

Do Women Pay More for Credit? Evidence from Italy

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Why should we care?

Virtually every *agenda* drafted by the European Commission states that...

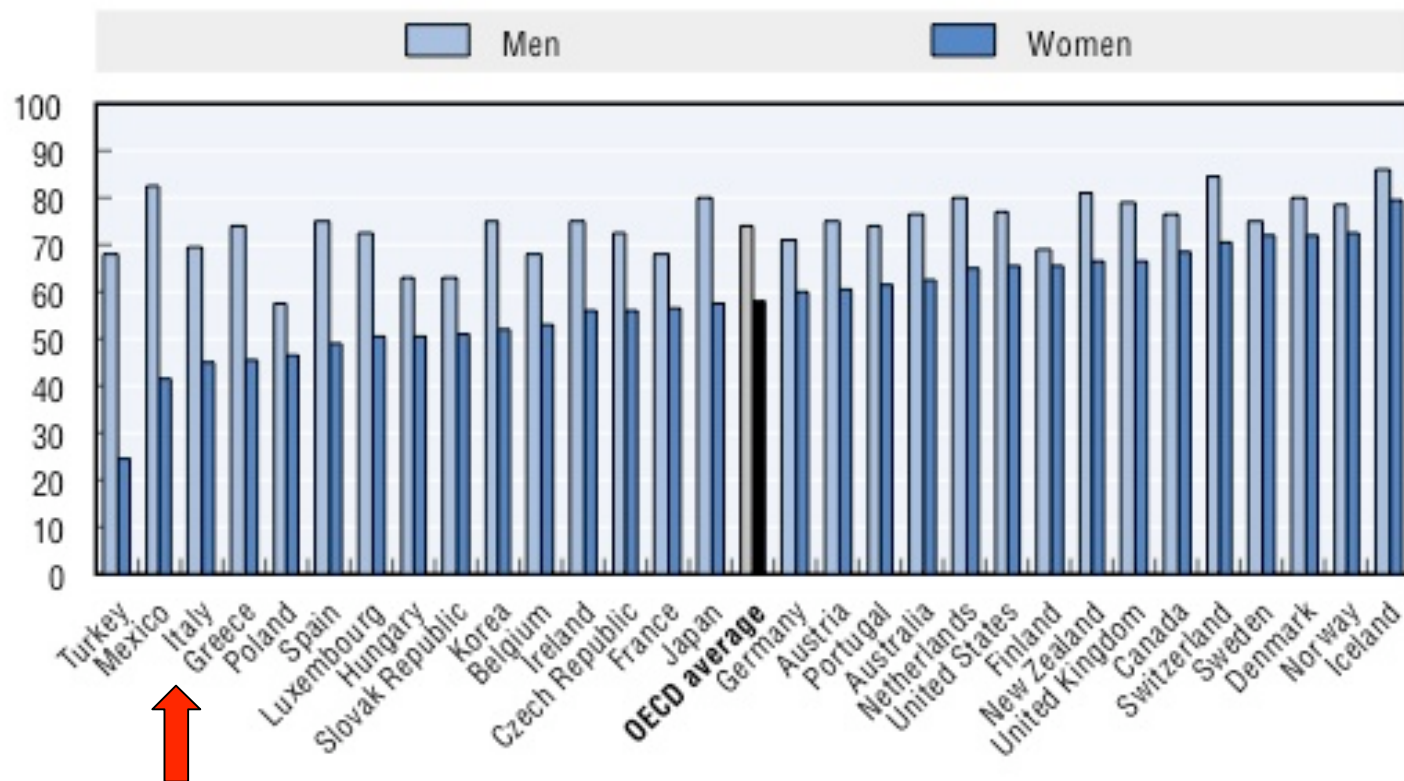
Women are an untapped resource for growth, both as entrepreneurs and as workers

Many workplaces not only have a glass ceiling but also a glass door, which keeps out women and ethnic minorities



Some figures (I)

