

The employment effect of FDI bonanzas: Evidence from Mozambique

Gerhard Toews
University of Oxford

Pierre-Louis Vézina
King's College London

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Giant discovery in Mozambique

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Large gas field discovered off coast of Mozambique

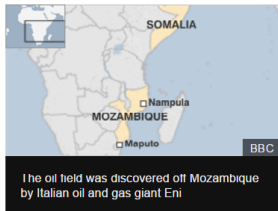
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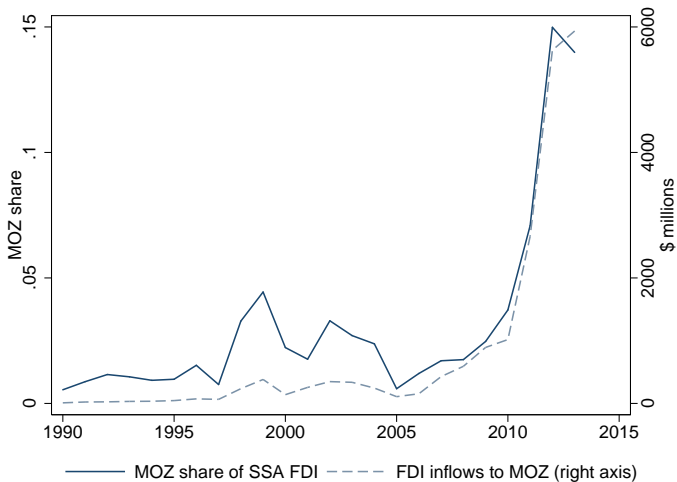
A large natural gas field has been discovered off the coast of Mozambique.

The field, containing up to 425 billion cubic metres (15tn cu ft) of gas, was discovered by Italian energy giant Eni.

Eni was given a licence in 2006 to explore the area, which is about 2,000km (1,250 miles) north of the capital, Maputo.

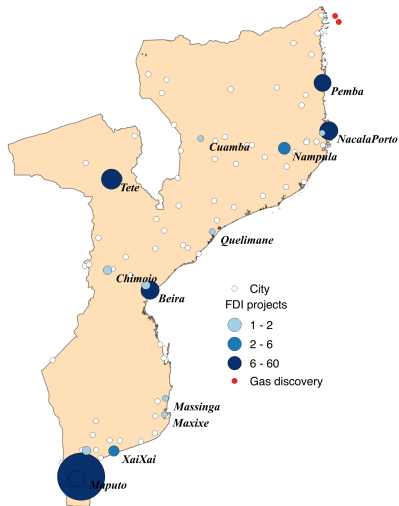


Was there an FDI bonanza in Mozambique?



Source: UNCTAD

FDI projects in Mozambique (2009-2014)



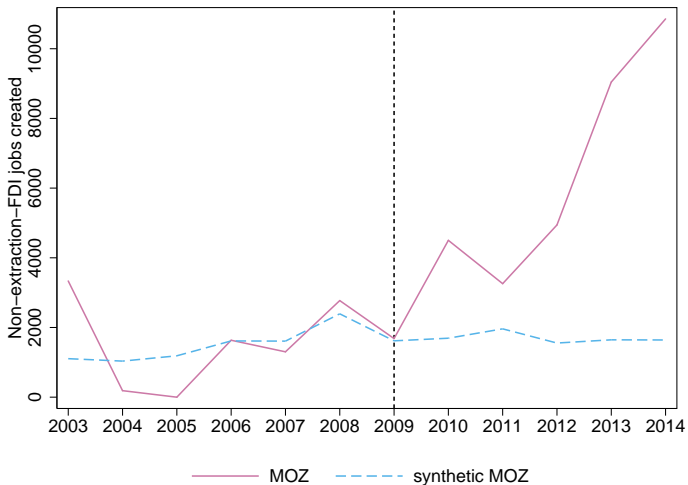
FDI projects by sector

Table: Projects by sector

Sector	2003-2008	2009-2014
Construction	4	11
Extraction	3	3
Manufacturing	9	16
Services	9	65
Transportation	0	8
Total	25	103

Source: fDiMarkets

Did FDI create jobs?



