

Are Women CEOs and (co)Owners likely to Support Good Business Performance and Innovation?

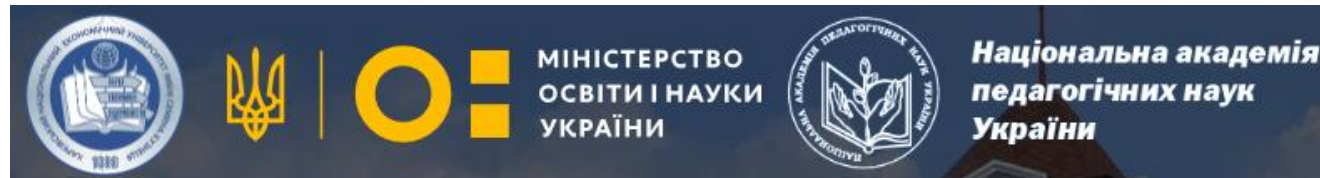
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Section: Dominants of Social Developments of Countries: Current Research



Introduction

- A debate regarding **women as business leaders**: very nuanced and requires much precision in data processing and interpretation of results.
- The presence of women on corporate boards and as CEOs is **uneven** across countries.
- **Deloitte (2022) analysed 10,500 companies worldwide, 2016 – 2021:**
 - a greater inclusion of women in senior management positions and in chairing companies when boards contain women members.
- The **industries** with the highest presence of women on boards (20-21%):
 - Service Sector: Life Sciences & Health Care and Financial Services (40% of growth);
 - Consumer Business (25% of growth).
- Distribution by **regions**:
 - Asia with the largest number of companies (41%);
 - North America with the highest number of female board members (37%);
 - Europe with a modest representation of companies (19%), but with a fairly high female presence on boards (>30%).
 - the Caribbean and MENA with a strong reduction of women's participation in corporate governance and management.

Introduction

- The integration of women in business management appears to have a significant effect on the development and performance of organizations:
 - positive impact (Low et al., 2015; Havran et al., 2020; Mohsni et al., 2021) (important to consider the socio-economic context: a regulatory system in terms of gender parity and shareholder protection).
 - corporate performance less volatile (Bernile et al., 2018) → greater stability and tangibility.
- Risk and loss aversion tends to be higher among women than among men (Charness & Gneezy, 2012; Faccio et al., 2016).
- Women involvement is different in developed, developing and emerging economies.
- Female interpersonal characteristics and leadership skills:
 - transformational leadership style (Bruckmüller et al., 2014);
 - more conducive to relationship building and team collaboration (Dargnies, 2012);
 - more informed decisions, integrating several alternatives and involving all team members (Lückerath-Rovers, 2013).

Theories (Literature Review)

- Classical agency theory (Jensen & Meckling, 1976; Jensen & Murphy, 1990):
 - female executives sensitivity to incentives.
- Behavioral agency model (Baixauli-Soler et al., 2015):
 - greater gender diversity in corporate management is associated with higher corporate performance (Havran et al., 2020) .
- Human capital theory (Becker, 1975):
 - the inclusion of women as active members of a multidisciplinary work team with different skills and experiences enhances the firm's ability to access specific and critical human resources (Davis & Cobb, 2010).
- Institutional theory (Meyer & Rowan, 1977):
 - gender quotas on company boards (Carrasco et al., 2015).
- Resource dependency theory (Pfeffer & Salancik, 1978):
 - broader access to all types of resources, including relationship and knowledge resources (Rosener, 2011).
- Stakeholder theory (Freeman, 1984):
 - the inclusion of women on boards makes corporate governance stronger which considers the interests of a much wider range of stakeholders (Kachouri et al., 2020).

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Objective, sample & methodology

- To measure and analyze the probability of finding a female CEO or board member based on a broad international sample of companies to identify certain patterns in terms of short-term economic performance and the company's innovation effort.

Sample

- **154,682 data** from a large number of companies in **142 countries** during **2007-2023** extracted from the **World Bank Enterprise Surveys (WBES)**.

Methodology

- **logistic regression with robust clustered standard errors done by countries** → the following important purposes: (1) to reflect eventual differences and (2) to address dependency among the observations within countries (Galbraith et al., 2010; Zeileis et al., 2020). Used free software R, version 4.3.2.

