Institutional Discrimination Against Female Managers as a Barrier to Firm Internationalization and International Trade

Felix Hoch & Jonas F. Rudsinske

University of Münster & University of Göttingen

EEA Annual Congress 2022

Motivation

- Do gender discriminating institutions in trading partner countries affect the foreign sales of female co-managed firms and bilateral trade of countries with a relatively high share of female top managers?
- Literature has studied the effects of trade on the gender wage gap (Do et al. 2011; Sauré and Zoabi 2014); we show effects of gender discrimination abroad on bilateral trade
  - $\Rightarrow$ Institutionalized discrimination against female managers is a barrier to firm internationalization and international trade
- Gender discriminating institutions affect chances of women to reach managerial positions (Terjesen and Singh 2008)
  - $\Rightarrow$ Potential disadvantages for female managers even in non-discriminatory countries

Data: 2008 - 2017

- BoardEx: Characteristics of individual board members
- Osiris: Foreign sales by geographic segments (Bureau van Dijk 2022); regularly utilized in international business (e.g. Banalieva and Dhanaraj 2013)
- CEPII: Bilateral trade (BACI) and regional trade agreements (Gravity)
- Women, Business and the Law Index: "laws and regulations that restrict women's economic opportunities" (World Bank 2021, p. 2); higher value is better
- Gender Social Norms Index (United Nations Development Programme 2020): Culturally institutionalized bias against women based on questions regarding gender equality in the World Values Survey
  - *GSNI*: Percentage of respondents who revealed at least two biases against women
  - *GSNIECON*: Percentage of people with a bias against women in business contexts.

Descriptives

Data Description

- Firm-Level: Annual data from 2008 to 2017, all firms in BoardEx that additionally report foreign sales in Osiris to destination countries with available institutional data $\Rightarrow$ given our fixed effects specification: $31,377$ usable observations of $3,368$ firms' sales to 141 destinations
- Country-Level: Annual data from 2008 until 2017, with trade flows for 198 origins and 198 destinations, as well as female shares for 104 countries.

	n	Mean	SD	Min	P25	Median	P75	Max
Exports	263,122	611.5	5,743.0	0.0	0.0	1.2	46.0	452,286.9
FemaleShare	169,702	0.11	0.09	0.00	0.05	0.10	0.15	0.53
GSNI	112,989	59.1	26.6	7.4	35.1	60.8	84.8	98.1
GSNIECON	112,989	49.8	24.0	8.7	28.4	50.9	72.1	92.0
WBL	245,158	73.4	18.3	23.8	63.1	76.3	86.9	100.0

Summary Statistics

Empirical Strategy

Firm-Level:

$$log(ForeignSales_{id,t}) = \beta_1 FemaleShare_{i,t} \times Institutions_{d,t} + \gamma_{i,t} + \nu_{od,t} + \epsilon_{id,t}$$

Firm-Level Event Study:

$$\begin{aligned} log(ForeignSales_{id,t}) &= \beta_1 Event_{i,t+2*} \times Institutions_{d,t} \\ &+ \beta_2 Event_{i,t} \times Institutions_{d,t} + \beta_3 Event_{i,t-1} \times Institutions_{d,t} \\ &+ \beta_4 Event_{i,t-2*} \times Institutions_{d,t} + \gamma_{i,t} + \nu_{od,t} + \epsilon_{id,t} \end{aligned}$$

Country-Level:

$$Exports_{od,t} = exp[\beta_1 FemaleShare_{o,t} \times Institution_{d,t} + \beta_2 RTA_{od,t} + \eta_{o,t} + \nu_{d,t} + \omega_{od}] + \epsilon_{od,t}$$

Firm-Level Results

Dep. Var.: $log(ForeignSales_t)$	(1)	(2)	(3)	(4)	(5)	(6)
$FemaleShare \times GSNI$	-0.05^{***}					
	(0.01)					
$FemaleShare_{t-1} \times GSNI$		-0.05^{***}				
		(0.02)				
$FemaleShare \times GSNIECON$			-0.04^{***}			
			(0.01)			
$FemaleShare_{t-1} \times GSNIECON$				-0.04^{***}		
				(0.02)		
$FemaleShare \times WBL$					0.08^{***}	
					(0.02)	
$FemaleShare_{t-1} \times WBL$						0.10^{***}
						(0.02)
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin-destination-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.71	0.69	0.71	0.69	0.72	0.70
Observations	26,405	17,912	26,405	17,912	31,222	21,087

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Standard errors (two-way clustered by firm and country-pair) in parentheses.

