and other services	29,319.00	17,303.00	733.30	432.77

Note: MT = Metical; MT/USD nominal exchange rate of 39.982, for 2015, as per World Development Indicators

Source: Mazive and Xirinda (2018) using data from the Mozambique Household Survey 2014/15

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t-tests of equal mean wages, men and women with tertiary education, by sector

Sector	Mean Wages (MT)		dif.	Std. Error	t stat	p value	N	
	M	W					M	W
Agriculture	29,657.55	29,579.39	78.16	16,608.09	0	.997	12	2
Extractive and Manufacturing Industries	25,954.39	13,352.95	12,601.44	5,569.53	2.25	.029	35	10
Transport, Energy, IT and Communications	35,996.66	53,914.65	-17,900.00	16,629.47	-1.1	.287	35	13
Trade, Financial Services and other services	29,558.43	25,780.85	3,777.58	2,513.01	1.5	.133	647	361
Mozambique	29,696.13	26,426.07	3,270.06	2,403.26	1.35	.174	729	386

Note: t-tests calculated using data from the Mozambique Household Budget Survey 2014/15

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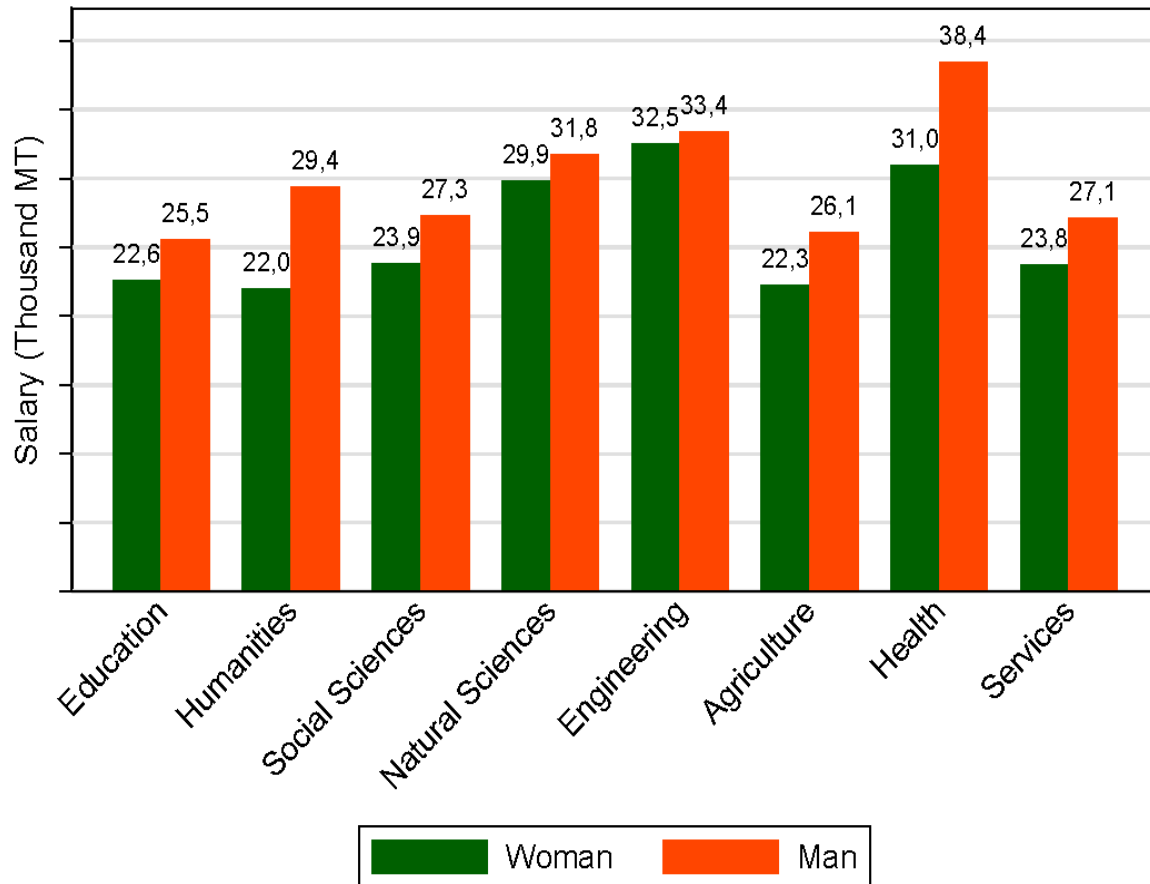
Methodology ●

