

LIFE AFTER GRADUATION: DO STATISTICIANS FARE BETTER THAN OTHER GRADUATES IN THE BRAZILIAN LABOR MARKET?

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In this text we analyze the situation of statisticians vis-à-vis other university degree holders with respect to some characteristics in the labor market, using indicators such as salary, formal labor market links, economic sector of employment, position in the occupation and spatial distribution among the Brazilian states. Female statisticians seem to fare better than their male counterpart when compared to other graduates with respect to salaries. The gender gap is smaller for statisticians than for all graduates considered together. But in general when considering the insertion in the labor market, Brazilian statisticians of both sexes fare better than other university graduates: the proportion of Statisticians in informal jobs is proportionally smaller. On the other hand, the proportion of statisticians holding positions that do not require a university degree is slightly higher than that of all graduates.

INTRODUCTION

The entrance door to the Brazilian undergraduate system is a selection exam where the prospective candidate has to list a set of career options, as opposed to many American universities where the choice for the major is done after some contact with the departments. Depending on the grade obtained in the exam, the candidate is eligible to join a given combination of course/university. Exams are offered either by single universities or a consortium of them. For a given exam the candidate have only the choice of careers the university/college offers. Statistics is not a very well known profession and many prospective candidates do not consider this alternative as a first choice for a major and it is usually a second or third option after more know careers, such as engineering, computer science and so on. This paper intends to look at individuals with Statistics degrees to evaluate their position in the labor market, salary, formal labor market links, economic sector of employment, position in the occupation and spatial distribution among the Brazilian states are the indicators used. Whenever possible equivalent indicators for the population with university degrees are used for comparison.

Figure **Figure 1** shows the proportion of individuals holding a Statistics degree among those with a degree (solid line) and those economically active with a degree (dotted line). Statisticians represent around 0,1% of university degree holders. The proportion is slightly smaller for women and it increases as a function of age, indicating a temporal decrease in the proportion of graduates in this major. This is probably due to the increase in alternative university courses supply. Comparing those with a statistical degree in the labor market and the population as a whole one can see that statisticians leave the labor market (probably due to retirement) much earlier than other graduates. This difference is particularly acute among females.

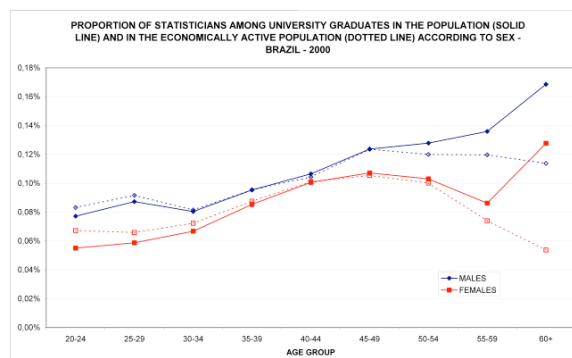


Figure 1. Proportion of Statisticians among University Graduates in the Population (Solid Line) and in the Economically Active Population (Dotted Line) according to Sex - Brazil - 2000

SALARIES

Figure 2 presents a comparison of the cumulative distribution of salaries between statisticians and all other graduates among males. As expected, salaries increase with age with some crossover at the older groups. Statistics graduates earn less *vis a vis* all graduates of comparable age (statisticians cumulative curves are to the left of those of all graduates). The only exception is the older group, 60+, with a better salary distribution for statisticians.

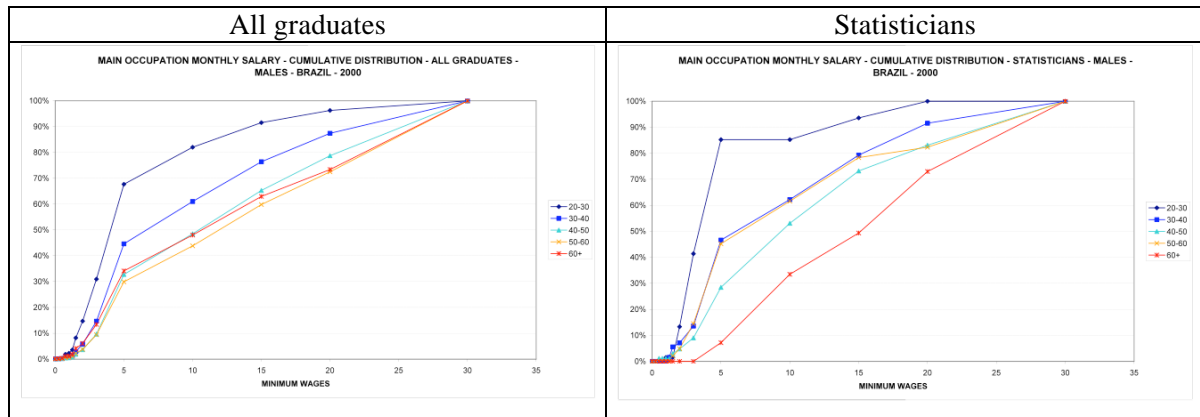


Figure 2. Main Occupation Monthly Salary - Cumulative Distribution by Age Group - all Graduates and Statisticians - Males - Brazil - 2000

Women statisticians present a completely different pattern from their male counterparts (see Figure 3). Salary distribution is not as dependent on age as it happens for males and the cumulative distribution for statisticians is to the right of those for all graduates for all age groups considered with the sole exception of the older group, 60+ (a rather small one).

