

Misallocation, Property Rights, and Access to Finance: Evidence from Within and Across African Countries

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We ask two main questions:

- 1 Is capital efficiently allocated across firms within African countries?
 - ★ If not, what is the extent of this misallocation and underlying reasons?
- 2 Does the degree of capital misallocation vary across African countries?
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Why are these questions important?

- Recent studies argue that misallocation of resources across firms is one of the most important causes of underdevelopment (Restuccia and Rogerson (2008)).
- Some studies measure the return to capital (for a given country):
 - ★ Banerjee and Duflo (2005), Udry and Anagol (2006), Kremer et al. (2009)
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Our contribution

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Preliminary results

- Many firms borrow at rates as high as 40% (nominal and real), where mean is 15%
- Estimated MPK can be as high as 1300%, where mean is 70%
- Firms with limited access to finance have higher returns to capital
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- Important WB initiative between 1999 and 2007 to survey establishments from 80 developed and developing countries, mostly with face-to-face interviews
- 21 African countries from 2 roll-outs in 2006 (13 countries) and 2007 (8 extra countries); single cross section for 12,752 establishments
- Main purposes of the survey:
 - ★ To identify obstacles to firm performance and growth
 - ★ To provide a wide set of measures of firms outcomes and constraints for a large sample of firms which are comparable across countries

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Main Advantages of the Database

- Many variables for key firm characteristics such as size, foreign and state ownership, exports, age..
- Direct observations on the interest rates firms pay
- Questions on firms' own perceptions of obstacles such as financing constraints, infrastructure, corruption...
 - ★ In most of the literature financing constrains indirectly inferred from the balance-sheet data
- Main disadvantage of the data is that it is a stratified sample and not representative of the aggregate economy.
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- **Measure 1:** Cost of capital: interest rate and collateral requirement
 - ★ Does your establishment currently have a line of credit or loan from a financial institution? If so what is the average annual interest rate?
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Measures of misallocation

- **Measure 2:** MPK based on Cobb-Douglas production function (value added divided by replacement cost of capital)

$$MPK1_i = \alpha \frac{Y_i}{K_i}, \alpha = 1/3$$

- **Measure 3:** Index of misallocation from Hsieh and Klenow (2009) (Total cost of labor divided by total capital income)

$$HK_i = \frac{\alpha}{1 - \alpha} \frac{(wL)_i}{RK_i}$$

Their index is $1+HK$

- Productivity-Size correlation: Cannot perform Olley-Pakes or Levinsohn-Petrin since we have a single cross-section