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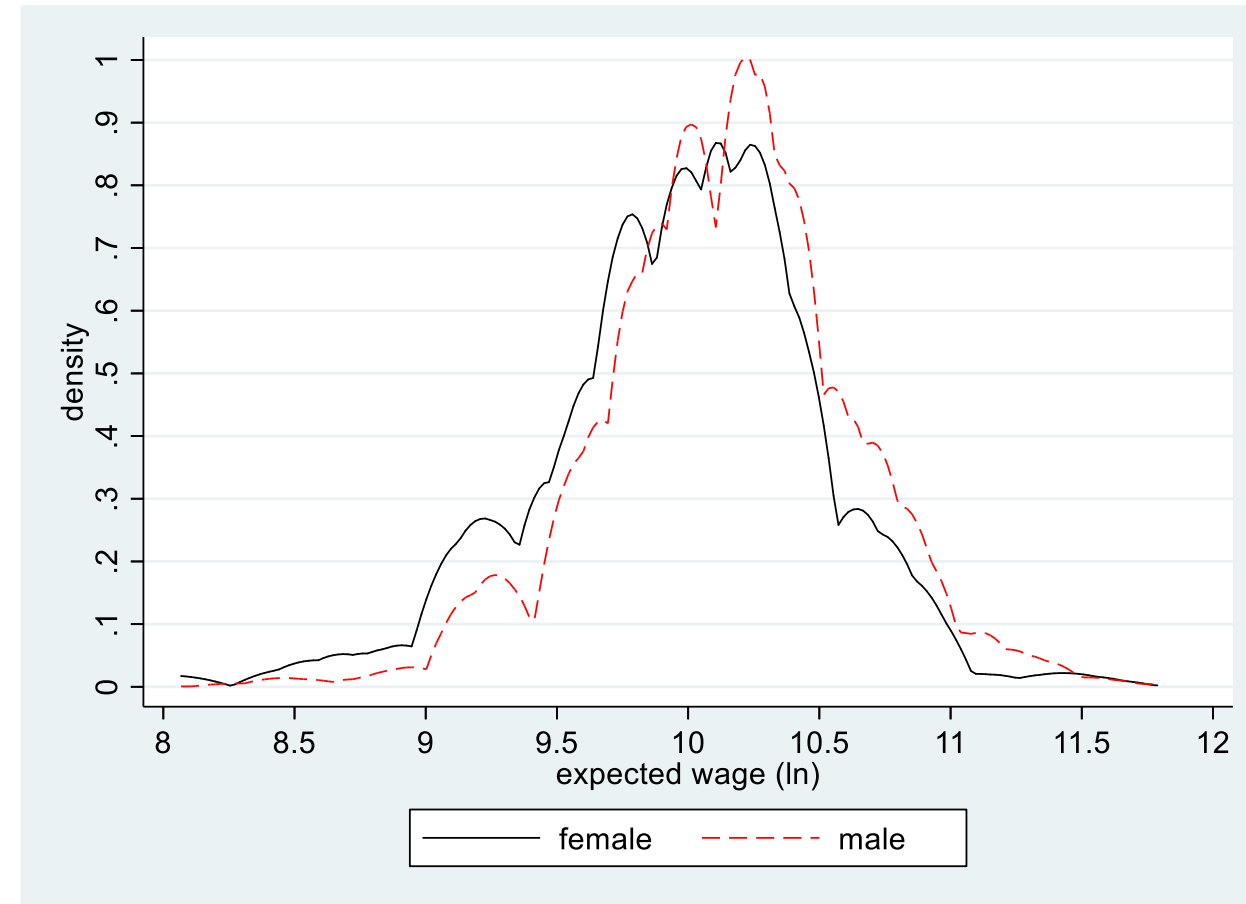
Expected wage by gender

Average expected wage, by gender and study area



Source: Survey of School to Work Transition of University Students in Mozambique (Jones et al. 2018)