Consider 10 percentage points increase in FemaleShare (0.1 units), c. p. $\Rightarrow$ change in ForeignSales 20 percentage points smaller in country with $GSNI = 65$ compared to country with $GSNI = 25$

Firm-Level Event Study

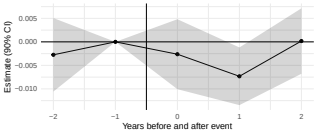

Figure 1: GSNI

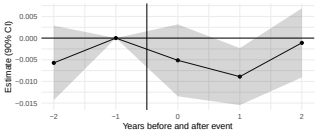

Figure 2: GSNIECON

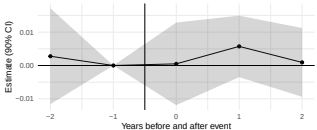

Figure 3: WBL

Regression Table

Country-Level Results

Dep. Var.: *Exports*	(1)	(2)	(3)	(4)	(5)	(6)
$FemaleShare_o \times GSNI_d$	-0.02^{***}					
	(0.00)					
$FemaleShare_o \times GSNIECON_d$		-0.02^{***}				
		(0.00)				
$FemaleShare_o \times WBL_d$			0.03^{***}			
			(0.00)			
$FemaleShare_d \times GSNI_o$				-0.01		
				(0.00)		
$FemaleShare_d \times GSNIECON_o$					-0.01	
					(0.00)	
$FemaleShare_d \times WBL_o$						-0.00
						(0.01)
RTA	0.10^{***}	0.10^{***}	0.10^{***}	0.09^{***}	0.09^{***}	0.10^{***}
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Origin-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Destination-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin-destination FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. Pseudo R^2	1.00	1.00	1.00	0.99	0.99	0.99
Observations	58,417	58,417	137,348	58,364	58,364	136,905

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Standard errors (clustered on the country-pair level) in parentheses. Estimation method: PPML.

Robustness Checks

- Income-group subsamples in firm- and country-level regressions Subsamples
- OECD female shares in country-level regressions OECD
- Lagged female shares in country-level regressions Lagged
- Various standard error clusters in firm-level regressions Clusters

Conclusion

- Results add to empirical literature on firm heterogeneity by showing how personal attributes of top managers like gender affect firm-destination-specific trade barriers depending on institutional environment abroad
- "Imported Discrimination": Gender-discriminating institutions in destination countries also affect female managers in the origin country
- Potential welfare implications: Countries with gender-discriminating institutions might deter international firms, which can hinder economic integration and growth
- Limitations:
  - Firm-level data restricted to large, publicly listed firms
  - Unobserved factors on firm-destination level: Change in female share might be connected with changing distance between firm culture and destination culture
  - Disentangling reasons for the effect: potential buyers avoid firm or firm avoids discriminatory markets

Descriptives (I)

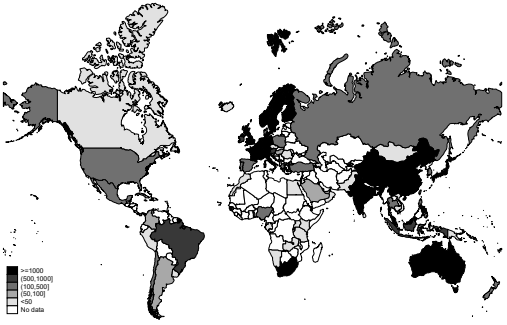

Figure 4: Observations by Origin Country

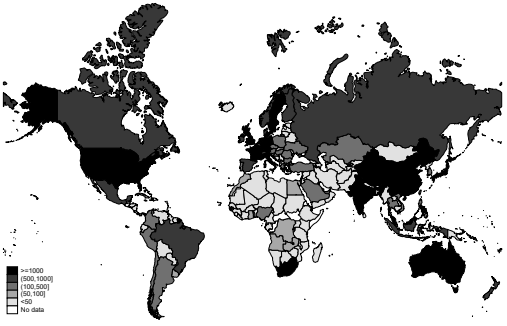

Figure 5: Observations by Destination Country

Descriptives (II)