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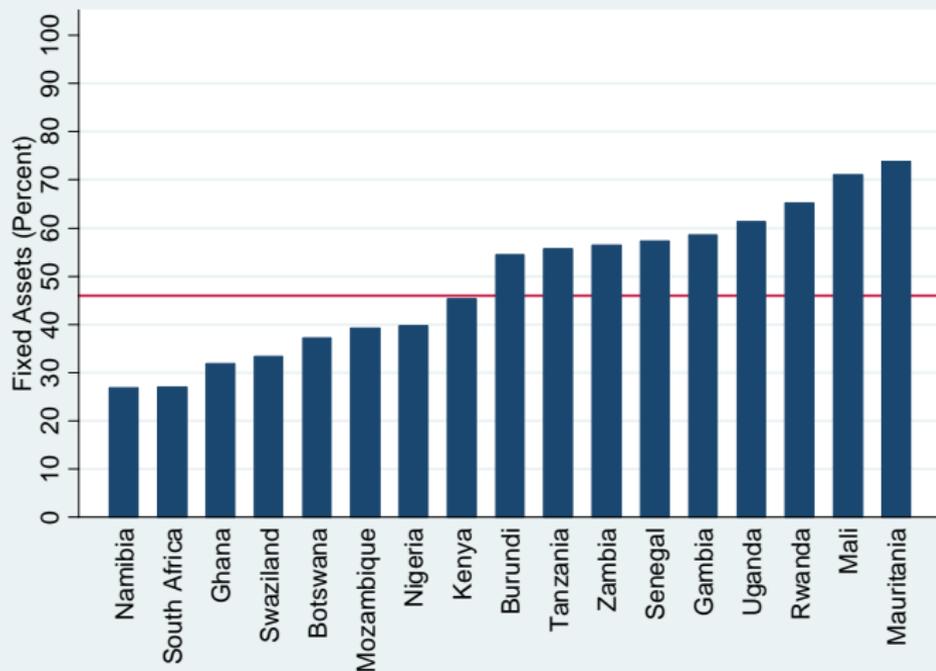
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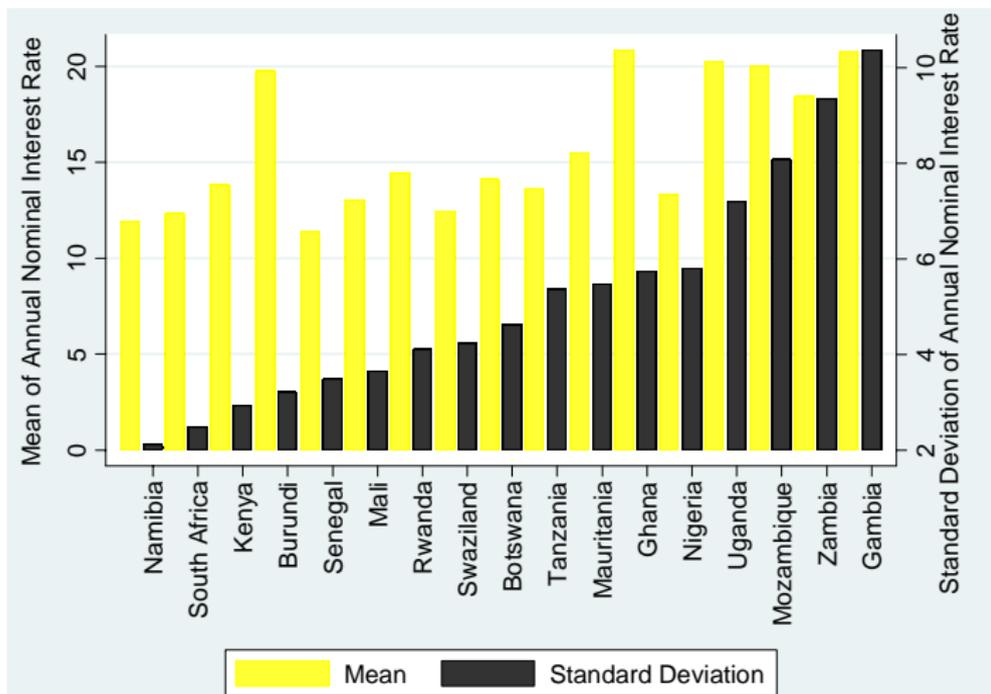
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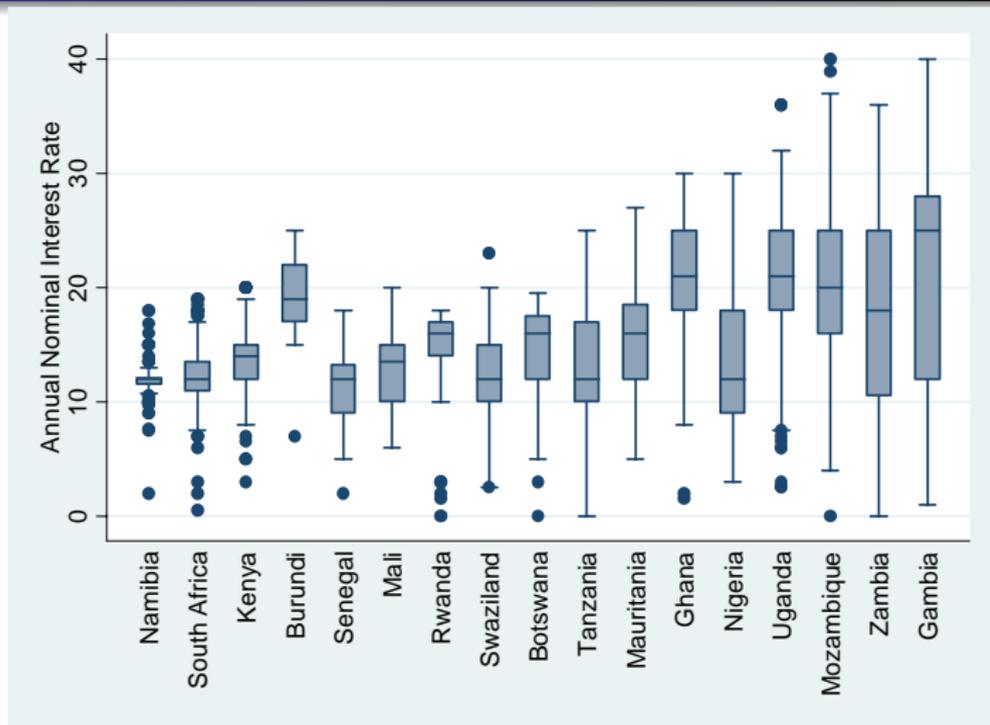
Collateral Requirements