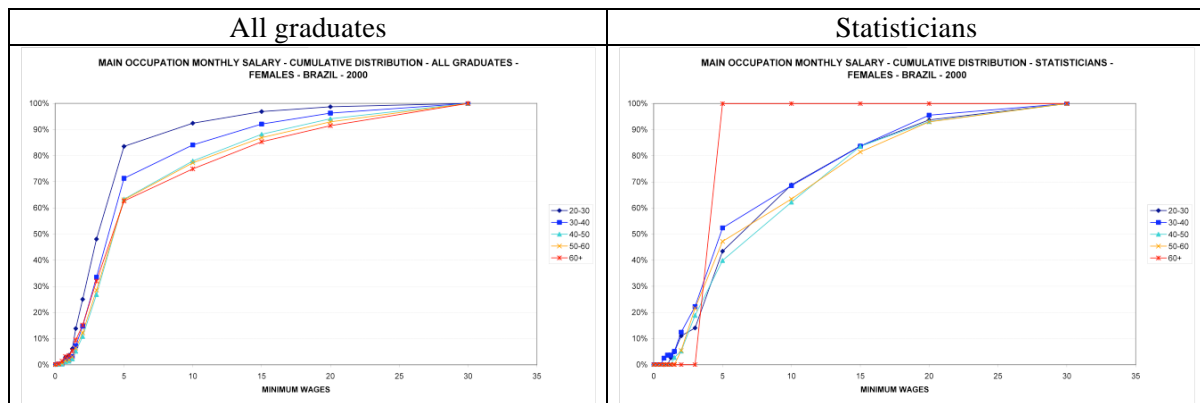


Figure 3. Main Occupation Monthly Salary - Cumulative Distribution by Age Group - all Graduates and Statisticians - Females - Brazil - 2000

POSITION IN THE LABOR MARKET

If one considers the position in the labor market, *vis-à-vis* other graduates (see Figure 4), statisticians fare better, considering they are more represented in the formal market: public servants and documented employees. On the other hand they are less represented among informal workers and among those situations that could be translated either by entrepreneurship or precariousness: self-employed and employers. For both groups women are over-represented among public employees and among those in a documented job. Among those with a university degree, the proportion in an undocumented job is less than 10%, with smaller figures for women and for statisticians.

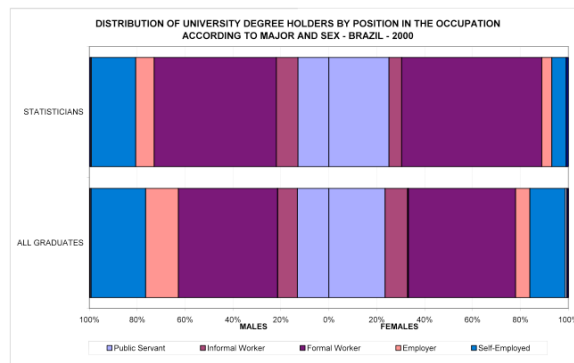


Figure 4. Distribution of University Degree Holders by Position in the Occupation According to Major Area and Sex - Brazil - 2000

ECONOMIC SECTOR OF EMPLOYMENT

Figure 5 presents the ratio of the proportion of statisticians and all other graduates in a given sector. Economic sectors that show higher proportion of statisticians *vis a vis* other graduates are: Public Administration, Defense and Social Security; Finance and Insurance; Transportation, Warehousing and Communication; Accommodation and Food Services; Utilities; and Mining. Note that International Organizations and Fishery do not show the presence of statisticians. Ratios are rather similar for males and females, with the exception of Mining. Most probably female statisticians are concentrated in Vale do Rio Doce, the major company in the sector.