Sample description

| Female CEOs and/or (co-)owners: distribution by roles, in % over total. | | | | |
|---|-----|-------------------|-------|--------|
| | | Female (co-)owner | | |
| | | No | Yes | Total |
| Female CEO | No | 66.0% | 18.9% | 84.9% |
| | Yes | 3.6% | 11.5% | 15.1% |
| Total | | 69.5% | 30.5% | 100.0% |

| Female CEOs and/or (co-)owners: distribution by sectors, in % over total. | | | | |
|---|--|---------------|---------|--------|
| | | Manufacturing | Service | Total |
| Men | | 36.3% | 29.7% | 66.0% |
| Women | | 17.5% | 16.5% | 34.0% |
| Total | | 53.8% | 46.2% | 100.0% |

| Female CEOs and/or (co-)owners: distribution by region, in % over total. | | | | | | |
|--|--------|--------|--------|--------|--------|--------|
| | AFR | EAP | ECA | LAC | MNA | SAR |
| Men | 66% | 48% | 61% | 55% | 80% | 85% |
| Women | 34% | 52% | 39% | 45% | 20% | 15% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Econometric models

- **Model 1** shows the probability of finding a woman as Chief Executive Officer (CEO) or a shareholder according to the economic performance of a company.

$$Y_i = \alpha + \beta_1 Sales_total_i + \beta_2 National_Sales_i + \beta_3 Direct_Exports_i + \beta_4 Foreign_Imports_i + \beta_5 GDP_i + \beta_6 GGGI_i + \beta_7 Size_i + Sector_i \quad (1)$$

- Y_i is the dependent variable which reflects the presence of a woman in a company: 1 if the company has a woman CEO/shareholder and 0 otherwise.
- $Sales_total$ is a quantitative variable that measures the firm's global annual turnover.
- $National_Sales$ is a binary variable which values is 1 whether the firm sells in the domestic market and 0 elsewhere.
- $Direct_Exports$ and $Foreign_Imports$ are also binary variables that include business operations with other countries, export, and import respectively.
- GDP is used as a logarithm of the total volume in USD to eliminate the effect of units.
- $GGGI$, the Global Gender Index Gap, reflects the index of equality between men and women in a country ranging from 0 to 1.
- $Size$ is a binary variable, with value 1 if the firm is a small or medium-sized (< 100 full-time permanent workers) and 0 otherwise.
- $Sector$ is a dichotomous variable showing the belonging of the sampled companies to manufacturing or service industries. Here it is used as a dummy with a fixed effect, which may cause a change in the constant term (α).

Econometric models

- **Model 2** shows the probability of finding a woman as Chief Executive Officer (CEO) or a shareholder according to innovation management.

$$Y_i = \alpha + \beta_1 Improved_process_i + \beta_2 New_product_i + \beta_3 New_product_nm_i + \beta_4 RD_Invest_i + \beta_5 GDP_i + \beta_6 GGGI_i + \beta_7 Size_i + Sector_i \quad (2)$$

- Y_i is the dependent variable which reflects the presence of a woman in a company: 1 if the company has a woman CEO/shareholder and 0 otherwise.
- *Improved_process* is a qualitative variable which takes the value of 1 if new or improved business processes are introduced and 0 otherwise.
- *New_product* takes the value 1 if the company introduced new products or services or improved them and 0 otherwise.
- *New_product_nm* is 1 if the new or improved product or service are introduced by the company in a new market and 0 otherwise.
- *RD_Invest* has a value of 1 if the company invested (spent) on R&D activities directly or subcontracting other companies for that and 0 otherwise.
- *GDP* is used as a logarithm of the total volume in USD to eliminate the effect of units.
- *GGGI*, the Global Gender Index Gap, reflects the index of equality between men and women in a country ranging from 0 to 1.
- *Size* is a binary variable, with value 1 if the firm is a small or medium-sized (< 100 full-time permanent workers) and 0 otherwise.
- *Sector* is a dichotomous variable showing the belonging of the sampled companies to manufacturing or service industries. Here it is used as a dummy with a fixed effect, which may cause a change in the constant term (α).

Findings

- General Model

| General analysis | | | | | | | |
|-----------------------|-----------------|-----------|-----|------------------|---------|-----------|-----|
| | (a) Performance | | | (b) Innovation | | | |
| Sales_Total | 3.15E-12 | (3.4942) | *** | New_product | 0.2107 | (3.6051) | *** |
| National_Sales | -0.0025 | (-1.6447) | | New_product_nm | 0.0178 | (0.5403) | |
| Direct_Exports | -0.0019 | (-1.4847) | | Improved process | 0.1425 | (3.3223) | *** |
| Foreign_Imports | 0.0028 | (2.1415) | ** | RD_Invest | 0.0737 | (1.7683) | * |
| GGGI | 8.0026 | (4.7950) | *** | GGGI | 7.3291 | (5.0277) | *** |
| GDP | -0.0006 | (-0.0039) | | GDP | 0.0694 | (0.4691) | |
| Size | -0.1230 | (-2.3520) | ** | Size | -0.1452 | (-2.6815) | *** |
| Intercept | -5.9215 | (-5.2365) | *** | (Intercept) | -6.1011 | (-5.2779) | *** |
| Fixed Effects | Sector | | | Sector | | | |
| Clustered errors | Country | | | Country | | | |
| Pseudo R ² | 0.4006 | | | 0.2875 | | | |

Note: for each variable its coefficient and Z-value is shown in brackets; *** means a significance level of 1 %, ** means a significance level of 5 %, * means a significance level of 10 %.