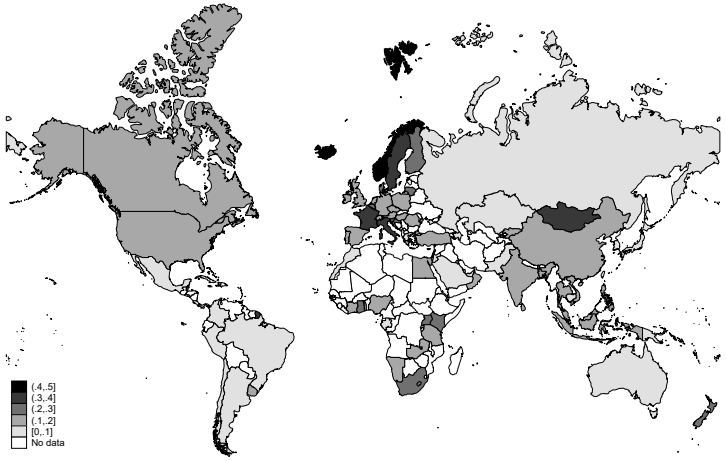

Figure 6: Country-Level Female Shares in 2017

Descriptives (III)

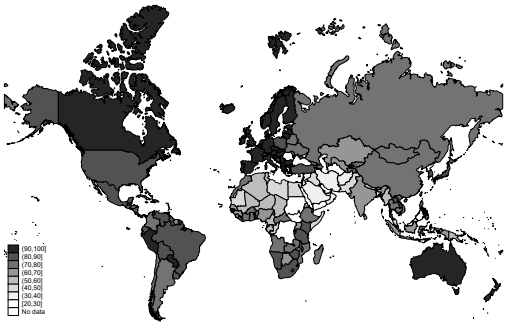

Figure 7: *WBL* (2017) by Country

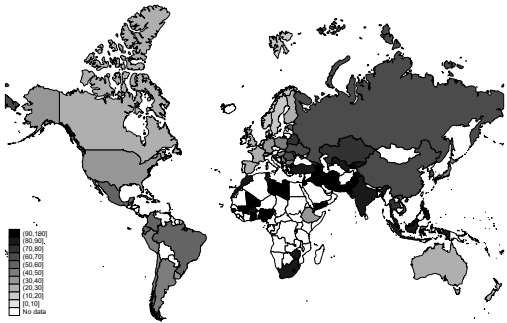

Figure 8: *GSNI* by Country

Summary Statistics

Table 1: Firm-Level Summary Statistics

	n	Mean	SD	Min	P25	Median	P75	Max
FemaleShare	31,377	0.12	0.14	0	0	0.1	0.2	0.67
$log(ForeignSales)$	31,377	17.63	2.62	4.86	16.1	17.85	19.44	25.21
WBL	31,222	83.5	12.92	23.75	73.63	83.75	94.38	100
GSNI	26,405	43.97	22.03	10.75	26.81	33.07	64.42	98.07
GSNIECON	26,405	35.56	19.61	9.16	18.06	29.8	54.87	91.97

Event Study Regression Results

Dep. Var.: $log(ForeignSales_t)$	(1)	(2)	(3)
$Event_{t+2*} \times GSNI$	−0.00		
	(0.00)		
$Event_t \times GSNI$	−0.00		
	(0.00)		
$Event_{t-1} \times GSNI$	−0.01**		
	(0.00)		
$Event_{t-2*} \times GSNI$	0.00		
	(0.00)		
$Event_{t+2*} \times GSNIECON$		−0.01	
		(0.01)	
$Event_t \times GSNIECON$		−0.01	
		(0.01)	
$Event_{t-1} \times GSNIECON$		−0.01**	
		(0.00)	
$Event_{t-2*} \times GSNIECON$		−0.00	
		(0.00)	
$Event_{t+2*} \times WBL$			0.00
			(0.01)
$Event_t \times WBL$			0.00
			(0.01)
$Event_{t-1} \times WBL$			0.01
			(0.01)
$Event_{t-2*} \times WBL$			0.00
			(0.01)
Firm-year FE	Yes	Yes	Yes
Origin-destination-year FE	Yes	Yes	Yes
Adj. R^2	0.71	0.71	0.73
Observations	9,693	9,693	11,486

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Standard errors (clustered on the firm and the country-pair level) in parentheses. An index time with an asterisk indicates that all further available years in that time direction are included for the indicator construction.