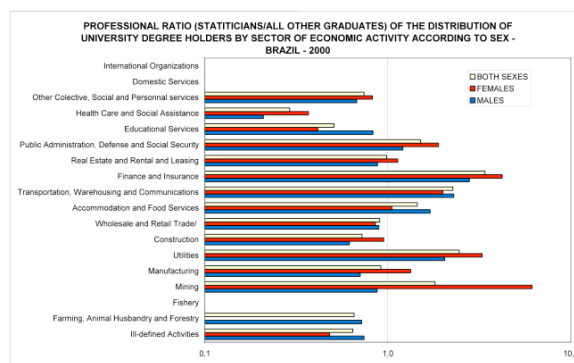


Figure 5. Professional Ratio (Statisticians/all other Graduates) of the Distribution of University Degree Holders by Sector of Economic Activity According to Sex - Brazil - 2000

OCCUPATION

When distribution by occupation is taken into account, statisticians show a more symmetric distribution between sexes, with the exception of clerical jobs, over-represented among women. Arts and Sciences workers are the more representative occupation both among statisticians and other graduates, for men and women. Among statisticians, High School Level and Clerical Workers and are more present for men and *women vis a vis* all graduates. This seems to be a situation of sub-employment, since university degree holders should not be working in a high school level job. It is very possible that to assure a position in the formal labor market, statisticians can compromise taking a technical job (that requires only a high school diploma). First-line public servants, supervisors and managers are around 20% among statisticians (see Figure 6).

SPATIAL DISTRIBUTION AMONG BRAZIL STATES

The map in Figure 7 shows the spatial distribution of the ratio between the proportion of statisticians and that of all other graduates: darker colors are associated with a greater proportion of statisticians and lighter colors to the opposite situation. States with no statisticians whatsoever are represented with no color in the map and they are concentrated mainly in the North and Mid-West,

the most backward regions. Graduates in those states must be mainly administrators and teachers. Regions outline are in red. Rondônia, Rio Grande do Norte, Bahia, Rio de Janeiro and Brasília (the Nations Capital) are the states that show higher presence of statisticians *vis a vis* other graduates. Rio de Janeiro is a former national capital and is still the site of the Census Bureau. Somehow this map reflects the site of statistics courses, with the exception of São Paulo with two major courses but also a large amount of universities and colleges with a large panoply of undergraduate courses. According to the Statisticians Union in Brasília (SINDEST/DF, 2010) Brasília, São Paulo and Rio de Janeiro are (in this order) the states with better pay for statisticians.

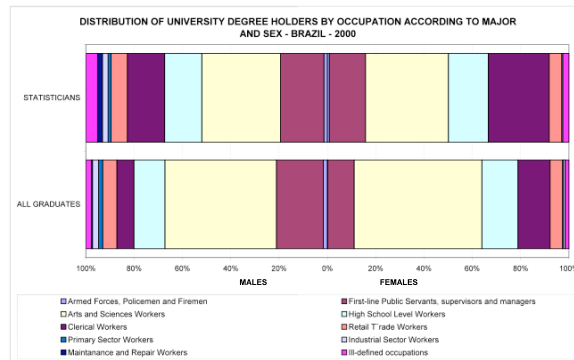


Figure 6. Distribution of University Degree Holders by Occupation According to Major Area and Sex - Brazil - 2000

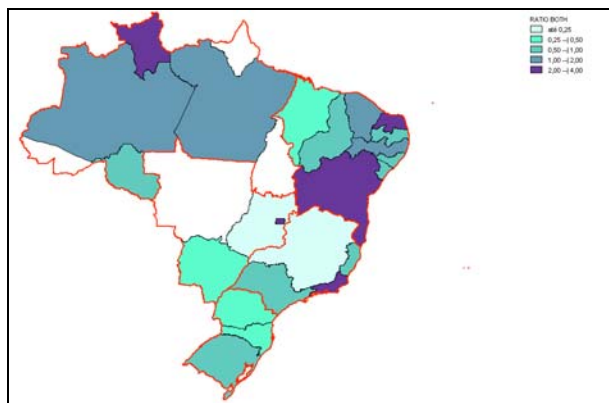


Figure 7. Spatial distribution of the ratio between the proportion of statisticians And that of all other graduates

CONCLUSION

Female statisticians seem to fare better than their male counterpart when compared to other graduates with respect to salaries. The gender gap is smaller for statisticians than for all graduates considered together. This could be linked to sexual segregation in the labor market where women choose professions that are less valued socially and economically (Bourdieu, 1999). But in general when considering the insertion in the labor market, Brazilian statisticians of both sexes fare better than other university graduates: the proportion of statisticians in informal jobs is proportionally smaller. On the other hand, the proportion of statisticians holding positions that do not require a university degree is slightly higher than that of all graduates.

REFERENCES

Bourdieu, P. (1998). *La Domination masculine*, Paris: Edition du Seuil.
 IBGE (2001). *Census 2000, microdata*. Rio de Janeiro: IBGE.
 SINEST/DF (2010), *Perfil do Estatístico*. Online: <http://www.sinest.org.br/profissao.do#2>.
 Brasília: Sindicato dos Estatísticos do Distrito Federal.