# Gender and Firm Performance

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## Introduction

Economic literature to date studying gender differences in firm performance has focused on developed countries. Further, most of these studies focus on individuals and fail to account for country-specific firm characteristics, such as business sector, firm size, and worker productivity. Literature that does study businesses in developing countries at the firm level is limited.

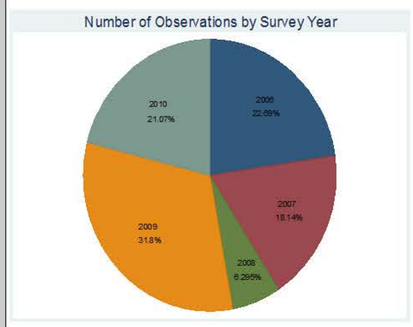
Current research on Latin American and African economies shows a negative relationship between the presence of a female owner and firm size, labor productivity, and total annual sales (Amin, 2010, 2011). Another African study confirms this, also finding that the positive relationship between firm size and productivity is higher in developing countries than it is in the developed world (Soderbom, Teal & Wambugu, 2004). Studies of China's manufacturing sector suggest a positive correlation between the share of female workers in a firm and export share, firm age, and firm size, and a negative correlation between female workers and market share and capital-labor ratio (Dong & Zhang, 2008). These studies suggest that there are differences in the relationship between firm and gender in different regions of the world.

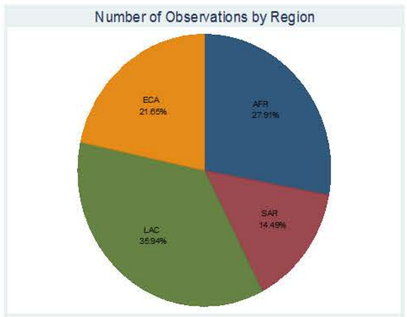
In this study, we assess the relationship between the gender of a firm's head and the firm's overall performance, measured by the log of the firm's total annual profits. We also take into account several firm-level controls. In doing so, we aim to answer the following questions:

- **How does the gender of a firm's top owner or manager affect the firm's overall performance?**
- **Are patterns in gender and firm performance different in developing countries than they are in developed countries?**
- **How does the effect of the gender of a firm's top owner or manager on profits differ across different regions?**
- **How do the effects of different burdens on running a business differ for male- and female- run firms?**

## Data

The Enterprise Surveys are a set of firm-level surveys conducted by the World Bank's Enterprise Analysis Unit since 2002. Through face-to-face interviews with managers and business owners in over 130,000 companies across 135 economies, the Enterprise Analysis Unit has collected data covering a broad range of topics – including business environment, infrastructure, competition, firm performance, and informality – to be used to analyze an economy's private sector.




| | Region | | | | | | |
|---|---|---|---|---|---|---|---|
| Survey Year | AFR | EAP | ECA | LAC | MNA | SAR | Total |
| 2006 | 4,000 | 0 | 0 | 10,930 | 0 | 0 | 14,930 |
| 2007 | 5,932 | 0 | 1,952 | 0 | 0 | 2,439 | 10,323 |
| 2008 | 0 | 0 | 3,375 | 0 | 0 | 535 | 3,910 |
| 2009 | 3,997 | 4,952 | 7,959 | 1,802 | 0 | 618 | 19,328 |
| 2010 | 1,347 | 0 | 0 | 12,855 | 477 | 0 | 14,679 |
| Total | 15,276 | 4,952 | 13,286 | 25,587 | 477 | 3,592 | 63,170 |

## Empirical Strategy

**Base Regression:**

$$\mathbf{l(profit) = \beta_0 + \beta_1 top\_female + \beta_2 formal\_estab + \beta_3 l(tot\_sales) + \beta_4 l(topman\_exper) + \beta_5 YIB + \beta_6 microfirm + \beta_7 percent\_female + \varepsilon},$$

where:

l(profit) = (log of) net annual profits of firm / total number of permanent, full-time employees for firm
top_female = top owner and/or manager of firm is female
formal_estab = the firm has been formally registered since time of establishment
l(tot_sales) = (log of) total annual sales in last fiscal year
l(top_exper) = (log of) years of experience top manager has working in sector
YIB = years in business
microfirm = firm has fewer than 10 employees
percent_female = percent of full-time workers who are female

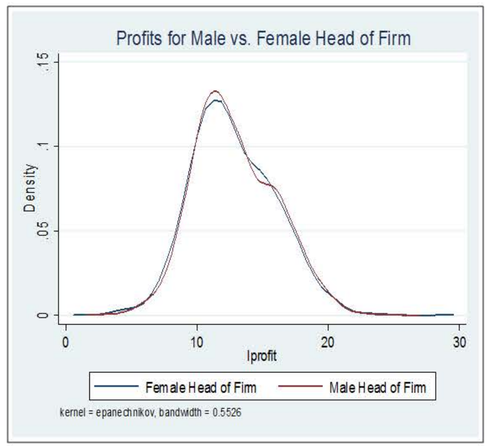
Additional models include:

- Controls for Survey Year and Region
- Variables expressing burdens on firms: access to credit, tax rates, business licensing/permits, electricity, political instability, corruption, labor regulation, level of education, informal competition (results in Table 2):

