Regulatory Barriers to Women in Business

W. Mark Crain, Nicole V. Crain

Abstract

Reducing gender inequality in the workplace is one of the most widely discussed global challenges. This paper investigates empirically the impact of regulations on female participation in the private sector using panel data for a large sample of countries. The metrics examined include female ownership of businesses and female share of employment in non-agricultural sectors of the economy. The findings indicate that regulatory constraints tend to place a disproportionate burden on women and shed new light on the interconnections between business regulations, firm creation, and women in the workforce.

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1. Introduction[1]

A recent report by the McKinsey Global Institute (2015) concludes that if women were to participate in the economy at a rate equal to men, it would add an estimated $28 trillion, or 26 percent, to the annual global economy in 2025 compared to a business-as-usual scenario. A more modest scenario in which countries matched their best-in-region level of gender equality would add an estimated $12 trillion in annual 2025 GDP, a doubling of GDP growth compared to a business-as-usual scenario. By these estimates, gender inequality has substantial implications for global living standards, apart from other considerations such as social equity and equal opportunity.

An underutilization of resources of this magnitude generally signals an aberration from what one might expect from a competitive market process. Resources tend to be underutilized when markets are constrained or when property rights are attenuated. This paper considers one possible impediment to tackling the challenge of global gender inequality: government regulations that affect the ability to start and grow a business. A number of studies offer evidence using cross-national data that government regulations have a chilling effect on new business formation. We take up the related question of whether the burden of business regulations falls disproportionately on women, and, as such, offers a partial explanation for the underrepresentation of women in business.

Section 2 discusses the conceptual framework. Section 3 describes our estimation methodology and presents the results. Section 4 offers brief concluding remarks.

2. Conceptual Framework

We discuss two potential explanations for why economic regulations may affect gender inequality in business. The first is a simple path-dependence explanation. Historically, men have been over-represented in the workforce and as firm owners relative to their share of the population. In the sample of countries included in our analysis over the period 2012 to 2016, women make up 50 of the working age population. Women comprise 43 percent of the labor force and 45 percent of the population in wage employment in the nonagricultural sector (using the median values). Regarding firm ownership, 23 percent of new LLCs are owned by women, and 32 percent of new sole proprietors are women (again using the sample medians). Regulations that impede new business entry lock-in this historical advantage. In other words, regulations as entry barriers tend to protect the *status quo* gender imbalance, and the *status quo* happens to reflect a legacy of male majorities in the workforce and in business ownership.

A second potential explanation is that regulatory constraints on competitive market processes facilitate discrimination, whether based on gender or some other characteristics. In the mid-20th Century economists made great strides in formally framing discrimination as utility maximizing behavior in which non-pecuniary benefits such as workplace perquisites and employee hiring decisions are "rational" alternatives to pecuniary income. The early contributors to this approach included Stigler (1942), Becker (1957), and Alchian & Kessel (1962). Leibenstein (1966) later formulated the related concept of "x-inefficiency" to describe the tradeoff between profits and living the quiet life, ("organizational slack") under non-competitive conditions. Individuals with decision-making power within organizations make trade-offs between, for example, income versus working with employees they find personally desirable. The economics of discrimination framework naturally led to a critically important question: what conditions systematically favor non-pecuniary over pecuniary income, thus offering clues to the factors that facilitate discrimination?

The answer proposed by Stigler, Becker, Alchian and Kessel, Leibenstein, and others is that the absence of a competitive market process reduces the cost of discrimination. The explanation for this relationship is less obvious than it may seem; it does not follow directly from the theory of monopolistic market structure. In theory, the monopolist firm that discriminates forgoes profits, just as a competitive firm that discriminates suffers losses. Rather, the explanation stems from alternative property right structures that affect the terms of trade between pecuniary

[1] W. Mark Crain, Lafayette College
Nicole V. Crain, Eisenhower School for National Security and Resource Strategy, National Defense University

wealth and nonpecuniary business-associated forms of satisfaction, such as discrimination. Alchian & Kessel (1962, p. 164) states this principle succinctly: "This whole analysis is merely an illustration of the effects of restricting the operation of the law of comparative advantage by reducing the size of the market (or range of alternatives)."

In the framework of the property rights theory of the firm, a regulatory regime that impedes entry reflects an environment in which existing firms, protected from competition, have incentive to avoid being "too" profitable and thus attract the attention of regulators, and thereby lose their competitive advantage. Thiel & Masters (2014) emphasizes this point in the context of why an outside observer cannot distinguish between a monopolistic firm and a firm facing fierce competition. This environment tilts the terms of trade in favor gender discrimination because the value created from hiring the most qualified workers, regardless of gender, is diminished.

