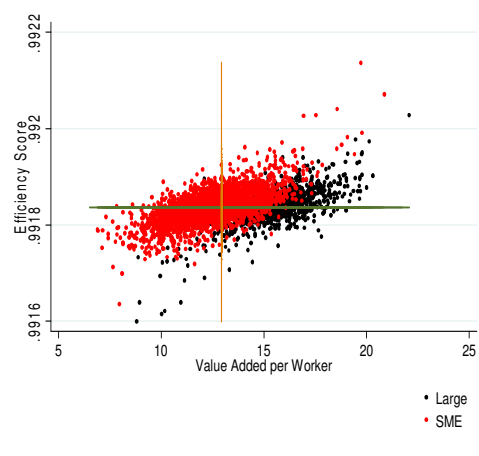


1. Growth in Madagascar has been strong in recent years, certainly until the recent political crisis. This note summarises an analysis of firm performance during this growth period and highlights some structural issues which are likely to be important even after the current crisis.
2. Madagascar is one of the poorest countries in the chosen group of comparison countries (see below), with one of the lowest GNI per capita and a poverty headcount approximately 26 percent higher than all but Tanzania and Rwanda.
3. The median Malagasy firm also performed less well than all the comparator countries, with zero growth over the three years to 2007. This may well reflect the impact on firm decisions of growing political uncertainty during the years up to the current crisis.

Country	No. of empls.	VA per worker (US\$)	Average wage (US\$)	Capital intensity (US\$)
Cote d'Ivoire	7	4,413.90	1,650.10	458.4
India	20	7,850.10	2,200.40	7,934.20
Kenya	37	19,456.10	4,576.20	24,907.30
Madagascar'04	38	3,375.90	1,631.30	1,266.00
Madagascar'07	25	5,128.50	2,209.40	4,430.80
Malaysia	55	29,981.40	10,157.80	34,557.50
Mauritius	50	13,301.90	6,090.20	9,660.50
Rwanda	11	10,323.30	2,156.30	4,613.00
South Africa	26	33,020.20	12,189.70	14,964.50
Tanzania	15	12,732.90	2,426.50	5,311.70
Uganda	12	6,434.40	2,361.70	5,668.10
Vietnam	120	6,951.50	2,969.30	8,686.10

Note: US\$ Figures in 2005 US US\$ adjusted per PPP. Firm growth calculated on the basis of employment as follows:

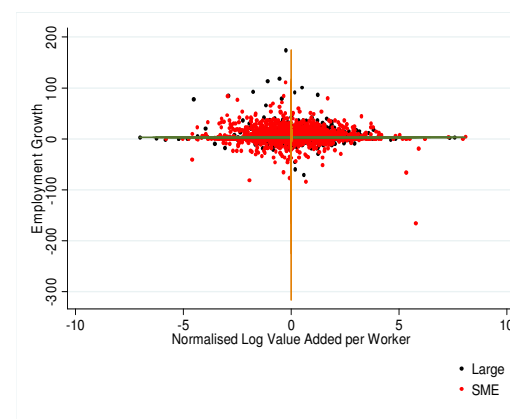
4. The table also shows considerable variation in labor productivity across countries, measured as value-added per worker. Values range from a low of US\$3,375.9 for Madagascar in 2004 to US\$33,020.2 for South Africa.¹ Madagascar in 2007 also had notably low productivity in comparison to the other countries suggesting relatively uncompetitive firms. Importantly, variation in labor productivity seems closely related to differences in capital intensity.
5. Mapping value-added per worker against technical efficiency scores suggests a positive linear relationship between the two, implying that our labor productivity measure is a good proxy for firm performance.
6. This graphing also illustrates the greater productivity of large firms (dark dots) compared to SMEs (red dots) although there is a great deal of heterogeneity across all firms.



7. The average wage in Madagascar is also low in comparison to other countries, reflecting the low level of labor productivity. Madagascar in 2004 has the lowest wage, at US\$1,631 per annum, closely followed by Madagascar in 2007, with US\$2,209.4.