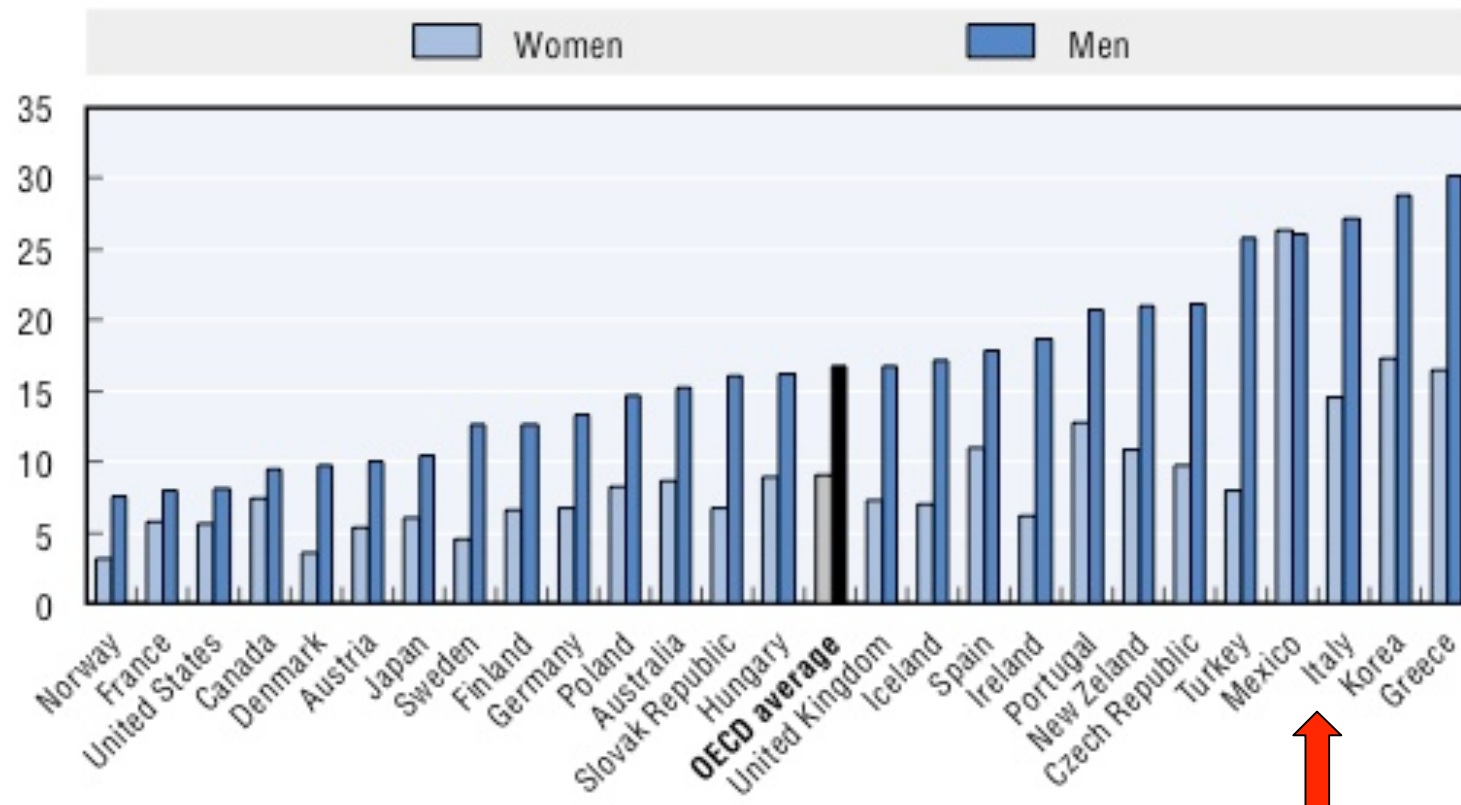
Percentage of men and women of working age in employment
2004



Some figures (II)

Percentage of self-employed as a percentage of employed men and women

Excluding self-employed in agriculture, 2004 or latest years available



Or focus is...

... on microfirms and self employment.

Those sole proprietorship firms account for nearly 68% of the total in IT (> 3 million of firms out of 5). Of these small firms, one out of four is owned by a woman

Why this kind of firm?