While this paper focuses on government regulation as a factor contributing to gender inequality, studies have investigated other potential causal factors. For example, Klapper & Parker (2011, p. 237) conclude that "an analysis of a large body of literature does not suggest that, in general, the so called 'gender gap' in entrepreneurship can be explained by explicit discrimination in laws or regulations." While laws or regulations may not discriminate explicitly, polices that create barriers to competition and thereby attenuate property rights may facilitate discrimination implicitly.

3. Specification Issues, Models, and Results

The World Bank's Doing Business project provides two types of data that facilitate empirical analysis of the impact of regulations on women in business. One dataset provides measures that reflect the policy environment in which businesses operate. The second dataset provides measures of entrepreneurial activity, including the number of newly registered firms, LLCs, and sole proprietorships, and further divides these data by gender.

The *Doing Business* online database enhances the ability to examine and analyze the impact of regulations that confront small and medium-size enterprises. In his recent survey article, Besley (2015) reports that since 2003 over 2,000 research articles have been published in peer-reviewed academic journals using these data, and thousands more working papers have been posted online.

The Besley review cites key empirical studies that provide the starting point for our analysis. These studies examine the impact of regulations on firm formation and new business activity. Klapper, Leaven & Rajan (2006) finds that the rate of firm incorporation in naturally high-entry industries is lower in countries where regulatory costs are higher. Ciccone & Papaioannou (2007) finds that countries with less burdensome regulations are associated with more entry in industries that benefited under expansionary global demand and technology shifts. Klapper, Amit & Guillén (2010) finds that business entry per capita is significantly related to the number of entry procedures, access to finance, and broad indicators of an economy's performance. In addition, they find that business density is strongly and significantly related to lower barriers to entry and better governance. Ardagna & Lusardi (2009, 2010a, and 2010b) examine the impact of regulation on entrepreneurship and entry using international data. More recently, Divanbeigi & Ramalho (2015) find strong evidence that the rules related to starting a business are related to the rate of new firm creation. Williams, Belton & Graham (2017) provides an excellent and thorough survey and review of a host of papers that examine the impact on regulations on global entrepreneurship, firm creation, and economic development. In summary, these studies spotlight the importance for new firm creation of the business regulatory environment, particularly those rules that determine the costs of starting a business.

As a first look at the data, we estimate how the level female ownership of businesses responds to indicators of new business creation. The sample for this analysis includes all countries for which the data are available over the time period 2012 through 2016. Table 1 presents summary statistics for the variables, and Table 2 presents the estimation results for three dependent variables:

- New Female LLC Owners as a % of New LLC Owners
- New LLCs with at Least One Female Business Owner as a % of New LLCs
- New Female Sole Proprietors as a % of New Sole Proprietors

The models control the number of New LLC Owners, the number of New LLCs, and the number of New Sole Proprietors, respectively. The three models also control for:

- Female Population Ages 15-64 (% of Total Population Ages 15-64)
- School Enrollment, Secondary (Gross), Gender Parity Index
- Year

The main takeaway from Table 2 is the positive and significant relationship between new business creation and the share of women owners. The models are estimated in double-log form, which means that the coefficients reflect elasticities. For example, a one percent increase in new LLC owners corresponds to a 0.13 percent increase in the share of female LLC owners. A one percent increase in new LLCs corresponds to a 0.21 percent increase in New LLCs with at Least One Female Business Owner (as a percentage of New LLCs). A one percent increase in sole proprietors corresponds to a 0.18 percent increase in the share of New Female Sole Proprietors. In sum, growth in LLCs and sole proprietorships are correlated with more than proportionate increases in female ownership.

The second step in the analysis examines the impact of several measures of business regulations on measures of women in business using the model specified in Equation (1).

Share of Women $_{i,t} = \alpha i + \beta 1$Regulation Index $i,t + \beta i X i,t + \delta t + \varepsilon it$ (1),

where subscript i stands for country i and subscript t stands for year t. We estimate Equation (1) using four indices of regulation from the Doing Business dataset:

- Number of Entry Procedures—Women (Distance to Frontier)

▪ Number of Days Required—Women (Distance to Frontier)
▪ Ease of Doing Business (Overall Index, Distance to Frontier)
▪ Enforcing Contracts (Distance to Frontier)

We adopt the convention used in prior analyses by using transformations of the Regulation Indices, which are known as "distance to the regulatory frontier" scores. The distance to the regulatory frontier (DTF) score measures the average distance from the best regulatory performance. In effect, the metrics are normalized between 0 and 100 with the following formula:

Regulation Index DTF i, = 100 – (yi, – $besti$)($worsti$ – $besti$), where

worst i and *best i* refer to the worst and best performances respectively recorded over time for across all countries. This transform means that increases in the value of an index DTF reflects a higher quality regulatory environment.