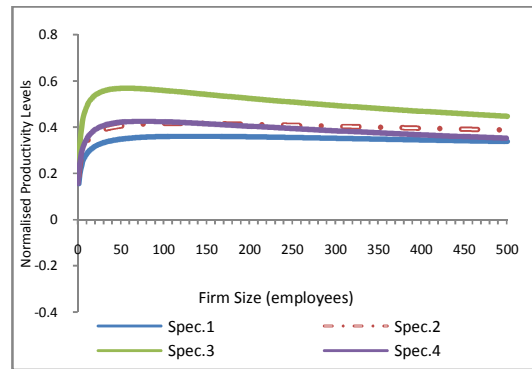
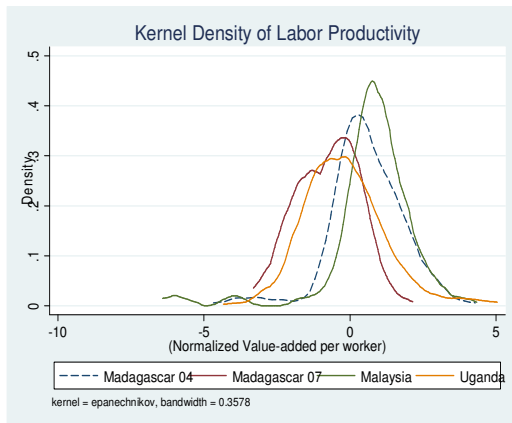
Micro-level evidence on resources misallocation and heterogeneity

8. There is also a large degree of productivity heterogeneity for firms with the same growth rates, as illustrated in the graph below.



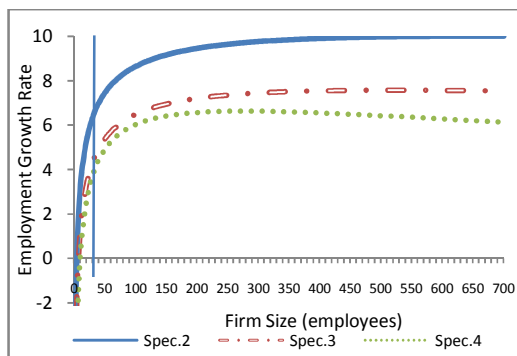
9. Indeed, the lack of any other clear relationship between growth and productivity is indicative of some structural misallocation of resources: some unproductive firms can also display high growth rates and do not exit!
10. This large degree of heterogeneity extends to firms within the same sector and the same country.
11. In fact, as the graph below illustrates, productivity heterogeneity in Madagascar has increased between 2004 and 2007. This increase in dispersion again ties-in with the suggestion of resource misallocation: firms which are increasingly less productive relative to their national counterparts still remain in the market.

¹ All values are based on 2005 purchasing price parity (ppp) adjusted US dollars.



A difficult business environment generates severe constraints especially for SMEs growth

12. This may partially explain the non-linear relationship we find between firm size and *firm growth* rates, shown below. Contrary to the more conventional finding that growth rates are highest for small firms, conditional on their survival, and that these decline with firm size, our results suggest that *firm growth rates increase with firm size* up to a certain size before tailing off and declining with any further firm expansion. This points towards the importance of “investment climate constraints to growth” that are especially severe for SMEs.



13. The correlation between *labor productivity* and firm size also turns out to be non-linear, shown below. On average, then, the optimum firm size for labor productivity is somewhere between 56 and 132 workers (depending on the specification).

Micro-firms “exit” the system and remain informal

14. Looking at firms at the very smallest end of the size spectrum in Madagascar, there is also a non-linear relationship between firm size and productivity for micro and informal firms. Here, however, the inverted-U peaks at only three workers. This suggests that taking all other factors into account, on average across the sample, *labor productivity is highest among micro and informal firms with three workers*, beyond which productivity declines.
15. Interestingly, formality in micro firms is *negatively* correlated with labor productivity. That is, on average and *ceteris paribus*, formal firms have *lower productivity* than their informal counterparts. This would suggest that these micro enterprises remain informal out of choice rather than being excluded from the formal sector.

Policy conclusions

16. *Our results therefore suggest two key policy messages. First, there is a need to tackle distortions and barriers to firm growth which generate the situation where more productive firms are unable to grow faster and unleash their potential. Second, improvements in the business environment, in particular for micro and small firms, are fundamental to encourage firms to operate in the formal sector and provide a basis for further firm expansion.*
17. *Our conclusions suggest that future analyses should focus on the following issues:*
 - i. *How factor markets and their contribution to the distortions which hinder firm growth*
 - ii. *The barriers or lack thereof to firm transitions from informality to formality*
 - iii. *How firm growth and productivity relate to issues of access to and demand for credit*
 - iv. *The impact of the loss of AGOA on firm performance and exports*