Subsamples (I)

Table 2: Firm-Level Subsample Analysis: Without High Income Countries

Dep. Var.: $log(ForeignSales_t)$	(1)	(2)	(3)	(4)	(5)	(6)
$FemaleShare \times GSNI$	-0.07^{***}					
	(0.03)					
$FemaleShare \times GSNI_{t-1}$		-0.09^{***}				
		(0.03)				
$FemaleShare \times GSNIECON$			-0.06^{**}			
			(0.03)			
$FemaleShare \times GSNIECON_{t-1}$				-0.08^{**}		
				(0.03)		
$FemaleShare \times WBL$					0.09^{**}	
					(0.04)	
$FemaleShare \times WBL_{t-1}$						0.14^{***}
						(0.04)
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin-destination-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.52	0.46	0.52	0.46	0.54	0.49
Observations	9,374	6,314	9,374	6,314	10,805	7,195

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Standard errors (two-way clustered by firm and country-pair) in parentheses.

Subsamples (II)

Table 3: Firm-Level Subsample Analysis: Only High Income Countries

Dep. Var.: $log(ForeignSales_t)$	(1)	(2)	(3)	(4)	(5)	(6)
$FemaleShare \times GSNI$	-0.03^{*}					
	(0.02)					
$FemaleShare \times GSNI_{t-1}$		-0.02				
		(0.02)				
$FemaleShare \times GSNIECON$			-0.03^{**}			
			(0.02)			
$FemaleShare \times GSNIECON_{t-1}$				-0.02		
				(0.02)		
$FemaleShare \times WBL$					0.07^{***}	
					(0.02)	
$FemaleShare \times WBL_{t-1}$						0.06^{***}
						(0.02)
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin-destination-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.79	0.79	0.79	0.79	0.79	0.79
Observations	17,031	11,598	17,031	11,598	20,417	13,892

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Standard errors (two-way clustered by firm and country-pair) in parentheses.

Subsamples (III)

Table 4: Country-Level Subsamples

Dep. Var.: *Exports*	(1)	(2)	(3)	(4)	(5)	(6)
$FemaleShare_o \times GSNI_d$	−0.01			−0.03**		
	(0.00)			(0.01)		
$FemaleShare_o \times GSNIECON_d$		−0.01*			−0.03**	
		(0.01)			(0.01)	
$FemaleShare_o \times WBL_d$			0.02***			0.03**
			(0.00)			(0.02)
RTA	0.11***	0.11***	0.12***	0.03	0.02	0.03
	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)	(0.04)
Origin-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Destination-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin-destination FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	1.00	1.00	1.00	0.99	0.99	0.99
Observations	33,034	33,034	78,626	22,685	22,685	52,707

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Standard errors (clustered on the country-pair level) in parentheses. Estimation method: PPML. Models (1)-(3) use a sample restricted to high-income origin countries, while Models (4)-(6) are based on a sample excluding high-income origins.

OECD Female Shares

Table 5: Country-Level Results Using OECD Female Shares

Dep. Var.: *Exports*	(1)	(2)	(3)	(4)	(5)	(6)
$oecdShare_o \times GSNI_d$	−0.00					
	(0.00)					
$oecdShare_o \times GSNIECON_d$		−0.01*				
		(0.00)				
$oecdShare_o \times WBL_d$			0.02***			
			(0.00)			
$oecdShare_d \times GSNI_o$				−0.00		
				(0.00)		
$oecdShare_d \times GSNIECON_o$					−0.00	
					(0.00)	
$oecdShare_d \times WBL_o$						0.01**
						(0.01)
RTA	−0.04	−0.04	−0.02	−0.01	−0.01	−0.00
	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.04)
Origin-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Destination-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin-destination FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	1.00	1.00	1.00	1.00	1.00	1.00
Observations	31,346	31,346	75,136	31,330	31,330	74,621

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Standard errors (clustered on the country-pair level) in parentheses. Estimation method: PPML.