The fDiMarkets data suggests that foreign firms created around 10,000 jobs in the following 3 years.

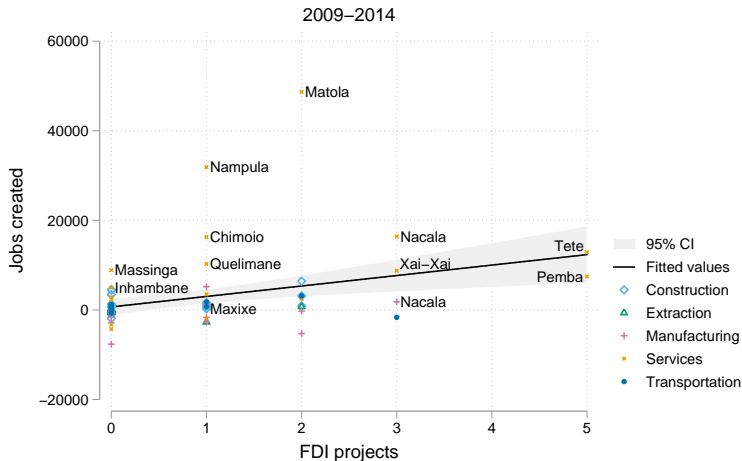
Can we trust this number?

To check, we estimate the impact of these FDI projects on jobs using Mozambique's Household Surveys ([Inquérito sobre orçamento familiar, 2002 - 2008/09 - 2014/15](#))

Isn't it obvious that FDI creates jobs?

- No positive effects of FDI on employment in Southern and Central and Eastern European regions (Marelli et al., 2014)
- FDI in manufacturing has only weak effects on employment across US states (Axaroglou and Pournarakis, 2007)
- Foreign supermarkets (mostly Wal-Mart) have no effect on city-level employment in Mexico (Atkin et al., 2015)
- So, has the boom in FDI projects across Mozambique increased employment or not?

FDI projects and job creation: A first look at the data



coef = 328, (robust) se = 129, $p = 0.012$

Identification

As FDI and employment both vary across three dimensions we estimate a triple difference-in-differences model:

$$Jobs_{ijt} = \gamma FDI_{ijt} + \alpha_{ij} + \Omega_{it} + \lambda_{jt} + \epsilon_{ijt}$$

- $Jobs_{ijt}$ is the number of individuals employed in city i in sector j in year t
- FDI_{ijt} is the number of foreign direct investment projects
- α_{ij} is a city-sector fixed effect; Ω_{it} is a city-year fixed effect; λ_{jt} is a sector-year fixed effect
- ϵ_{ijt} is the error term which is clustered by city and sector

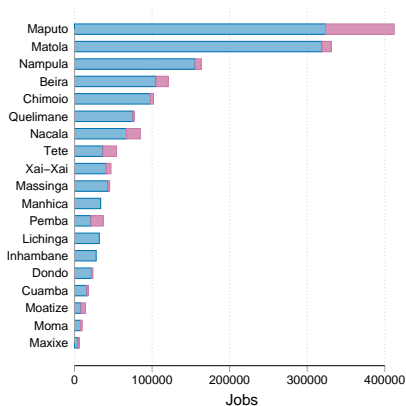
Results - 2008-2014

Table: Employment

	(1)	(2)	(3)
	Jobs	Jobs	Jobs
Projects	1968.778** (752.542)	2987.780** (943.358)	434.310** (182.158)
N	280	698	716
R-sq	0.97	0.96	0.98

Column (1): Only FDI cities, No Maputo. (2): All cities except Maputo. (3): All cities. City-year and city-sector and sector-year fixed effects included in all regressions. Standard errors in parenthesis clustered by city and sector, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level.

FDI projects and jobs in 2014



The red part indicates the share of jobs that are directly due to FDI as per our estimates.

What about wages?