Non-parametric density (adaptive kernel)



Source: Own calculation using Survey of School to Work Transition of University Students in Mozambique

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t-tests of equal mean expected wages, men and women university finalists, by preferred sector of activity

Preferred Sector	Mean Wages (MT)		dif	Std. Error	t stat	p value	N	
	M	W					M	W
Agriculture and Fishery	24,510.87	23,382.98	1,127.89	2,562.65	.45	.661	46	47
Extractive and Manufacturing Industries	31,609.38	30,179.49	1,429.89	2,971.35	.5	.631	128	39
Transport, Energy, IT and Communications	29,206.05	25,083.71	4,122.34	1,314.43	3.15	.002	347	182
Trade, Financial Services and other services	28,864.15	24,584.81	4,279.34	827.82	5.15	0	503	666
Mozambique	29,212.94	24,878.92	4,334.02	642.49	6.75	0	1041	948

Note: t-tests calculated using data from the Survey of School to Work Transition of University Students in Mozambique

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Determinants of Student's Wage Expectations

- Starting from Hyman (1942), a key argument is that people learn from the choices and incomes of reference groups, starting from the family (Xia, 2016):
 - Parental education and social networks (Brunello et al., 2004; Delaney et al., 2011); knowledge of and reliance on what is learned from family members (Xia, 2016) and people from the community Jensen (2010).
- There has been (consistent) evidence that, beyond Mozambique, women's pre-career salary expectations are lower than men's (Major and Konar, 1984; Heckert et al., 2002; Brunello et al. 2004; Hogue et al., 2010; Menon et al., 2012; Alonso-Borrego and Romero-Medina, 2015; Frick and Maihaus; 2016).
- Other determinants are also suggested by this literature:
 - Age, being a senior student, the gap between expected and required years of education, student's effort, relative subjective ability and objective performance, access to information related to market wages, student's search efforts (networking, internships, out-of-school skills training), type of university (public with national admission vs private); household income.

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Choice of Course and Wage Expectations

- Differences in expectations could stem from the fact that men and women are attending different courses, with men attending courses where average salaries are higher than salaries in courses attended by women (Paglin and Rufolo, 1990).
- Khosrozadeh et al., (2013) argue that the existing literature seems to indicate that women choose their course based on their present and social interests.
- Among the factors that affect students' choice of course literature suggests their interest in the course, career concerns, student performance in course-related subjects, the reputation and method of teaching the college, and the benefits they could gain (Calkins and Welki, 2006; Malgwi et al., 2005).
- We cannot overlook path-dependency, as suggested by the pipeline theory (Mariani, 2008; Schweitzer et al., 2011):
 - Under-representation of women in study areas begets future under-representation.
 - Pipelines for certain areas of work remain gender segregated. The results found by Schweitzer et al. (2011) showed that while women are entering predominantly male areas in larger numbers, this does not necessarily result in greater gender equality in the labour market.

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Self-Fulfilled Promise?

- Lower wage expectations may result in lower realized salaries, as workers tend to accept values that meet their expectations (Delaney et al., 2011).
- Female students may anticipate wage discrimination, both in the form of possible lower wages in similar work positions and worse opportunities for employment (Brunello et al., 2004; Delaney et al., 2011).
- Heckert et al. (2002) suggest that female student may project their future from other women's current work experience. If there are existing inequalities, women's expectations are likely to reflect them.
- Schweitzer et al. (2011) argue that differences in expectations between men and women are due to women's recognition (not necessarily acceptance) of the persistence of gender differences in workplaces and Aycan (2004) argues that they are due to stereotypes concerning the role of gender.