In equation (1) the vector $X\ i$, includes a set of eight control variables and the source for these data is the World Bank's World DataBank [online database]:

▪ GDP per Capita (Constant US$)
▪ School Enrollment, Secondary (Gross), Gender Parity Index
▪ Female Population Ages 15-64 (% of Total Population Ages 15-64)
▪ Indicator Variable for Muslim Religious Majority in Country
▪ Domestic credit to private sector (% of GDP)
▪ Rule of Law Index
▪ Control of Corruption
▪ Year

The results in Table 3 indicate the effects on New Female Sole Proprietors as a Share of New Sole Proprietors. The results in Table 4 indicate the effects on Women in Wage Employment in the Nonagricultural Sector (% of Total Employment in the Nonagricultural Sector). In other words, Table 3 considers women business ownership, and Table 4 considers a broader measure of female participation in the workplace.

The findings in both sets of models provide evidence that the business regulatory environment has an impact on female ownership and female employment. In Table 3, improvements in the four measures of the quality of the regulatory quality have a positive and significant effect on the female share of new sole proprietors. The female share of new sole proprietors appears especially responsive to the Overall Ease of Doing Business Index, with an elasticity of 1.70.

In Table 4, the estimated coefficients for three of the four measures of regulatory quality are significant at the one-percent level. The coefficient on the Number of Entry Procedures for women is positive, but not significant. Overall, these findings support the thesis the regulatory environment affects the share of women employed in the nonagricultural sector.

4. Concluding Comments

This paper builds on the empirical studies that examine the impact of business regulations on the entry of new firms and entrepreneurship. We extend this research by examining whether the quality of the business regulatory environment has gender-specific effects. Our analysis indicates that regulatory constraints tend to place a disproportionate burden on female ownership of enterprises and on the share of females employed in non-agricultural sectors. The findings sheds new light on the interconnections between business regulations, firm creation, women in the workforce, and aggregate economic performance. Gender inequality appears to be one of the channels through which business regulations adversely affect national economies.

Annex

Table 1. Summary Statistics

Variable	Mean	Median	SD	Min	Max
New Female LLC Owners (% of New LLC Owners)	22%	23%	10%	0%	40%
New LLCs with at Least One Female Business Owner (% of New LLCs)	30%	24%	28%	1%	215%
New Female Sole Proprietors (% of New Sole Proprietors)	31%	32%	14%	1%	61%
Women in Wage Employment in the Nonagricultural Sector (% of Total Employment in the Nonagricultural Sector)	41%	45%	10%	6%	55%
New LLC Owners	48,3	22,584	71,813	156	495,256
New LLCs	26,528	7,866	62,387	10	663,616
New Sole Proprietors	85,394	27,621	126,203	548	505,339
Number of Entry Procedures—Women (Distance to Frontier)	54	59	23	0	100
Number of Days Required—Women (Distance to Frontier)	68	80	29	0	100
Ease of Doing Business (Overall Index, Distance to Frontier)	75	80	18	2	100
Enforcing Contracts (Distance to Frontier)	56	58	14	2	93
GDP per Capita (Constant US$)	12,927	4,883	18,192	218	111,968
School Enrollment, Secondary (Gross), Gender Parity Index	0.98	1.00	0.14	0.36	1.42

Female Population Ages 15-64 (% of Total Population Ages 15-64)	50%	50%	4%	20%	55%
Indicator Variable for Muslim Religious Majority in Country (share of countries in sample)	24%				
Domestic credit to private sector (% of GDP)	54%	40%	45%	2%	312%
Rule of Law Index	-0.07	-0.27	0.98	-2.61	2.10
Control of Corruption	-0.06	-0.31	0.99	-1.87	2.47

Table 2. Female Ownership in Response to New Business Creation

	Dependent Variables		
	New Female LLC Owners (% of New LLC Owners)	**New LLCs with at Least One Female Business Owner (% of New LLCs)**	**New Female Sole Proprietors (% of New Sole Proprietors)**
New LLC Owners	0.13		
	(2.30)*		
New LLCs		0.21	
		(2.56)**	
New Sole Proprietors			0.18
			(3.04)**
Female Population Ages 15-64 (% of Total Population Ages 15-64)	1.13	0.00	0.91
	(0.92)	(0.00)	(0.69)
School Enrollment, Secondary (Gross), Gender Parity Index	5.07	3.96	4.36
	(5.95)**	(4.47)**	(5.00)**
Year	-0.02	-0.03	-0.01
	(-0.92)	(-0.90)	(-0.29)
Constant	20.34	44.81	-6.77
	(0.40)	(0.65)	(-0.13)
Obs.	70	65	81
R-Sq. Within	0.34	0.25	0.12
R-Sq. Between	0.58	0.54	0.54
R-Sq. Overall	0.63	0.60	0.56