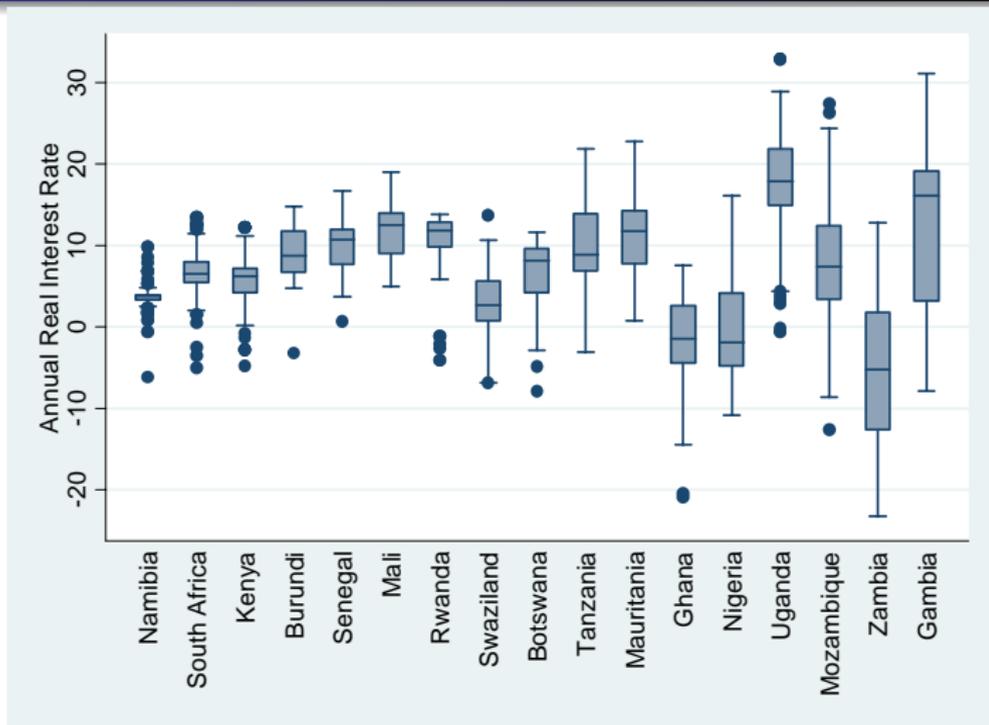
Nominal Interest Rates



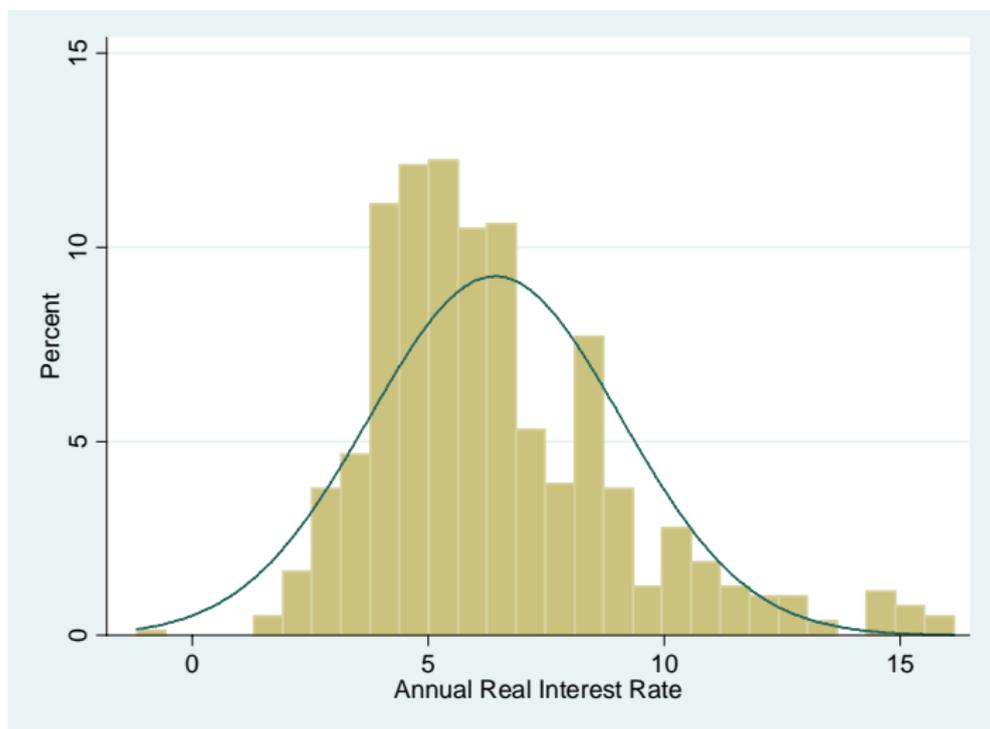
Distribution of Nominal Interest Rates



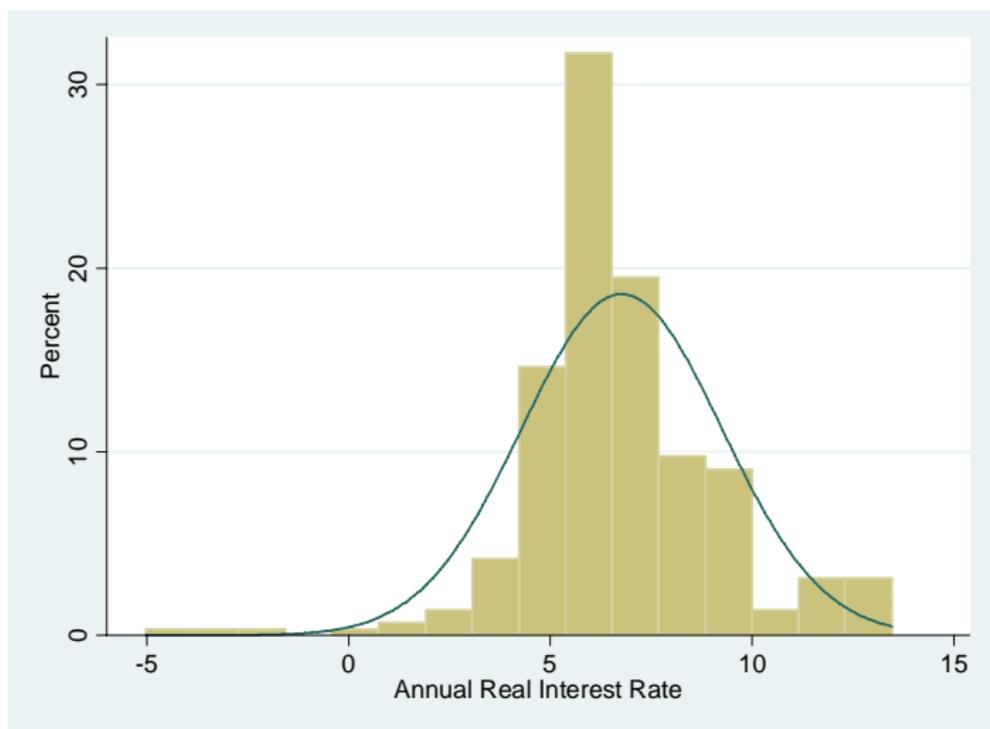
Distribution of Real Interest Rates



Germany



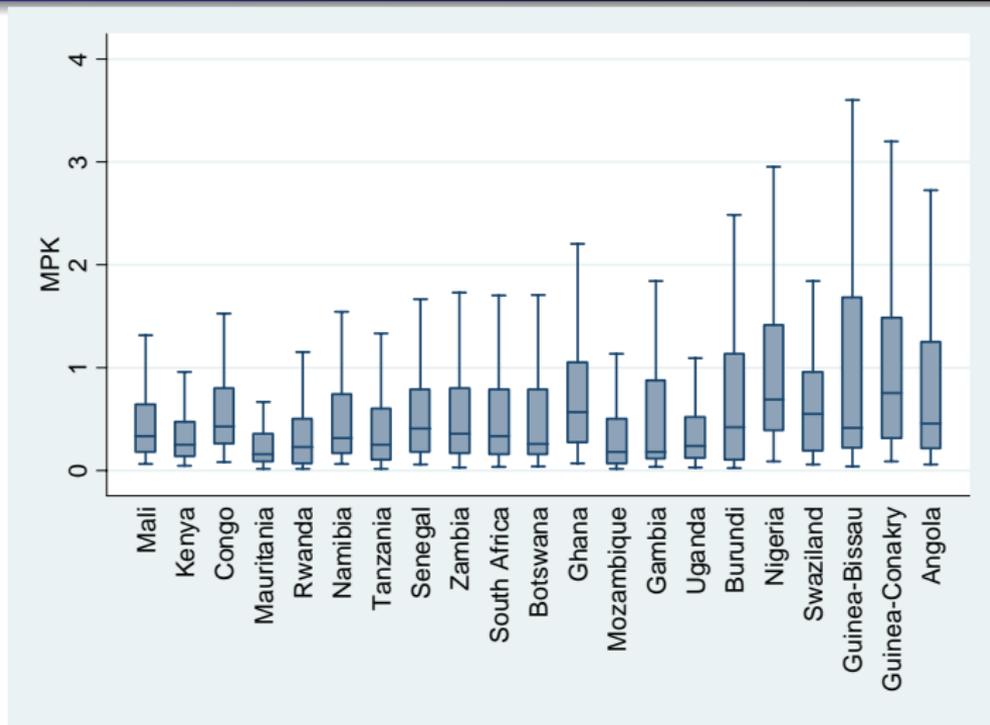
South Africa