- Gender classification is straightforward
- Self employment and greenfield entry mainly occur in this category
- Heavily rely on banks as a source of external finance
- More likely to suffer from credit constraints

Or focus is...

... on overdraft facilities (credit lines) held by those microfirms.

Why this kind of loan?

- for very small firms and self-employed individuals, overdraft facilities are the main form of credit and liquidity management.
- these loans are highly standardized among banks
- are not granted for some specific purpose: so their pricing is highly associated with the borrower-lender relationship, thus providing us with a better tool for testing gender discrimination.

Back to the question

Do Women-Owned Business Pay More for Credit?

Yes, we find robust evidence that female owned firms pay, at least, 30 basis point more than their male counterparts.

Our strategy

We try to address - and control for - every possible (meaning *feasible*) hypothesis that economic theory would suggest, until we are left with a unique explanation

taste based discrimination

Taste based discrimination in the credit market

Mainly on the US, focused on racial discrimination.

- Cavalluzzo and Cavalluzzo '98; Blanchflower, Levine and Zimmerman '03. Evidence that is consistent with discrimination against African-Americans in the market for small business loans. Little evidence on gender.
- They focus not on interest rates charged but on denials of credit applications.

More recently:

- Ravina '08: personal characteristics like beauty (and race) seem to be correlated with credit conditions, even though not correlated with repayment records.

The Data (I)

Two main sources:

1) Central Credit Register run by the Bank of Italy

- Detailed information on firms and individuals with loans.

2) Bank of Italy Loan Interest Rate Survey

- Information on interest rates charged on each bank loan granted by a sample of about 200 Italian banks. The sample is highly representative of the Italian market for loans to small firms.
- These banks account for over 80 percent of the total lending granted to self employed and microfirms.
- The sample is representative of the universe of Italian banks in terms of bank size, category and location.

The Data (II)

Our sample:

- 1.2 million loans (16% F)
- to nearly 150 thousand firms (18% F)
- for 12 quarters, from Jan 2004 to Dec 2006.

Cleaning:

- trimming to the 1-99 pct of the interest rate distribution.
- excluded those firms recipients of government subsidies
subsidized interest rate + exclusion of “marginal” firms, i.e. those firms that wouldn't enter the market without a subsidy and/or that may be listed in a woman's name just to receive state aids.

Credit lines & small firms (I)

Table 2 - Firms and credit lines: geographical distribution (in %)

	Firms		Credit lines	
	Female	Male	Female	Male
North East	17.2	82.8	15.4	84.6
North West	16.8	83.2	14.8	85.2
Center	20.4	79.6	18.0	82.0
South & Islands	18.3	81.7	16.9	83.1
Total	18.0	82.0	16.1	83.9

FEMALE firms have, on average, less credit lines than MALE firms.

This may hint at the possibility of a higher denial ratio for women (no data, unfortunately)
recall that one firm out of four is female-run, according to the business register.

25% F firms, 18% with loans > 75th euros, 16 % credit lines to F.

Credit lines & small firms (II)

Table 3 - Firms and credit lines: sectorial distribution (in %)

	Share of firms		Share of loans	
	Female	Male	Female	Male
Manufacturing	17.9	82.1	15.8	84.2
Constructions	2.8	97.2	2.5	97.5
Retail & Wholesale trade	25.1	74.9	22.9	77.1
Hotels & Restaurants	34.3	65.7	32.8	67.2
Credit & Insurance interm. (excl. banks)	6.9	93.1	6.4	93.6
Business Services	17.0	83.0	14.3	85.7
Total	18.0	82.0	16.1	83.9

Credit lines & small firms (III)

Table 4 - Credit lines' size (in euro)

Global loans size ^a	Share of credit lines in %		Average granted credit per line in euro	
	Female	Male	Female	Male
Below 250,000	65.1	55.5	34,060	36,850
Between 250,000 and 2,500,000	34.2	42.7	84,889	83,388
Between 2,500,000 and 100,000,000	0.7	1.8	253,401	305,205
Total	100	100	53,048	61,511

^(a) Loan size refers to the firms' total outstanding loans.

