MENA Knowledge and Learning

Quick Notes Series

Ex-Post Impact Evaluation of an Export Promotion Matching Grant: Tunisia's EMAF II

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Introduction: Among the root causes of the current political turmoil in the MENA region are the large number of unemployed but increasingly educated youth. For the region to achieve stability, it will have to ensure a more inclusive and faster growth path and find enough jobs for this cohort. Exports will play a key role in moving in this direction and this Fast Brief examines the impact of Matching Grants (MG) in supporting exports.

Matching Grants: MGs are short-term, temporary mechanisms that partially finance activities promoting improvements in the private sector. Since 1994, the World Bank has financed a total of 37 PSD projects with MG components with 22 active in 2008. Matching grants do face criticism focusing on "additionality" (funding activities that firms would have financed anyway) and "selectivity" issues (failure to distinguish between private benefits and broader economic benefits) (Biggs 1999), and on sustainability (Phillips, 2001).

MGs and Impact Assessments: Although there have been MG assessments, few have used recent impact evaluation (IE) techniques[2]. This is changing (McKenzie 2009) with recent IEs in SME support programs (Tang 2009), rainfall insurance (Giné and Yang 2009), and regulatory reforms

(Bruhn 2008). This Quick Note is another addition to this body of work and presents results from one of the first ex-post IE of an active export promotion MG in a middle income country, Tunisia. This IE was undertaken in preparation of a lending operation.

Tunisia's Export Development Projects: Two Export Development projects have been implemented in Tunisia since 2000. Aside from components on trade facilitation and on establishing a pre-shipment export guarantee facility, both had an MG scheme, the Export Market Access Fund (EMAF). This IE, for reasons of data availability, was on EMAF II which started in 2005 and closes in mid-2012. Operating on a budget of 18.4 million Euros, the team includes 3 senior experts who select and advise beneficiaries. It provides non-reimbursable co-financing to assist investments in market research and programs to increase export market access at the firm level. Its performance targets are set in terms of value of exports, destination markets and product diversification. This IE tries to estimate the impact of EMAF II on firms' exporting performance over 2004-08.

The Approach: In terms of *Beneficiaries*, *EMAF* II has been well received by the Tunisian private sector and demand for support was high. By December 2009, 1710 firms (mostly SMEs) had applied, 72 % of these were accepted. Of all firms benefitting from EMAF II, a third had been in EMAF I while 167 dropped out without disbursements. Among the 1231 firms accepted since 2005, many were still implementing their activities at the end of 2009 and were not selected for the IE exercise.

[2] - Impact evaluation studies whether the changes in well-being are indeed due to a program intervention and not to other factors.

Methodology - The performance of EMAF II was evaluated by comparing changes in relevant outcomes before and after across firms that had MG support (the "Treatment" group) and similar firms but did not get EMAF II support (a "Control" group). Hence, it was needed to define a control group similar to the treatment group, so that changes in outcomes in the control group were a good measure of what would have happened to EMAF II firms without such support[3].

Given that an ideal ex-ante identical control group was lacking, the best evaluation strategy was: i) to randomly select as control group Tunisian firms "similar" to the treatment group, and ii) compare the treatment and control groups after controlling for differences along dimensions of size, age, sector, and prior exporting status of firms. Implicit assumed was that once these observables were controlled for, all other differences in outcomes across these two groups before and after EMAF II are due to the MG. This approach was applied to two datasets. One is an in-depth survey of 196 EMAF II firms and 232 similar control firms while the second dataset is based on detailed customs data and compares 400 EMAF II firms to 2600 Tunisians firms.
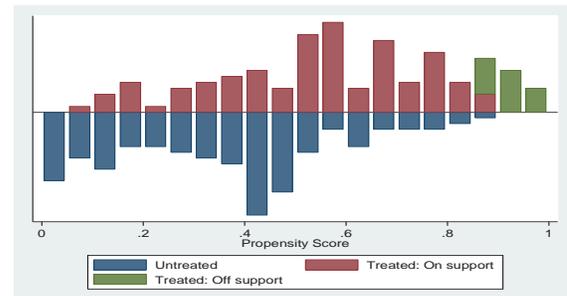
IE on a Firm Level Survey: On *Sampling*, data show that EMAF II recipients are different from average Tunisian firms. They are more likely to have been exporting before linking up with EMAF II, and their distribution across industries is somewhat different from most Tunisian firms. Such differences can be addressed through a random stratified sample of the control group which allows for selecting firms with similar profile to the recipients. Hence, the universe of non-recipient firms was grouped into strata based on three key observable characteristics - size, prior exporting status and sector. Then, each stratum was assigned a size proportional to the number of EMAF II recipients in the corresponding stratum. Finally, included firms were sampled randomly within each stratum. This ensured that the distribution of treatment and control groups across strata was identical in size, sector and

exporting status. The subsequent survey yielded a usable dataset of 428 firms (196 treated and 232 untreated) presenting similar distribution on key observables.