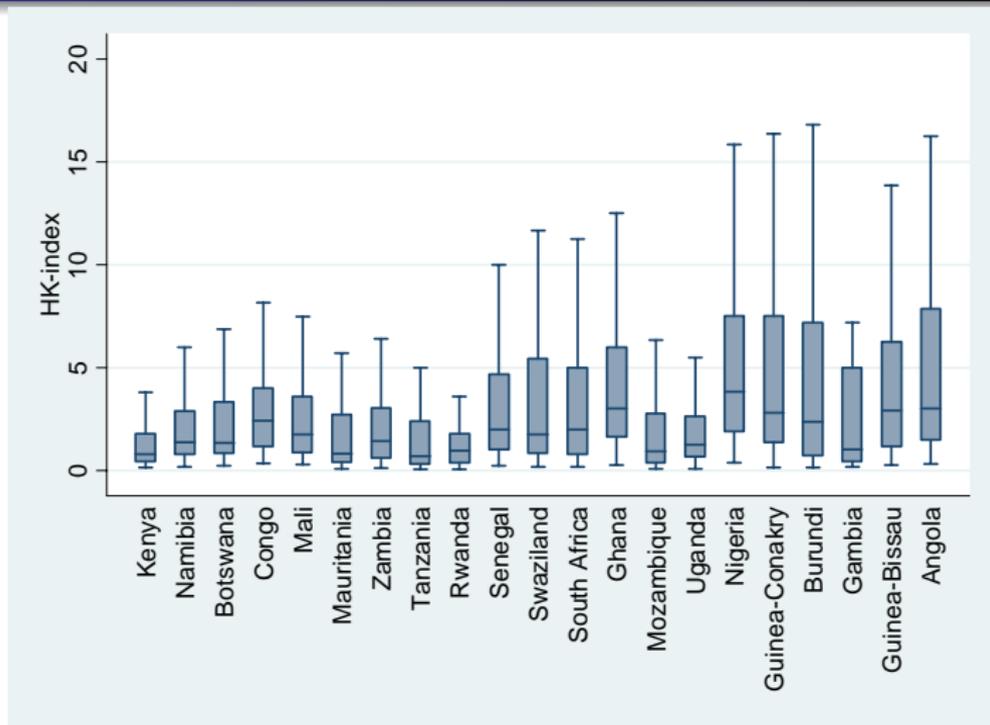
Descriptive Statistics

	Obs.	Mean	Std. Dev.	Min	Max	Median
Nominal R	1667	15.030	5.843	0	40	14
Real R	1667	6.425	6.915	-23.219	32.867	6.745
Y/L	4642	19883.81	449611.1	130.555	30300000	4285.714
repK/L	4642	36833.23	1306243	35.77818	88900000	4285.714
MPK	4642	0.738	1.015	0.014	13.318	0.385