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Survey of School to Work Transition of University Students

Study area	Men	Women	All
Education	228	226	454
Letters and Humanities	57	49	106
Social Sciences	347	463	810
Natural Sciences	244	81	325
Engineering	158	37	195
Agronomy	54	37	91
Health	47	105	152
Services	15	26	41
	1,150	1,024	2,174



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Sample descriptors

Percentages	Women	Men
Age		
18-24 years old	60.9	54.9
25-34 years old	27.7	34.5
35-44 years old	9.4	8.2
45-55 years old	2.0	2.3
Scholarship recipient	15.6	26.4
Married	15.8	12.9
Self-assessed academic performance		
Average	60.4	47.5
Above average	23.7	34.4
Excellent	13.9	15.3
Doesn't know	1.9	2.8
Self-assessed English proficiency		
Doesn't know how to speak/write	46.4	28.2
Basic ability	27.0	27.3
Limited professional ability	19.9	29.9
Fluent	6.7	14.6

Percentages	Women	Men
University		
UEM	32.0	38.9
UCM	9.2	8.2
UNIZAMBEZE	7.5	11.4
USTM	7.6	3.4
UP	35.0	34.2
APOLITECNICA	8.6	3.9

Percentages	Women	Men
Highest level of education in the household		
No formal education	1.3	4.6
Primary	10.1	16.5
Secondary	23.4	26.4
Technical / Professional	26.1	24.0
Higher	38.3	27.4
Other or doesn't know	0.8	1.1
Worked or working	49.3	68.6
Had an internship	50.4	51.2

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Sample descriptors

Percentages	Women	Men
Province of Primary Education		
Cabo Delgado	0.6	2.3
Niassa	0.8	1.0
Nampula	1.7	1.8
Tete	1.6	1.7
Zambezia	3.6	5.9
Sofala	11.6	13.2
Manica	2.4	3.7
Inhambane	4.8	9.2
Gaza	3.9	6.2
Maputo City	46.5	35.4
Maputo Province	21.1	18.6
Abroad / Other	1.4	1.0

Percentages	Women	Men
Attended public secondary school	79.7	86.9
Attended Primary Education in a...		
Village	8.3	14.3
Town	12.0	19.4
City	79.7	66.3

Percentages	Women	Men
Displaced to pursue university	23.6	39.2
Would choose the same course	72.5	78.5
Mean values		
Course duration	3.9	4.0
Skills Assessment – Objective Tests		
Score of Analytical Test	38.7	40.4
Score of Numerical Test	41.8	48.5
Score of Verbal Test	59.3	60.0
Personality traits		
Score of Locus of Control Test	7.7	7.7

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Methodology

Segregation and Stratification

- Dissimilarity Index**

$$D = \frac{1}{2} \sum_{j=1}^N \left| \frac{n_f^j}{n_f} - \frac{n_m^j}{n_m} \right|$$

- Gini Index**

$$G = 2 \sum_{j=1}^N (\hat{F}_f^j - \hat{F}_m^j) \frac{n_f^j}{n_f} \text{ with } \hat{F}_g^j = \sum_{i=1}^{j-1} \frac{n_g^{i-1}}{n_g} + \frac{1}{2} \frac{n_g^j}{n_g}$$

Value Interval [0,1]

- Concentration Index (ordered by average wage)**

$$C = 2 \sum_{j=1}^N (\hat{H}_f^j - \hat{H}_m^j) \frac{n_f^j}{n_f}$$

Value Interval [-1,1]

Wage Gap Regression

- Average Expected Wage Gap**

$$E(Y_m) - E(Y_f) = [X_m(\beta_m - \beta) - X_f(\beta_f - \beta)]$$

Unexplained

$$+(X_m - X_f)\beta$$

Explained

- Expected Wage Gap throughout the distribution**

$$Q_\tau(Y_m) - Q_\tau(Y_f) = [X_m(\gamma_m - \gamma) - X_f(\gamma_f - \gamma)]$$

Unexplained

$$+(X_m - X_f)$$

Explained

Regression estimates are used to produce the conditional distributions.

Conditional estimates of the segregation and stratification indicators were produced through reweighting.

Results – Observed and Conditional Indicators of Segregation and Stratification

	Observed	Conditional
Study area (N=13)		
Segregation (D)	0.117	0.142
Segregation (Gini)	0.180	0.178
Concentration (Gini)	0.072	-0.012
Ratio (%C/S)	40.3	-6.7
Sector of Activity (N=13)		
Segregation (D)	0.138	0.136
Segregation (Gini)	0.197	0.194
Concentration (Gini)	-0.035	-0.060
Ratio (%C/S)	-17.8	-31.1
Study Area and Sector of Activity (N=135)		
Segregation (D)	0.236	0.252
Segregation (Gini)	0.358	0.366
Concentration (Gini)	0.056	0.006
Ratio (%C/S)	0.156	1.6

Regression

Wage Gap Decomp.