Lagged Female Shares on the Country Level

Table 6: Country-Level Results with Lags

Dep. Var.: $Exports_t$	(1)	(2)	(3)	(4)	(5)	(6)
$FemaleShare_{o,t-1} \times GSNI_d$	-0.02^{***}					
	(0.00)					
$FemaleShare_{o,t-1} \times GSNIECON_d$		-0.02^{***}				
		(0.00)				
$FemaleShare_{o,t-1} \times WBL_{dt}$			0.02^{***}			
			(0.00)			
$FemaleShare_{d,t-1} \times GSNI_o$				-0.01^{*}		
				(0.00)		
$FemaleShare_{d,t-1} \times GSNIECON_o$					-0.01^{*}	
					(0.01)	
$FemaleShare_{d,t-1} \times WBL_{ot}$						0.01
						(0.01)
RTA	0.10^{***}	0.10^{***}	0.10^{***}	0.09^{***}	0.09^{***}	0.10^{***}
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Origin-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Destination-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin-destination FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	1.00	1.00	1.00	1.00	1.00	0.99
Observations	51,575	51,575	121,191	51,534	51,534	120,787

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Standard errors (clustered on the country-pair level) in parentheses. Estimation method: PPML.

Standard Error Clusters (I)

Table 7: Firm-Level Results with SE Clustered on the Firm-Level

Dep. Var.: $log(ForeignSales_t)$	(1)	(2)	(3)	(4)	(5)	(6)
$FemaleShare \times GSNI$	-0.05^{***}					
	(0.02)					
$FemaleShare \times GSNI_{t-1}$		-0.05^{**}				
		(0.02)				
$FemaleShare \times GSNIECON$			-0.04^{***}			
			(0.02)			
$FemaleShare \times GSNIECON_{t-1}$				-0.04^{**}		
				(0.02)		
$FemaleShare \times WBL$					0.08^{***}	
					(0.03)	
$FemaleShare \times WBL_{t-1}$						0.10^{***}
						(0.03)
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin-destination-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.71	0.69	0.71	0.69	0.72	0.70
Observations	26,405	17,912	26,405	17,912	31,222	21,087

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Standard errors (one-way clustered by firm) in parentheses.

Standard Error Clusters (II)

Table 8: Firm-Level Results with SE Clustered on the Country-Pair-Level

Dep. Var.: $log(ForeignSales_t)$	(1)	(2)	(3)	(4)	(5)	(6)
$FemaleShare \times GSNI$	-0.05^{***}					
	(0.02)					
$FemaleShare \times GSNI_{t-1}$		-0.05^{**}				
		(0.02)				
$FemaleShare \times GSNIECON$			-0.04^{***}			
			(0.02)			
$FemaleShare \times GSNIECON_{t-1}$				-0.04^{**}		
				(0.02)		
$FemaleShare \times WBL$					0.08^{***}	
					(0.02)	
$FemaleShare \times WBL_{t-1}$						0.10^{***}
						(0.03)
Firm-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Origin-destination-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.71	0.69	0.71	0.69	0.72	0.70
Observations	26,405	17,912	26,405	17,912	31,222	21,087

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Standard errors (one-way clustered by country-pair) in parentheses.

References I

Banalieva, Elitsa R, and Charles Dhanaraj. 2013. "Home-region orientation in international expansion strategies." *Journal of International Business Studies* 44, no. 2 (February): 89–116.

Bureau van Dijk. 2022. "Osiris." Accessed January 25, 2022. `https://www.bvdinfo.com/en-gb/our-products/data/international/osiris`.

Do, Quy-Toan, Andrei A Levchenko, and Claudio E Raddatz. 2011. "Engendering trade." *World Bank Policy Research Working Paper,* no. 5777.

Sauré, Philip, and Hosny Zoabi. 2014. "International trade, the gender wage gap and female labor force participation." *Journal of Development Economics* 111:17–33.

Terjesen, Siri, and Val Singh. 2008. "Female presence on corporate boards: A multi-country study of environmental context." *Journal of Business Ethics* 83 (1): 55–63.

United Nations Development Programme. 2020. "Tackling Social Norms - A Game Changer for Gender Inequalities." *Human Development Perspectives*.

World Bank. 2021. *Women, Business and the Law 2021.* The World Bank, April.