RrepK/Y	4642	0.245	0.341	0.003	3.448	0.129
wL/Y	4642	0.398	0.228	0	3.75	0.377
HK-index	4645	4.033	6.567	0.042	125	1.884

Distribution of MPKs



Distribution of HK-index



Misallocation Across Countries: Correlates

- Corruption
- Protection of Investor rights
- Shareholder rights
- Legal rights
- Ease of doing business

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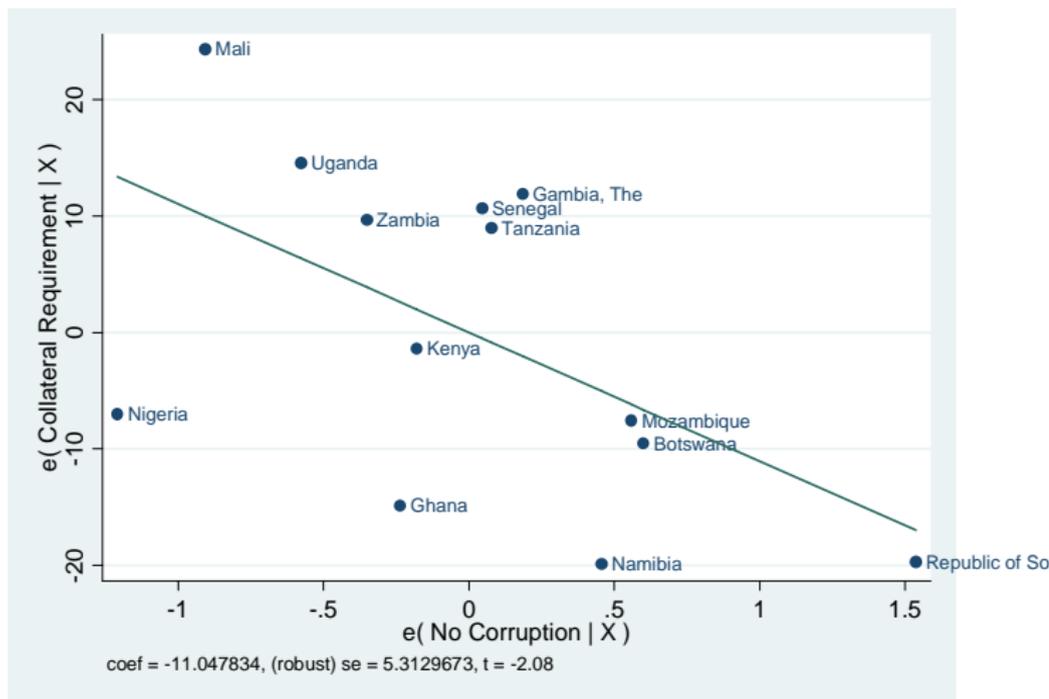
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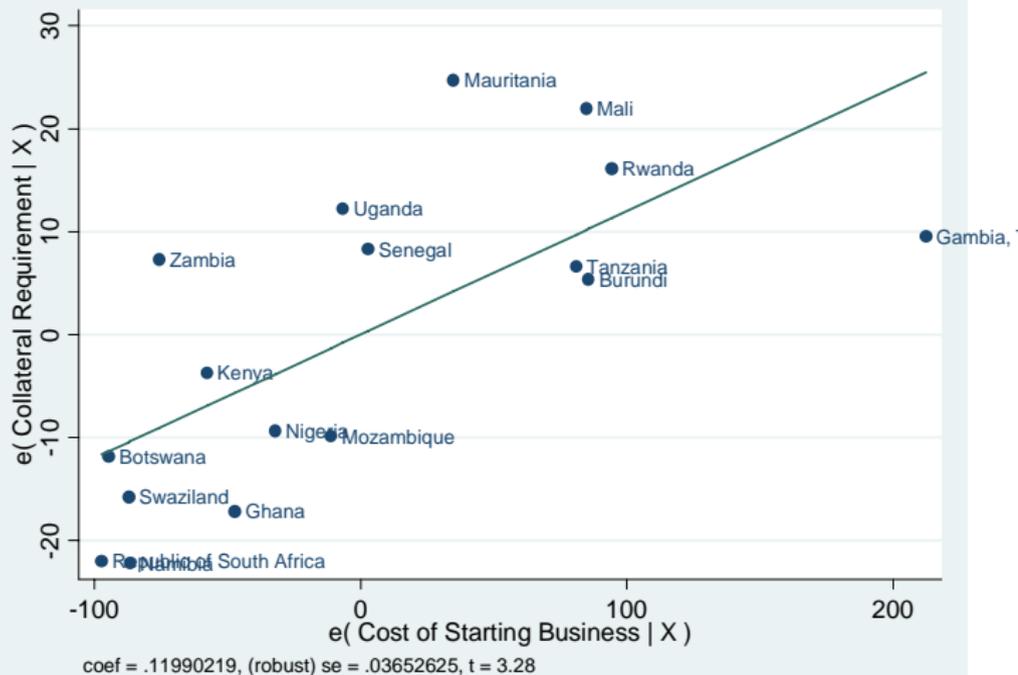
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Corruption and Misallocation