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Results - Distribution of study areas by gender

Study area	Observed					Conditional	
	% Total	Expected Wage	% Women	% Men	Dif.	% Women	Dif.
Health sciences	5.1	35,622	4.9	5.3	0.4	8.4	-3.0
Engineering	7.9	33,118	5.6	9.7	4.1	7.1	2.6
Information science	1.9	31,524	1.1	2.6	1.5	1.5	1.1
Natural Science	2.1	30,698	2.2	2.0	-0.1	3.2	-1.1
Accounting	5.6	27,196	6.4	5.0	-1.4	5.5	-0.5
Law	5.8	26,813	6.1	5.6	-0.5	4.3	1.3
Humanities	1.6	26,286	1.5	1.6	0.1	1.5	0.1
Social Sciences	9.0	25,816	9.6	8.6	-1.0	11.3	-2.7
Psychology	5.7	25,670	7.0	4.6	-2.4	7.2	-2.6
Agriculture	5.5	25,617	3.7	7.0	3.3	4.7	2.3
Economics and Management	20.3	24,846	20.5	20.2	-0.4	15.6	4.6
Education	22.1	24,464	20.8	23.1	2.3	19.6	3.5
Education Management	7.3	23,340	10.6	4.7	-5.9	10.3	-5.5
Total	100	26,506	100	100		100	

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Results - Distribution of desired sector of activity by gender

Sector	Observed					Conditional	
	% Total	Expected Wage	% Women	% Men	Dif.	% Women	Dif.
Construction	4.4	31,906	3.6	5.0	1.5	3.5	1.5
Extractive Industry	3.6	30,288	1.9	5.0	3.1	2.9	2.1
Dont_know/No_work	1.6	30,089	1.5	1.7	0.2	0.8	0.8
Transport	1.0	29,862	0.8	1.2	0.3	0.7	0.4
Health	9.3	29,780	12.2	6.9	-5.4	18.4	-11.5
Financial Activities	18.0	27,996	19.5	16.8	-2.7	15.6	1.2
Manufacturing Industry	3.1	27,957	1.9	4.0	2.1	2.8	1.2
Restaurant and accommodation	1.8	27,573	2.5	1.3	-1.2	1.4	-0.1
Public Administration	10.9	25,714	13.4	8.9	-4.4	10.4	-1.4
Communications and Technology	8.8	25,479	7.3	10.1	2.8	8.8	1.3
Agriculture and fishery	3.6	24,681	3.4	3.8	0.3	3.6	0.1
Education	29.0	24,315	28.3	29.6	1.3	26.7	2.9
Commerce	5.0	22,152	3.9	5.9	2.0	4.5	1.4
Total	100	26,506	100	100		100	