Credit lines to women tend to be smaller

Credit lines & small firms (IV)

Table 5 - Average credit drawn per line (in euro)

Global loans size ^a	Average drawn credit per line in euro		Credit line usage ^b	
	Female	Male	Female	Male
Below 250,000	27,840	28,749	81.7	78.0
Between 250,000 and 2,500,000	59,757	59,886	70.5	71.9
Between 2,500,000 and 100,000,000	177,526	219,884	70.0	72.1
Total	39,850	45,455	75.2	73.9

(a) Loan size refers to the firms' total outstanding loans.

(b) The credit line usage is the ratio of drawn to granted credit, in percentage.

Average drawn from credit line in absolute value is similar between men and women, but women draw a slightly higher share of their lines.

Credit lines & risk perception

Table 6 - Share of secured loans (in %)

Global loans size ^a	Share of secured credit lines ^b	
	Female	Male
Below 250,000	58.0	54.0
Between 250,000 and 2,500,000	60.0	53.8
Between 2,500,000 and 100,000,000	62.0	42.9
Total	58.7	53.7

(a) Loan size refers to the firms' total outstanding loans.

(b) Secured loans are backed up by either physical and financial assets posted by a third party, which the lender can realize

A higher percentage of loans to women are accompanied by external guarantees, often a person guarantor.

Are Female firms worse borrowers?

- Presence of bad loans:
 - 0.46% for M versus 0.44% for F (credit lines)
 - 1.3% for M, 1.1% for F (firms)
- Bankruptcies, from the Chamber of Commerce.
 - 2.2% for M, 1.9% for F (failure rate)
 - 4.9% for M, 6.0% for F (broader definition)

So, there is no evidence that firms owned by women go bankrupt more than firms owned by men.

Summing up ...

- Female firms are roughly equally distributed across Italy
- Women-owned businesses obtain somewhat smaller loans
- Women seem to have a better credit history than men on average and are less likely to go bankrupt.
- Nevertheless, more women are asked to post a guarantee when they obtain a loan.

The modeling framework

$i = f(\text{gender}, \text{fixed effects})$ BASELINE SPECIFICATION

Fixed effects: quarterly, industry (3dgt), province dummies

$i = \text{net interest rate}$ (observed interest rate minus ECB marginal rate on lending facilities)

then ADD more controls & variables, like

- other firm's characteristics
- bank's charact.
- credit market charact.
- social capital
- ???

and look at the coeff of the gender variable

Basic regression

	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.285*** (0.019)	0.274 *** (0.018)	0.291*** (0.020)	0.178*** (0.019)	0.163*** (0.018)	0.202*** (0.020)
Craftsmen				-0.073*** (0.020)	-0.023 (0.020)	-0.099*** (0.021)
Age				-0.017*** (0.001)	-0.904*** (0.026)	-0.018*** (0.001)
Loan size (class)				-0.248*** (0.005)	-0.264*** (0.005)	-0.171*** (0.004)
Bad Loans				1.805*** (0.068)	1.724*** (0.064)	0.526*** (0.053)
Bank fixed effects	No	Yes	No	No	Yes	No
Estimate	OLS	OLS	Panel R.E.	OLS	OLS	Panel R.E.
N. obs.	1,209,078	1,209,078	1,209,078	1,122,556	1,122,556	1,122,556

Interest rates & secured loans

	(1)	(2)	(3)	(4)
Female	0.280*** (0.019)	0.382*** (0.026)	0.395*** (0.022)	0.246*** (0.020)
Guarantor	0.104*** (0.012)	0.133*** (0.013)		
Male Guarantor			0.186*** (0.026)	
Female Guarantor				-0.048*** (0.014)
Female* Guarantor		-0.183*** (0.032)		
Female * Male Guarantor			-0.426*** (0.040)	
Female * Female Guarantor				0.428*** (0.062)
N. obs.	1,209,078	1,209,078	1,209,078	1,209,078

A female borrower guaranteed by a female pays nearly 43 basis points more than a non-guaranteed man and 62 more than a woman guaranteed by a man.