Findings

- Female CEO versus Female (Co-)owner

| (c-d) Performance | | | | (e-f) Innovation | | | | | |
|-----------------------|----------|---------------|----------------|------------------|-----------------------|---------|---------------|----------------|---------------|
| | (c) CEO | | (d) (Co-)owner | | | (e) CEO | | (f) (Co-)owner | |
| Sales_Total | 1.41E-12 | (3.4058) *** | 0.0000 | (3.9607) *** | New_product | -0.0476 | (-0.6447) | 0.2501 | (3.9710) *** |
| National_Sales | -0.0001 | (-0.0431) | -0.0018 | (-1.1739) | New_product_nm | 0.0823 | (1.7657) * | 0.0026 | (0.0741) |
| Direct_Exports | -0.0002 | (-0.1686) | -0.0022 | (-1.6677) * | Improved process | -0.0770 | (-1.1887) | 0.1735 | (3.8131) *** |
| Foreign_Imports | -0.0005 | (-0.3808) | 0.0032 | (2.2195) ** | RD_Invest | -0.1164 | (-1.1580) | 0.0194 | (0.4878) |
| GGGI | 7.2619 | (5.0592) *** | 7.5553 | (3.9958) *** | GGGI | 7.0707 | (4.9309) *** | 6.9117 | (4.0988) *** |
| GDP | -0.2873 | (-1.9910) | 0.1017 | (0.6213) | GDP | -0.1820 | (-1.2664) | 0.1629 | (1.0421) |
| Size | 0.2494 | (2.4403) ** | -0.0799 | (-1.3543) | Size | 0.1953 | (1.4449) | -0.0898 | (-1.6561) * |
| Intercept | -5.9398 | (-6.6058) *** | -6.2386 | (-4.8049) *** | Intercept | -6.2179 | (-6.9345) *** | -6.3690 | (-4.7231) *** |
| Fixed Effects | Sector | | Sector | | Fixed Effects | Sector | | Sector | |
| Clustered errors | Country | | Country | | Clustered errors | Country | | Country | |
| Pseudo R ² | 0.4018 | | 0.3999 | | Pseudo R ² | 0.2779 | | 0.2914 | |

Note: for each variable its coefficient and Z-value is shown in brackets; *** means a significance level of 1 %, ** means a significance level of 5 %, * means a significance level of 10 %.

Findings

- Classification by Sector

| (g-h) Performance | | | | | | (i-j) Innovation | | | | | | | |
|-----------------------|-------------------|-----------|-----|-------------|-----------|------------------|-----------------------|-------------------|-----------|-----|-------------|-----------|-----|
| | (g) Manufacturing | | | (h) Service | | | | (i) Manufacturing | | | (j) Service | | |
| Sales_Total | 3,30E-12 | (3,6523) | *** | -3,32E-10 | (-1,4187) | | New_product | 0,2700 | (3,5417) | *** | 0,1900 | (2,7934) | *** |
| National_Sales | -0,0024 | (-1,4619) | | -0,0043 | (-2,0172) | ** | New_product_nm | 0,0111 | (0,3032) | | 0,0245 | (0,4681) | |
| Direct_Exports | -0,0011 | (-0,8788) | | -0,0068 | (-3,4145) | *** | Improved process | 0,1431 | (2,7960) | *** | 0,1491 | (3,4160) | *** |
| Foreign_Imports | 0,0029 | (2,2259) | ** | 0,0027 | (1,8137) | * | RD_Invest | 0,0542 | (1,0963) | | 0,0918 | (1,7346) | * |
| GGGI | 7,3985 | (4,0237) | *** | 9,2264 | (5,2577) | *** | GGGI | 7,2249 | (4,6808) | *** | 7,4023 | (4,9371) | *** |
| GDP | 0,0183 | (0,1013) | | -0,0431 | (-0,2869) | | GDP | 0,1293 | (0,7414) | | 0,0096 | (0,0751) | |
| Size | -0,1096 | (-1,7917) | * | -0,1431 | (-1,6084) | | Size | -0,1667 | (1,4449) | | -0,1036 | (-1,5740) | |
| Intercept | -5,6089 | (-4,8108) | *** | -6,4283 | (-5,6785) | *** | Intercept | -6,2367 | (-2,7462) | *** | -5,7784 | (-5,0065) | *** |
| Fixed Effects | No | | | No | | | Fixed Effects | No | | | No | | |
| Clustered errors | Country | | | Country | | | Clustered errors | Country | | | Country | | |
| Pseudo R ² | 0,2168 | | | 0,2168 | | | Pseudo R ² | 0,2468 | | | 0,3324 | | |

Note: for each variable its coefficient and Z-value is shown in brackets; *** means a significance level of 1 %, ** means a significance level of 5 %, * means a significance level of 10 %.