Doing Business and Misallocation



Misallocation Within Countries: Correlates from Obstacles

Regress firm-level measures of misallocation (HK, MPK, R-spread) on firm-level obstacles:

Do you think the following present any obstacle to the current operations of your establishment?

- Telecommunications, Electricity
- Transportation
- Access to land
- Tax rates, Tax administration
- Customs and Trade Regulations
- Functioning of the courts
- Labor Regulations
- Inadequately educated workforce
- Business licensing and Permits
- Access to finance (availability and cost)
- Political instability, Macroeconomic instability
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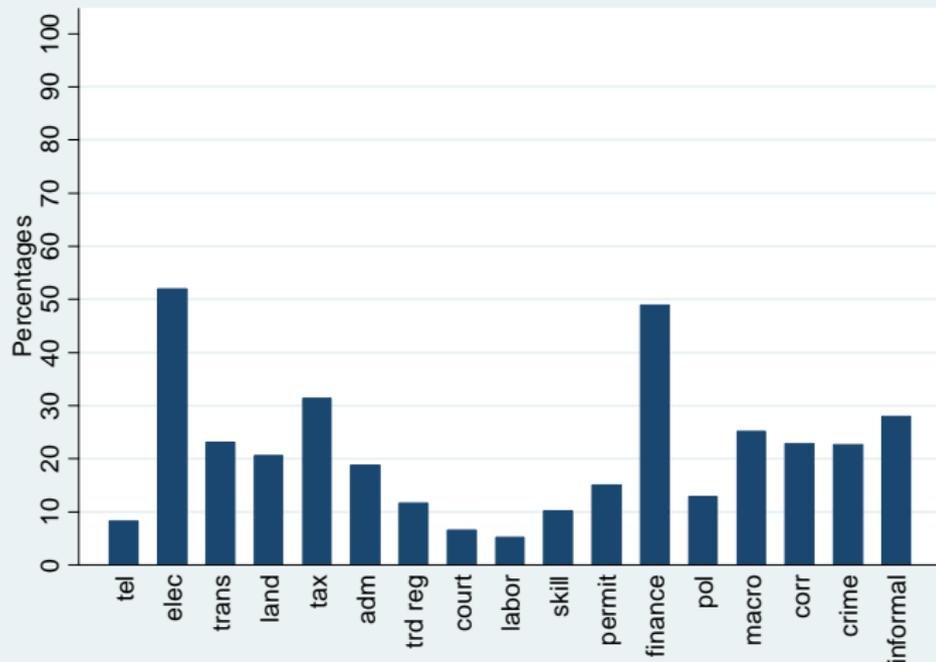
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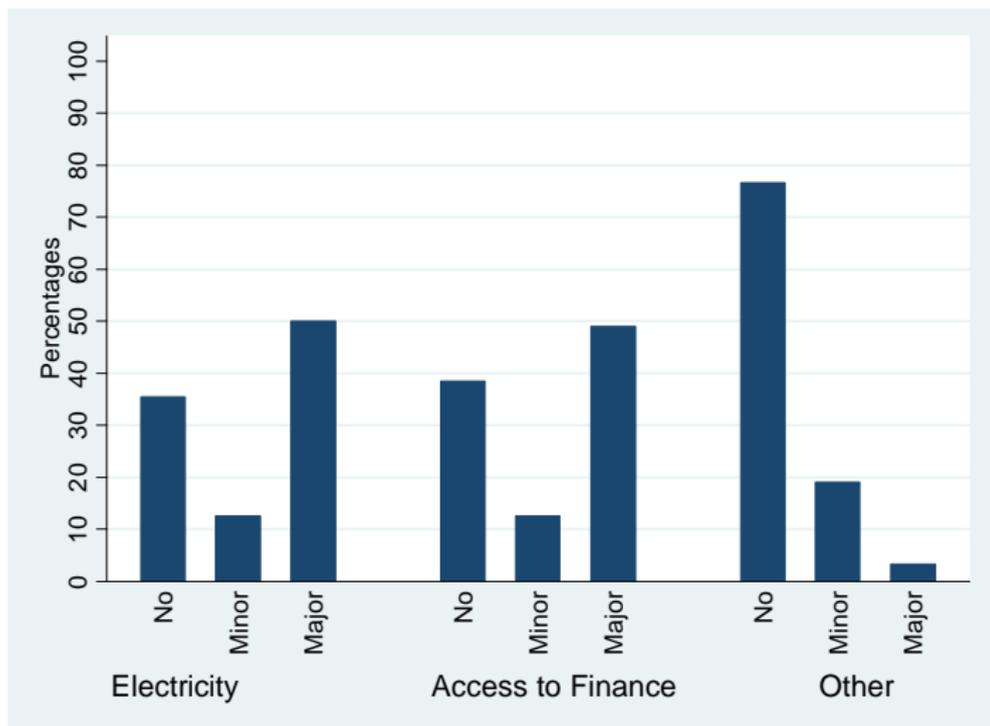
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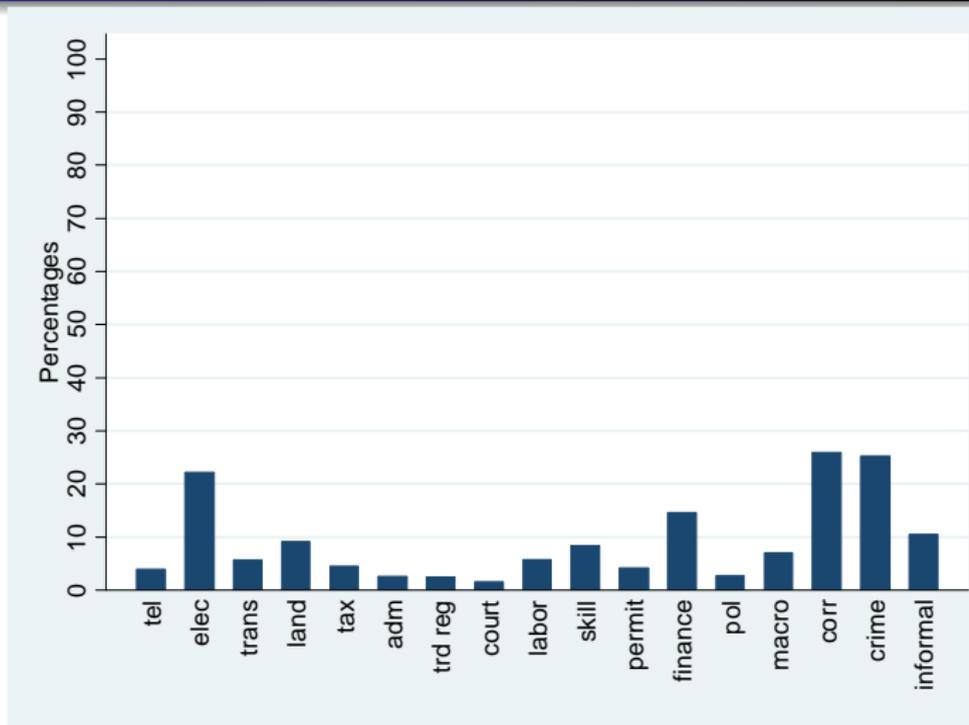
Main Obstacles