Interest rates & credit market characteristics

	(1)	(2)	(3)	(4)	(5)
Female	0.285*** (0.019)	0.285*** (0.019)	0.286*** (0.020)	0.354*** (0.040)	0.422*** 0.041
HHI	-3.688*** (0.603)	-7.628*** (1.547)		-3.542*** (0.607)	
HHI sq.		16.660*** (5.932)			
Failure rate			0.153*** (0.003)		0.158*** (0.004)
Female * HHI				-0.904** (0.449)	
Female * Failure rate					-0.032*** (0.008)
N. obs.	1,209,078	1,209,078	1,209,078	1,209,078	1,209,078

- U-shaped relationship between interest rates and concentration: interest rates are **lowest** in markets with an intermediate level of concentration & **women actually pay less in more concentrated markets**
- For women, going from the 25th to the 75th pct of the HHI distribution, the interest rate decreases, on average, by 13 basis points.
- **Women pay a lower differential relative to men in provinces with higher failures.**

Social Capital & Interest Rates

Social capital and different levels of trust may be associated with more or less “secure” relationships between a borrower and a bank.

Thus, in a place with higher trust, a bank may charge lower interest rates.

Accordingly, we investigate whether this is the case and whether the male/female rate differential is present only in low social capital places and is the result of lack of generalized trust.

Measure of Social Capital: newspapers, blood donations, members of sport associations.

Social Capital & Interest Rates

	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.278*** (0.020)	0.278*** (0.020)	0.282*** (0.020)	0.289*** (0.020)	0.289*** (0.020)	0.288*** (0.020)
N. of newspapers	-0.426*** (0.016)			-0.450*** (0.016)		
Blood Donations		-0.661*** (0.023)			-0.492*** (0.023)	
Members of sport associations			-0.219*** (0.015)			-0.069*** (0.015)
Failure rate				0.156*** (0.003)	0.142*** (0.003)	0.149*** (0.003)
N. obs.	1,209,078	1,209,078	1,209,078	1,209,078	1,209,078	1,209,078

More social capital and trust bring about lower rates of interest. 25th-75 pct of the social capital distribution interest rates decrease by 20 basis points.

Failure rate does not wipe out the social capital coefficients: the effect of social capital cannot be that failure rates are lower with more social capital.

If the F/M differential were driven mostly or exclusively by provinces with low social capital, the coefficient on the female dummy should go down when we control for social capital, but it does not!

Social Capital & Interest Rates

	(1)	(2)	(3)
Female	-0.154 (0.179)	-0.080 (0.184)	-0.145 (0.161)
N. of newspapers	-0.442*** (0.017)		
Blood Donations		-0.680*** (0.025)	
Members of sport associations			-0.235*** (0.016)
Female * N. of newspapers	0.099** (0.041)		
Female * Blood Donations		0.112* (0.057)	
Female * Sport associations			0.103*** (0.039)
N. obs.	1,209,078	1,209,078	1,209,078

Social capital reduces rates on all borrowers but more on men than on women.

⇒ The beneficial effect of social capital is unevenly distributed across genders.

Robustness checks

- In order to rule out the possibility that a F firm is a “sham” business just listed in a woman’s name, we excluded from the sample those F firms whose proprietor has co-signed a loan with someone who defaulted;
- also, we excluded the South from the analysis...
- ... but the results hold.

Summing up

- We have examined the pattern of lending rates on overdraft facilities in Italy with a unique and large data set.
- We document that women pay a higher interest rate even after controlling for a host of characteristics of the borrower, the bank and the structure of the banking sector.
- We have tried to control as well as we could for risk factors like type of business, past credit history and the presence of guarantors, but the differential remains.

Summing up

- In places with higher social capital and trust, banks charge lower interest, and the amount of this effect is quite large...
- but the differential between male and female borrowing rates is not confined in places with low social capital.
- Both men and women pay lower interest in places with high social capital, but women benefit less.

Conclusions

- Women show a better credit history than men
- Guarantors are considered a risk factor for men:
 - male borrowers are charged more if they have to post a guarantor;
 - for women, it is the **opposite**: when they post a male guarantor, their interest goes down, but, interestingly, if they have a female guarantor, the interest they pay goes way up.

Women-owned firms pay more than men in Italy for overdraft facilities, and this difference does not seem to be explained by any variable capturing differential risk, directly or indirectly.