Note: All models in Tables 2, 3, and 4 are double-log specifications. t-ratios are shown in parentheses, where:
** Indicates significance at the one percent level.
* Indicates significance at the five percent level

Table 3. Dependent Variable: New Female Sole Proprietors (% of New Sole Proprietors)

Number of Entry Procedures—Women (Distance to Frontier)	0.91			
	(1.97)*			
Number of Days Required—Women (Distance to Frontier)		0.86		
		(2.17)*		
Ease of Doing Business (Overall Index, Distance to Frontier)			1.70	
			(2.12)*	
Enforcing Contracts (Distance to Frontier)				0.96

				(2.18)*
GDP per Capita (Constant US$)	0.25	0.24	0.30	0.19
	(1.68)	(1.46)	(1.97)*	(1.47)
School Enrollment, Secondary (Gross), Gender Parity Index	4.57	4.86	4.83	3.73
	(4.78)**	(4.49)**	(4.68)**	(4.66)**
Female Population Ages 15-64 (% of Total Population Ages 15-64)	1.38	1.43	1.48	0.97
	(0.99)	(0.93)	(1.03)	(0.75)
Indicator Variable for Muslim Religious Majority in Country	0.11	0.05	0.30	0.18
	(0.31)	0.13	0.91	0.64
Domestic credit to private sector (% of GDP)	0.00	-0.01	-0.01	-0.01
	(-0.99)	(-1.36)	(-1.55	(-1.89)
Rule of Law Index	-0.46	-0.44	-0.50	-0.27
	(-1.29)	-1.16)	-1.43)	-0.78)
Control of Corruption	0.66	0.66	0.74	0.56
	(2.15)*	(1.99)*	(2.45)**	(1.88)
Year	-0.02	-0.02	-0.02	-0.02
	(-0.79)	(-0.76)	(-0.86)	(-0.66)
Constant	16.28	11.75	12.15	14.07
	(0.28)	(0.21)	(0.22)	(0.25)
Obs.	79	76	80	79
R-Sq. Within	0.12	0.21	0.18	0.13
R-Sq. Between	0.68	0.65	0.65	0.71
R-Sq. Overall	0.71	0.69	0.70	0.73

Table 4. Dependent Variable: Women in Wage Employment in the Nonagricultural Sector (% of Total Employment in the Nonagricultural Sector)

Number of Entry Procedures—Women (Distance to Frontier)	0.004			
	(0.49)			
Number of Days Required—Women (Distance to Frontier)		0.02		
		(2.51)**		
Ease of Doing Business (Overall Index, Distance to Frontier)			0.07	
			(3.65)**	
Enforcing Contracts (Distance to Frontier)				0.15
				(3.88)**
GDP per Capita (Constant US$)	0.05	0.04	0.04	0.04
	(2.82)**	(2.07)**	(2.59)**	(2.22)*
School Enrollment, Secondary (Gross), Gender Parity Index	0.13	0.15	0.12	0.14
	(2.28)*	(2.53)*	(2.11)*	(2.39)*
Female Population Ages 15-64 (% of Total Population Ages 15-64)	0.79	0.72	0.77	0.73
	(3.83)**	(3.45)**	(3.72)**	(3.62)**
Indicator Variable for Muslim Religious Majority in Country	-0.59	-0.62	-0.59	-0.60
	(-10.76)**	(-11.11)**	(-10.75)**	(-11.19)**
Domestic credit to private sector (% of GDP)	0.0001	0.00	0.00	0.00

	(0.48)	(0.30)	(0.17)	(0.55)
Rule of Law Index	-0.01	-0.01	-0.01	-0.02
	(-0.34)	(-0.48)	(-0.56)	(-0.91)
Control of Corruption	-0.02	-0.02	-0.02	-0.02
	(-1.21)	(-1.18)	(-1.35)	(-1.19)
Year	0.00	0.00	0.00	0.00
	(4.58)**	(3.55)**	(2.82)**	(5.53)**
Constant	-6.93	-5.26	-4.67	-7.65
	(-4.22)**	(-3.18)**	(-2.80)**	(-5.09)**
Obs.	537	530	475	543
R-Sq. Within	0.09	0.10	0.11	0.10
R-Sq. Between	0.69	0.70	0.71	0.72
R-Sq. Overall	0.66	0.66	0.66	0.67

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