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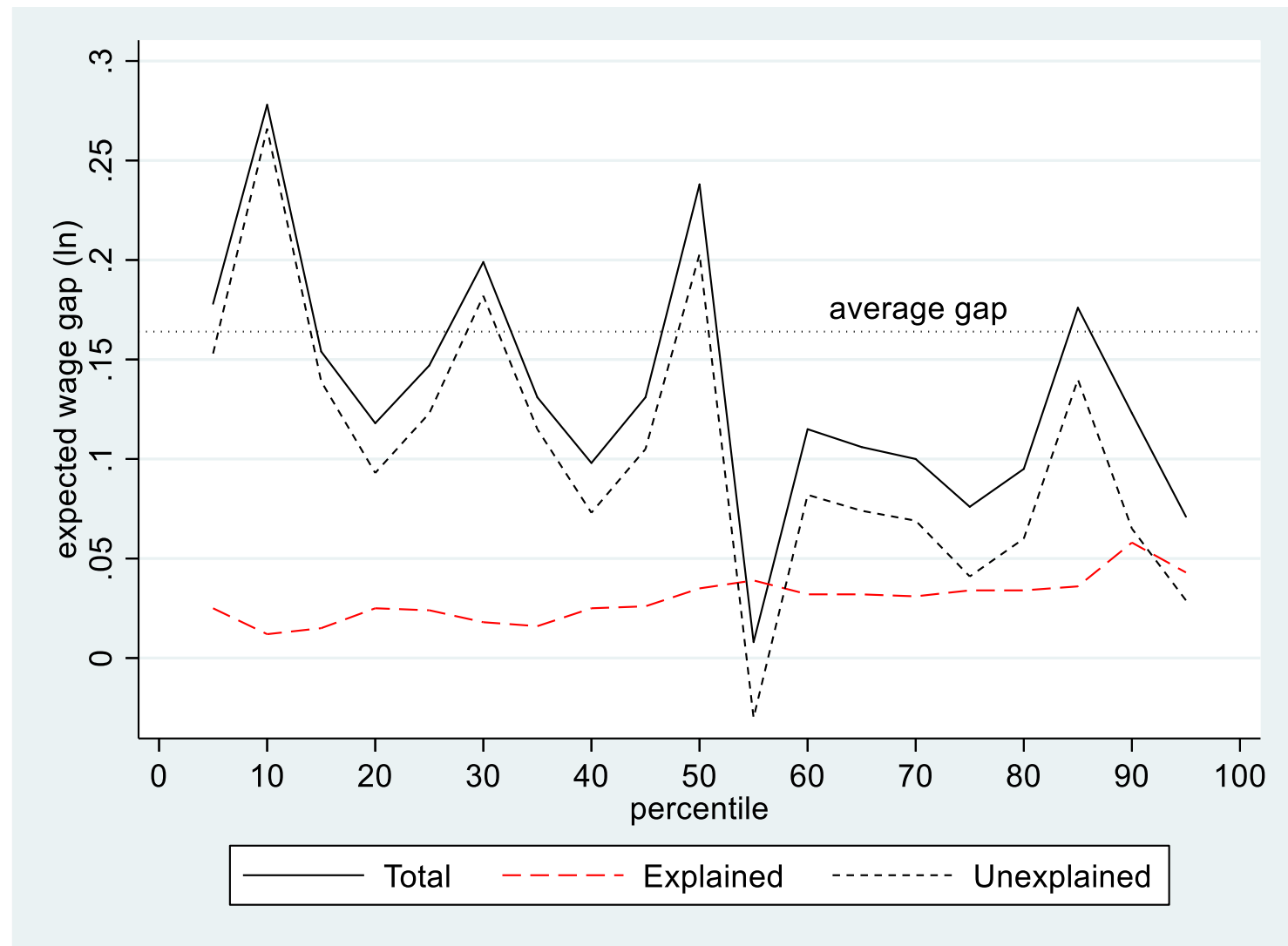
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Expected wage gender gap distribution and decomposition into compositional (explained) and structural (unexplained) wage effects



Some Reflections

- **There is strong evidence of unequal wage expectations** by Mozambican university students.
- However, **the factors suggested by the literature**, that we were able to test, **seem to only explain a fifth of this inequality**, mostly at the top half of the wage distribution.
- **Almost 80 per cent of the gender difference in the average expected salary remains unexplained even after controlling for a wide variety of personal and family characteristics**, including some like family background or the results of cognitive tests that are typically omitted in studies of this kind.
- In the detailed decomposition of the unexplained term, the intercept produces the largest estimates, **so it is difficult to identify**, as this term captures the differential effect of omitted categories, as well as unobservable gender fixed effects that are uncorrelated with the other characteristics.

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And yet, the inequality is evident!

So, where to go next?

- Could it all be expectation error?
- Is the promise fulfilled?
 - Latest preliminary results of the follow-up survey tell us that:
 - A lower proportion of women are finding a job, a year after the end of their final year.
 - There are evident differences in the sectorial distribution of jobs.
 - On average, women's wage is close to 2.000 MT (~33 USD, 60 MT/USD) below men's
- Is there evidence of a pipeline phenomenon?

Definitely, worth to look at!