PSM: First, the propensity score[4] (PSM) for receiving EMAF II support (i.e. to be treated) needs to be computed based on key firm characteristics such as location, the age of the firm, sector, number of employees, sales, exporting status in 2004, share of domestic capital, and number of years the current owner has run the firm. These variables were carefully selected to ensure proper ex-post comparison group creation. The distribution of propensity scores is shown next. As expected (since on average they are more likely to be in EMAF II) the P-scores of firms in the treated group are more on the right side of the graph. Critically, the figure shows that we will be able to compare a treated firm with an identical untreated firm for most of the distribution. Specifically, 404 firms (221 untreated and 183 treated) have common support.

Chart 1. PMS.

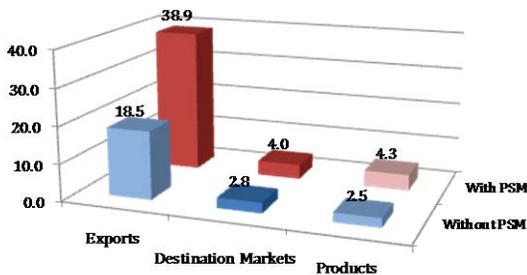Source: *Authors' calculation based on survey data.*

Finally, it must be noted that with the matching process, the untreated group with high propensity score will be more used for comparison than those with low propensity score so this will give more weight to firms that were "targeted" by EMAF II. Hence it is key to see if the firms especially targeted by EMAF II would have done better or worse without the support (additionality concern).

Results: In contrast with the raw comparison (without PSM), PSM gives higher and statistically significant differences for growth in export

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[3] - Ideally, these groups should have been "identical" prior to EMAF II. A way to ensure that such ideal treatment and control groups were available would have been a randomized acceptance of applicants to EMAF II. This best-case strategy is ruled out since acceptance was not random: the most promising applicants were more likely to be accepted.

[4] - In the statistical analysis of observational data, propensity score matching (PSM) attempts to provide unbiased estimation of treatment-effects. PSM employs a predicted probability of group membership based on observed predictors.

volume and growth in number of destinations (light shades mean no significant differences in Chart 2). This indicates that EMAF II made a real difference among firms with high propensity score (the targeted firms), suggesting EMAF II's successful targeting of firms that really needed support.

Chart 2. EMAF II key outcomes

Source: *Authors' calculation based on survey data.*

Hence, estimates suggest that participation in EMAF II is associated with an increased growth in firms' total exports. The annual export growth is 38.9 % higher for EMAF II assisted firms compared to controls firm with similar propensity scores in 2004-2008. Similarly, annual growth in destination markets reached is 4 % higher for firms assisted by EMAF. Finally, the impact of EMAF II is positive but not significant on another output that captures the extensive margins in exports: the number of products.
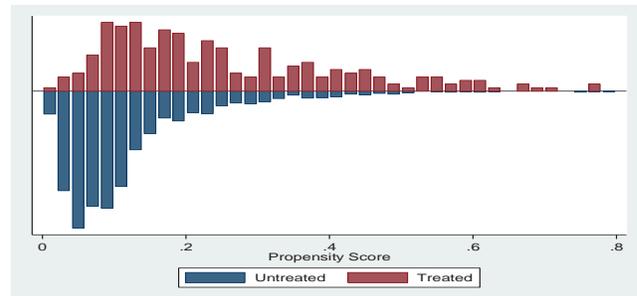
The same dataset can also assess the employment impact of EMAF II. Although not a stated objective of this MG, the employment impact is important given Tunisia's high unemployment and recent events. Employment in EMAF II firms grew annually by 5.5 % in 2004-2008 and by 4.6 % for firms in the control group. The PSM approach yields similar results though the gap is larger: annual growth of 10.2 % for EMAF II firms against 5.1 % for the control group. This suggests a positive MG impact on employment, though it must be noted that the small sample size implies results are sensitive to the specification used and not always statistically significant.