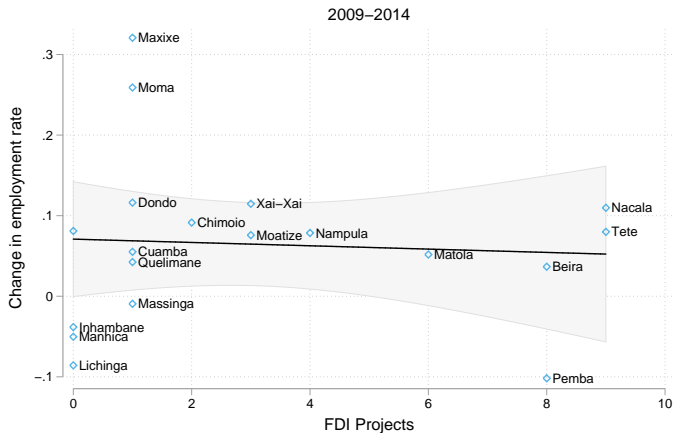
Table: Wages

	(1)	(2)	(3)
	Mean wage	Mean wage	Mean wage
Projects	0.028 (0.060)	0.062* (0.033)	0.008** (0.003)
N	254	528	546
R-sq	0.91	0.94	0.95

Columns (1): Only FDI cities, No Maputo. (2): All cities except Maputo. (3): All cities. City-year and city-sector and sector-year fixed effects included in all regressions. Standard errors in parenthesis clustered by city and sector, and * stands for statistical significance at the 10% level, ** at the 5% level and *** at the 1% percent level.

The mean wage increases by 0.8% with each FDI project in the city-sector (lower bound). Excluding Maputo, the effect may be as high as 6.2%.

Jobs are created, but are there enough for everyone?



Conclusion

- One extra FDI project creates around 434 jobs
- FDI created about 8.4% of the all the jobs in Mozambique during 2008-2014
- FDI creates jobs but does not increase the employment rate
- Next steps (**data allowing**):
 - FDI vs. domestic investment effects
 - FDI effects on local business creation
 - FDI effects on skill acquisition

Thank you

gerhard.toews@economics.ox.ac.uk

pierre-louis.vezina@kcl.ac.uk

Projects by city

Table: Projects by city

City	2003-2008	2009-2014
Beira	1	8
Chimoio	0	2
Cuamba	0	1
Dondo	1	1
Inhambane	0	0
Lichinga	0	0
Manhica	2	0
Maputo	15	45
Massingao	0	1
Matola	1	6
Maxixe	0	1
Moatize	2	3
Moma	0	1
Nacala	1	9
Nampula	0	4
Pemba	0	8
Quelimane	0	1
Tete	2	9
Xai-Xai	0	3
Total	25	103

Projects by source country

Source country	2003-2008	2009-2014
Portugal	4	25
UK	0	13
South Africa	6	11
Belgium	1	7
Switzerland	0	6
USA	2	5
Netherlands	0	4
South Korea	0	3
Germany	0	3
Sweden	0	3
Italy	0	2
Tanzania	0	2
Brazil	2	2
France	0	2
Australia	2	2
Vietnam	0	1
Botswana	0	1
Kenya	0	1
India	0	1
Thailand	0	1
Japan	0	1
Denmark	0	1
Hong Kong	0	1
Singapore	0	1
Saudi Arabia	0	1
Malawi	0	1
Nigeria	0	1
Luxembourg	1	1
China	1	0
UAE	4	0
Cote d'Ivoire	1	0
Finland	1	0

Jobs by sector

Table: Surveyed individuals aged 15-59 - Shares by sector

	2002	2008	2014
Administration	0.02	0.03	0.03
Agriculture	0.29	0.32	0.20
Construction	0.04	0.03	0.04
Education	0.02	0.03	0.03
Extraction	0.01	0.00	0.00
Manufacturing	0.01	0.05	0.03
Services	0.23	0.23	0.27
Transportation	0.02	0.02	0.02
Unemployment	0.36	0.29	0.37
Total	3,061,028	3,378,231	3,901,268

Sector matching

Table: Sector matching

Household survey	fDiMarkets
Construction	Construction
Manufacturing	Design, Development and Testing
Manufacturing	Manufacturing
Extraction	Extraction
Transportation	Logistics, Distribution and Transportation
Services	Business Services
Services	Retail
Services	Maintenance and Servicing
Services	Headquarters
Services	ICT and Internet Infrastructure
Services	Sales, Marketing and Support
Services	Electricity
Agriculture	
Education	
Health	
Administration	
Unemployment	