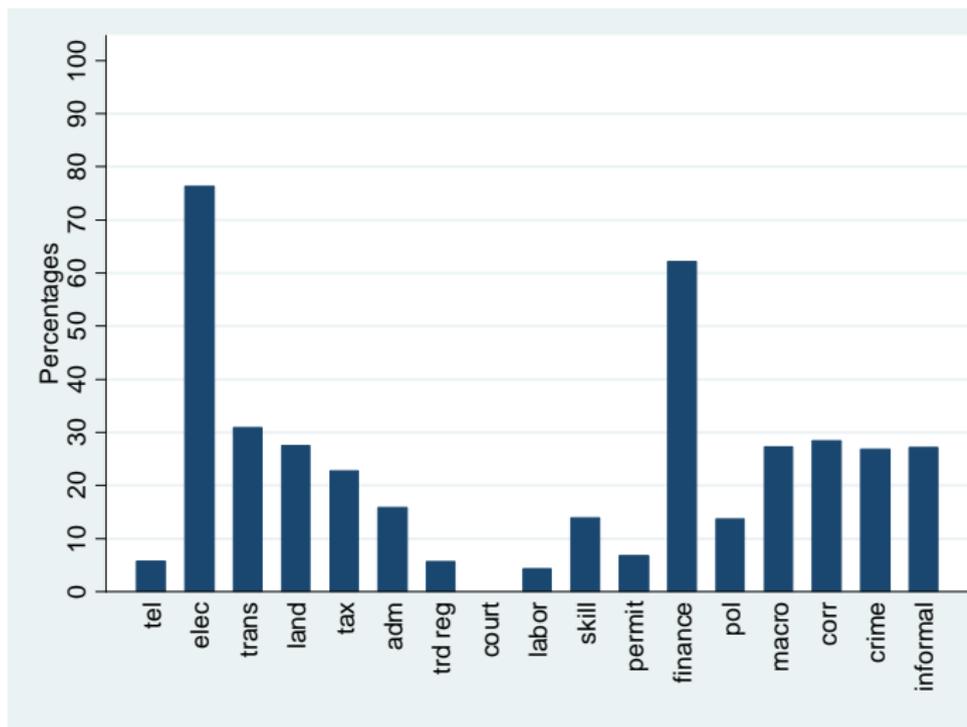
Severity of Obstacles



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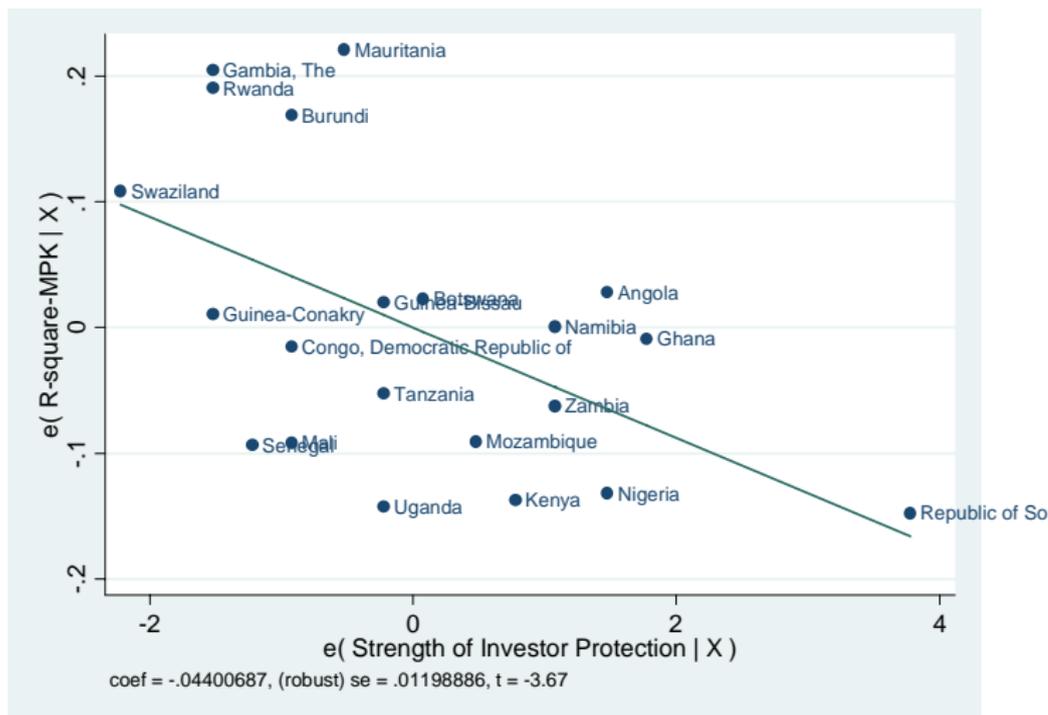
Nigeria



Firm-Level Determinants of Misallocation (log HK-index)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Access to Finance	0.089*** (0.011)	0.083*** (0.012)	0.111*** (0.012)	0.082*** (0.013)	0.048** (0.020)	0.075*** (0.012)	0.039** (0.017)
Electricity		0.021* (0.013)	0.050*** (0.013)	0.039*** (0.013)	-0.021 (0.019)	0.037 (0.030)	-0.019 (0.018)
Other Obstacles			-0.258*** (0.029)	-0.213*** (0.030)	-0.097** (0.041)	-0.196*** (0.048)	-0.088** (0.041)
Age				-0.006*** (0.001)	-0.002 (0.002)	-0.006*** (0.001)	-0.002 (0.002)
Small				0.186*** (0.041)	0.117* (0.060)	0.083 (0.080)	0.001 (0.052)
Government				-0.010*** (0.002)	-0.008*** (0.002)	-0.009*** (0.000)	-0.006** (0.002)
Foreign				-0.003*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)	-0.001** (0.000)
Export				0.112 (0.112)	0.231*** (0.077)	0.064 (0.141)	0.165** (0.074)
Listed				0.215 (0.174)	0.188 (0.202)	0.279 (0.288)	0.254 (0.199)
Constant	0.363*** (0.039)	0.305*** (0.052)	0.638*** (0.064)	0.678*** (0.071)	0.819*** (0.084)	0.541*** (0.063)	0.635*** (0.075)
Country Dummies	no	no	no	no	yes	no	yes
Industry Dummies	no	no	no	no	no	yes	yes
R^2	0.0127	0.0133	0.0291	0.0527	0.1837	0.0857	0.2144
Obs.	4636	4636	4636	4519	4519	4519	4519

MPK and Country Effects



Conclusion

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Next to do:

- Go to Africa!
- Time-series data: ORBIS
- Try to understand/differentiate between property rights and access to finance and see what are the country level dummies capturing?
- Work on the comments we will be getting now.