Findings

- Classification by Company's Size

| (a) Performance | | | | | (b) Innovation | | | | | | | | |
|-----------------------|-----------|-----------|----------|-----------|----------------|-----------------------|-----------|----------|-----------|----------|----------|-----------|-----|
| | SME | | Large | | | SME | | Large | | | | | |
| Sales_Total | -3,17E-12 | (-0,5708) | 3,41E-12 | (1,6201) | New_product | 0,2239 | (4,0463) | *** | 0,1613 | (1,7357) | * | | |
| National_Sales | -0,0028 | (-1,5429) | -0,0022 | (-2,5403) | ** | New_product_nm | 0,0128 | (0,3529) | | 0,0388 | (0,7047) | | |
| Direct_Exports | -0,0027 | (-1,6142) | -0,0007 | (-0,7602) | | Improved process | 0,0962 | (2,2707) | ** | 0,3217 | (4,7567) | *** | |
| Foreign_Imports | 0,0028 | (2,2283) | ** | 0,0029 | (6,5795) | *** | RD_Invest | 0,0581 | (1,2549) | | 0,0934 | (1,2264) | |
| GGGI | 8,4293 | (4,8256) | *** | 6,4511 | (20,8777) | *** | GGGI | 7,6444 | (4,9638) | *** | 5,9647 | (3,9194) | *** |
| GDP | -0,0194 | (-0,1165) | | 0,0705 | (1,9516) | * | GDP | 0,0646 | (0,4230) | | 0,0871 | (0,5270) | |
| Intercept | -6,4351 | (-5,2676) | *** | -5,1824 | (-25,1847) | *** | Intercept | -6,4351 | (-5,2992) | *** | -5,2911 | (-4,7763) | *** |
| Fixed Effects | Sector | | Sector | | | Fixed Effects | Sector | | Sector | | | | |
| Clustered errors | Country | | Country | | | Clustered errors | Country | | Country | | | | |
| Pseudo R ² | 0,3880 | | 0,2694 | | | Pseudo R ² | 0,2459 | | 0,2413 | | | | |

Note: for each variable its coefficient and Z-value is shown in brackets; *** means a significance level of 1 %, ** means a significance level of 5 %, * means a significance level of 10 %.

Conclusions and Discussions

- Women tend to be at the head of small and medium-sized enterprises:
 - Different from other results (Charles et al., 2015; Hurley & Choudhary, 2016).
- Women-led companies stand out for their high sales turnover and internationalization activities through imported goods.
- Sales in the domestic market are lower, especially in the service sector and in large enterprises. Direct export sales are also lower in companies where there is at least one woman on board and in companies in the service sector.
- The predominant type of innovation is incremental: new products are designed for commercialization in a known market (Varma et al., 2023):
 - Innovation is higher in SME-type firms and, besides the development of new products, it is also reflected in improved processes.
- Higher investments in R&D in women-led companies, more specifically, in the service sector.
- The Global Gender Gap Indicator is a good measure of social development that allows us to understand better the behavioural patterns of women as CEOs or board members in terms of short-term economic performance and innovation as a long-term strategy.

Conclusions and Discussions

- We identified some relevant factors that influence the probability of finding a woman in the position of CEO and a shareholder of companies from a large sample extracted from the database of the World Bank Enterprise Surveys.
- The study shows two basic and six additional models built according to the classification of the sample by the role of women as company leaders (CEO versus shareholder), sector (manufacturing versus service), and firm size (SMEs versus large companies).
- The extended analysis allowed us to identify some important differences between companies led by women CEOs and women co-owners.
- In terms of short-term results, women CEOs focus more on overall sales turnover results, while women shareholders are more involved in internalization through importing goods, and avoiding exporting.
- In terms of support for innovation, women CEOs are committed to developing new products to launch them in new markets, assuming a high associated risk:
 - women co-owners tend to take a more moderate risk in innovation through the development of new products, probably for commercialization in known markets;
 - some other differences were detected among women-led firms depending on the sector to which they belong and the size of the firm.
- We highlight the economic and social context: the smaller the gender gap, the greater the likelihood of finding women in senior management and on corporate boards.

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