IE Based on Customs Data: Given the relatively limited size of the surveyed sample (428 firms) and thus to get a better grasp of the effect of EMAF II, another ex-post impact evaluation exercise based on a larger sample was also conducted. Transaction-level export data with

exporter ID, transaction value, country of destination, and product code, were obtained from Tunisian Customs for 2000-2008 for 3000 firms (including 400 EMAF II firms). The dataset was completed with additional data from the National Statistic Office and the Industrial Promotion Agencies for important observables. This sample represents roughly 55 % of export of goods (excluding oil) in Tunisia.

The limitation here is that firms in services (30 % of EMAF II firms) are not taken into account as they are not reported in custom's data; this is a manufacturing sample. This however allows i) for a more robust matching and disaggregation of results by types of treated firms and ii) to test for the duration of the impact of EMAF II. Here we consider that the impact of the MG for a firm receiving support in 2005 should be measurable on export transactions in 2005 and 2006.
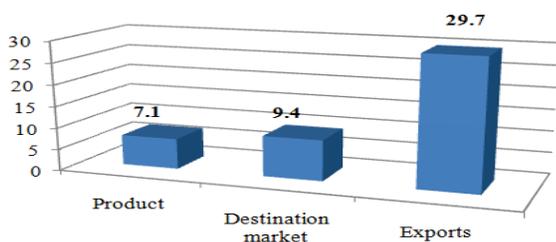
Chart 3. PSM.

Source: *Authors' calculation based on custom's data.*

Results: The probability of getting EMAF II support based on location, date of creation, sector, employment, exporter status, exports total value, number countries and number of products in 2004 is recomputed. Propensity distribution (Chart 3) is different because of the large sample of control firm (the probability among the entire sample to be treated is smaller). Here, due to a much larger sample, all treated firm have the same p-score.

Using PSM, the results are positive - EMAF II support has increased the difference in growth rate in the 2 years of treatment for export outcomes, i.e. volume, number of destinations and number of products. Increase in growth is slightly higher than with the survey, but the impact is for two years instead of four and the impact on extensive margins is higher[5].

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[5] - The exclusion of services could explain those differences, since dropping these firms in the survey showed lower impact

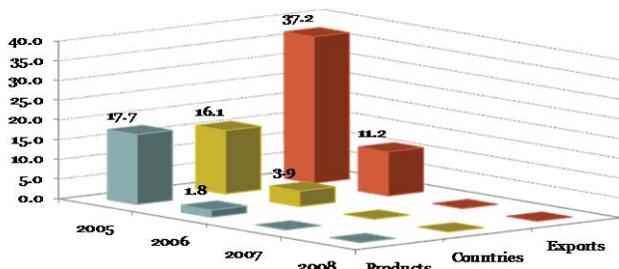**Chart 4. EMAF II key outcomes with PMS.**

Source: *Authors' calculation based on custom's data.*

Based on the above, EMAF II has been successful on key targets but data show the impact varies widely among types of firms. New exporters benefited the most (30 % of beneficiaries); one might say that EMAF II was key in helping generate a new class of exporters. Firms which expanded their markets (50 %) also had positive results but those who expanded their product line (20 %) did not do better than control firms.

EMAF II supported firms have good export growth in 2005 and 2006 but afterwards outcomes do not differ much from random non-EMAF II firms. Perhaps the duration of support by EMAF II was not sufficient to allow managers to be on their own on export markets, and limits to production expansion may have been reached after a first large increase.

Chart 5. EMAF II outcomes over time.

Source: *Authors' calculation based on custom's data.*

Conclusion: Although the short duration of the impact and limited additionality for a specific class of manufacturing firms joins earlier criticisms of MGs, overall results from the PSM based on different data sources suggest that EMAF II was successful. It had a statistically significant, positive impact on firm performance along targeted dimensions of total exports, number of export products and export

on export volume but a higher impact on number of destinations or products.

destinations and is likely to have had a positive impact on employment.

On practical implications, first, incorporating an ex ante evaluation strategy is needed at preparation. It can have large returns for policy learning as data quality is likely to improve by access to a baseline survey and estimation biases reduced. Second, it confirm the relevance of an EMAF and underlines the need for improving the design, most notably through a better tailoring of the scheme which could be open only to new exporters and firms seeking market diversification (i.e. to reinforce additionality) and ii) further develop training activities linked to the support offered (to increase the duration of the impact).

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