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Thank you



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Regression estimates

	Men and Women		Women		Men	
Education Management	-0.029	(0.055)	-0.106	(0.073)	-0.010	(0.089)
Humanities	-0.093	(0.066)	-0.231*	(0.101)	-0.028	(0.090)
Social Sciences	-0.042	(0.056)	-0.032	(0.090)	-0.054	(0.072)
Economics and Management	-0.091	(0.054)	-0.161	(0.087)	-0.068	(0.071)
Accounting	-0.109	(0.072)	-0.146	(0.113)	-0.105	(0.104)
Law	-0.034	(0.072)	-0.196	(0.108)	0.064	(0.096)
Natural Science	0.017	(0.072)	-0.105	(0.128)	0.065	(0.087)
Information science	0.137	(0.073)	0.215	(0.164)	0.121	(0.088)
Engineering	0.146*	(0.071)	-0.069	(0.156)	0.214**	(0.082)
Agriculture	-0.094	(0.073)	-0.151	(0.114)	-0.072	(0.095)
Health sciences	0.232**	(0.082)	0.092	(0.118)	0.279*	(0.119)
Psychology	-0.015	(0.058)	-0.001	(0.084)	-0.058	(0.086)

	Men and Women		Women		Men	
Agriculture and fishery	0.002	(0.096)	0.063	(0.129)	-0.049	(0.131)
Extractive Industry	0.142	(0.082)	0.368	(0.190)	0.076	(0.088)
Manufacturing Industry	0.078	(0.074)	0.135	(0.151)	0.074	(0.083)
Construction	0.105	(0.071)	0.371*	(0.145)	0.014	(0.084)
Commerce	-0.011	(0.062)	0.080	(0.109)	-0.078	(0.078)
Restaurant and accommodation	0.204*	(0.085)	0.295*	(0.123)	0.245*	(0.106)
Transport	0.243	(0.126)	0.314	(0.211)	0.215	(0.159)
Communications and Technology	0.004	(0.052)	-0.012	(0.087)	0.024	(0.066)
Financial Activities	0.212***	(0.049)	0.208**	(0.080)	0.228***	(0.064)
Public Administration	0.082	(0.049)	0.120	(0.067)	0.052	(0.074)
Health	0.047	(0.064)	0.017	(0.095)	0.129	(0.079)
Dont_know/No_work	0.136	(0.098)	0.226	(0.143)	0.162	(0.146)
Men	0.129***	(0.027)				
Intercept	9.537***	(0.096)	9.518***	(0.129)	9.702***	(0.138)
N	1,989		948		1,041	
R²	16.3		15.9		20.4	

Expected wage gap decomposition (ln)

	Composition effect (explained)				Wage structure effect (unexplained)			
	Average	Q10	Q50	Q85	Average	Q10	Q50	Q85
Total difference	0.164***	0.278***	0.238***	0.176***	0.164***	0.278***	0.238***	0.176***
	(0.025)	(0.033)	(0.029)	(0.039)	(0.025)	(0.033)	(0.029)	(0.039)
Total Effect	0.035**	0.012	0.035*	0.036	0.129***	0.266***	0.203***	0.140***
	(0.016)	(0.021)	(0.018)	(0.025)	(0.026)	(0.036)	(0.032)	(0.043)
Detailed effect								
Numerical abilities	0.001	0.001	0.007*	-0.010**	-0.085**	-0.049	-0.075	-0.133**
	(0.003)	(0.004)	(0.004)	(0.005)	(0.037)	(0.052)	(0.047)	(0.059)
Verbal abilities	-0.000	-0.000	-0.000	-0.000	-0.078	-0.006	-0.128**	-0.066
	(0.000)	(0.001)	(0.000)	(0.001)	(0.050)	(0.069)	(0.060)	(0.080)
Rav Abilities?	0.001	0.003	0.001	-0.001	0.033	0.064	0.024	-0.008
	(0.001)	(0.002)	(0.001)	(0.001)	(0.036)	(0.053)	(0.044)	(0.057)
Locus	-0.000	0.000	-0.000	-0.000	0.164	0.184	0.141	0.448**
	(0.000)	(0.001)	(0.001)	(0.000)	(0.117)	(0.173)	(0.140)	(0.186)
Age	0.001	0.002	0.003	-0.001	0.038	0.029	0.020	0.009
	(0.003)	(0.003)	(0.004)	(0.004)	(0.027)	(0.038)	(0.033)	(0.043)
Scholarship	0.009**	0.006	0.007	0.016**	0.006	0.001	-0.012	0.019
	(0.004)	(0.005)	(0.004)	(0.007)	(0.013)	(0.017)	(0.015)	(0.020)
Relocated	0.009*	0.002	0.016**	0.010	-0.039*	-0.032	-0.053**	-0.083***
	(0.005)	(0.007)	(0.007)	(0.008)	(0.021)	(0.028)	(0.024)	(0.031)
Has Children	-0.000	-0.000	0.001	-0.003	-0.024	0.014	-0.020	-0.025
	(0.001)	(0.002)	(0.002)	(0.003)	(0.021)	(0.030)	(0.025)	(0.033)
Married	-0.001	-0.001	-0.001	-0.002	-0.010	-0.019	-0.006	-0.002
	(0.001)	(0.001)	(0.002)	(0.002)	(0.011)	(0.015)	(0.014)	(0.020)
Prior job	0.006	0.003	0.005	0.002	-0.011	-0.031	-0.021	-0.008
	(0.005)	(0.007)	(0.006)	(0.008)	(0.029)	(0.043)	(0.037)	(0.046)