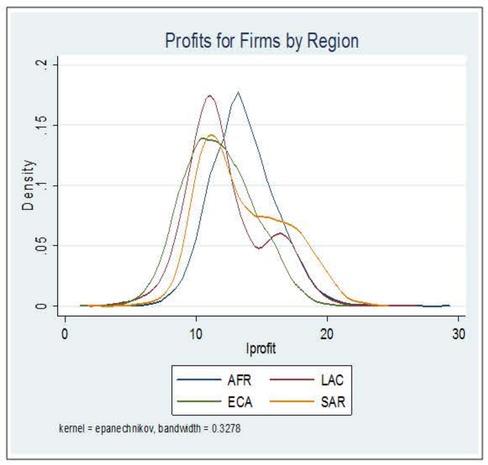
$$\mathbf{l(profit) = \beta_0 + \beta_1 top\_female + \beta_2 formal\_estab + \beta_3 l(tot\_sales) + \beta_4 l(topman\_exper) + \beta_5 YIB + \beta_6 microfirm + \beta_7 percent\_female + \beta_8 [burden\ variable] + i.Survey\ Year + i.Region + \varepsilon}$$

## Results

(Figure 1)




(Figure 2)




- Without controlling for regions, the difference in distribution of profits for female-run and male-run firms appears to be insignificant (Figure 1). Results of regression analysis show this is not the case (Table 1).
- Distribution of profits varies widely by region; however, gender disparities in performance, by region, remain unclear (Figure 2).

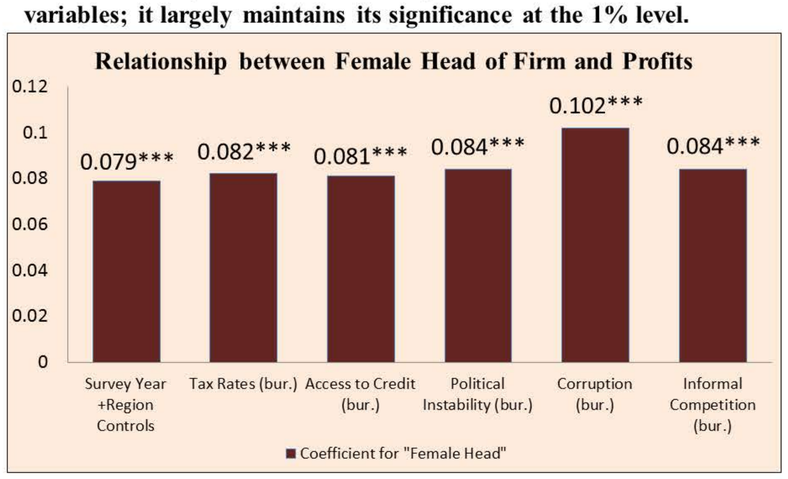
| Base Regression (Table 1) | | | |
|---|---|---|---|
| VARIABLES | (1) First Regression | (2) Second Regression | (3) Third Regression |
| Female Head | 0.0915*** | 0.0876*** | 0.0788*** |
| | (0.0311) | (0.0311) | (0.0303) |
| Formal | -0.304*** | -0.311*** | -0.132*** |
| | (0.0390) | (0.0391) | (0.0387) |
| L(Total Sales) | 0.927*** | 0.925*** | 0.896*** |
| | (0.00376) | (0.00380) | (0.00394) |
| L(Experience of Head) | -0.0179 | -0.0145 | 0.0160 |
| | (0.0174) | (0.0174) | (0.0170) |
| Years in Business (YIB) | -0.0193*** | -0.0188*** | -0.0166*** |
| | (0.00149) | (0.00150) | (0.00147) |
| Microfirm | 1.639*** | 1.630*** | 1.509*** |
| | (0.0271) | (0.0271) | (0.0269) |
| Percent Female | -0.540*** | -0.537*** | -0.348*** |
| | (0.0417) | (0.0418) | (0.0416) |
| Constant | -2.335*** | -2.351*** | -1.568*** |
| | (0.0905) | (0.0940) | (0.0982) |
| Survey Year | No | Yes | Yes |
| Region | No | No | Yes |
| Observations | 11,833 | 11,833 | 11,833 |
| R-squared | 0.840 | 0.840 | 0.848 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Base Year = 2006
Base Region = AFR
***LAC, ECA, and SAR produce significantly lower results than AFR

Results for "Female Head" Given Various Burden Controls (Table 2)

| | Tax Rates (bur.) | Bus. Licensing/Permits (bur.) | Access to Credit (bur.) |
|---|---|---|---|
| B | 0.082*** | 0.079** | 0.081*** |
| SE | (0.031) | (0.031) | (0.032) |
| | Electricity (bur.) | Political Instability (bur.) | Corruption (bur.) |
| B | 0.077** | 0.084*** | 0.102*** |
| SE | (0.032) | (0.032) | (0.032) |
| | Labor Reg (bur.) | Education (bur.) | Informal Comp (bur.) |
| B | 0.080*** | 0.078** | 0.084*** |
| SE | (0.032) | (0.033) | (0.033) |

- **Annual profits of a firm are 7-10% higher for female-run firms than for male-run firms.**
- **This relationship is robust to a variety of controls and burden variables; it largely maintains its significance at the 1% level.**




## Conclusion

This preliminary research suggests that there is a positive relationship between female-run firms and annual profits and negative relationships between profits and the formality of a firm, the firm's total years in business, and the firm's size. These results remain significant after the administration of several controls. Still, it is possible that some endogeneity exists in the data or that variation in survey responses led to skewed results. Further research is necessary to determine the accuracy of the outputs above and evaluate whether the relationship between female-run firms and profits is a causal one.

## References

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