Expected wage gap decomposition (ln)

	Composition effect (explained)				Wage structure effect (unexplained)			
	Average	Q10	Q50	Q85	Average	Q10	Q50	Q85
Prior Internship	0.000	0.000	0.000	0.000	-0.016	-0.060	-0.044	0.049
	(0.001)	(0.002)	(0.001)	(0.001)	(0.030)	(0.043)	(0.037)	(0.049)
Performance	0.005	0.007	-0.002	0.006	-0.000	-0.016	0.001	0.039
	(0.004)	(0.005)	(0.004)	(0.006)	(0.022)	(0.030)	(0.026)	(0.037)
Duration	0.003	-0.001	0.002	0.008	-0.042	-0.042	-0.154	0.118
	(0.002)	(0.001)	(0.002)	(0.006)	(0.092)	(0.125)	(0.097)	(0.175)
Type of Sec.	-0.002	-0.002	-0.004	0.001	0.001	0.021	-0.002	-0.019
	(0.002)	(0.003)	(0.003)	(0.004)	(0.011)	(0.014)	(0.013)	(0.018)
English	-0.002	-0.009	-0.007	0.018*	0.017	0.010	0.032	0.046
	(0.006)	(0.009)	(0.007)	(0.009)	(0.033)	(0.049)	(0.040)	(0.049)
Same Course?	0.001	0.003	-0.001	0.001	-0.072	-0.090	-0.046	-0.101
	(0.001)	(0.002)	(0.002)	(0.002)	(0.052)	(0.082)	(0.062)	(0.082)
Family Education	0.001	-0.003	0.007	-0.005	-0.015	-0.262	-0.106	0.464*
	(0.005)	(0.007)	(0.006)	(0.008)	(0.241)	(0.420)	(0.221)	(0.275)
Primary school province	-0.000	-0.005	-0.003	-0.002	-0.283	-0.059	-0.311	-0.331
	(0.006)	(0.008)	(0.007)	(0.008)	(0.242)	(0.149)	(0.333)	(0.265)
Type of primary sch.	-0.001	0.008	-0.005	-0.007	-0.012	0.100	-0.053	-0.187*
	(0.004)	(0.006)	(0.005)	(0.007)	(0.081)	(0.114)	(0.101)	(0.112)
University	-0.002	0.003	0.002	-0.004	-0.045	0.001	-0.050	-0.092
	(0.007)	(0.006)	(0.007)	(0.009)	(0.040)	(0.056)	(0.049)	(0.068)
Study area	0.012**	0.001	0.010	0.019*	-0.019	0.117	0.123	-0.092
	(0.006)	(0.007)	(0.008)	(0.011)	(0.102)	(0.150)	(0.129)	(0.160)
Work area	-0.006	-0.006	-0.001	-0.011	0.082	0.094	0.375**	-0.275
	(0.007)	(0.008)	(0.008)	(0.011)	(0.159)	(0.225)	(0.158)	(0.248)
Constant					0.539	0.295	0.567	0.369
					(0.425)	(0.577)	(0.496)	(0.572)