



## **Supply of funds to small and medium size enterprises in Jordan.**

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### **1. Introduction**

In Jordan around 98 percent of manufacturing and service sector firms are small and medium-sized enterprises (SMEs), and nearly all of the retail and agriculture sectors are small and medium-sized enterprises. Further, around 80 percent of the total Jordanian labour force in private sector is employed by SMEs and around one third of the total output is produced by these firms (JLGC,2000). However, the development of SMEs in Jordan, as elsewhere, is hampered by a variety of problems. The problems may differ from one region to another and from sector to sector, but there are certain problems that are common to all SMEs. One of the most important of these is finance (i.e. long-term finance). This can be observed in the firms' need for funds to start-up and to grow, while the commercial banks, as a main source of finance, are reluctant to provide loans to small firms. This is because these firms are often unable to pledge enough collateral, and sometimes their newness translates into 'bank speak' as an insufficient track record (Harper, 1998).

Thus, small and medium-sized enterprises, especially in developing countries, find it difficult to start-up and grow because of insufficient bank credit. The small and medium-sized enterprises are seen as more risky than larger firms, because of the high level of uncertainty surrounding them, and because of their much higher rates of failure. Banks prefer to deal with larger firms, due to the existing links with them, and because large firms often have a good track record and adequate documentation, in contrast to SMEs (Clemenz, 1986) (i.e. noting that

in Jordan the commercial banks facing problems with the large individual borrowers). However, small business owners are likely to know significantly more about their firms than any outsider, including the commercial banks, but this lack of information makes the small firm's mission to borrow from the banks difficult, even though they may have sound and commercially-viable projects. This asymmetric information in the credit market makes the commercial banks' mission to distinguish between good and bad borrowers difficult, and it is a cause of both adverse selection (hidden-borrower type) and moral hazard (hidden-borrower effort) problems, and ultimately market failure (for more details see Cowling and Sugden (1995), Binks et al (1990), Binks and Ennew (1996), Akerlof (1970) and Stiglitz and Weiss (1981). Collateral is considered to be the main way to solve this problem, because the borrower bears a penalty from loan default in addition to losing the project. However, as we have argued, SMEs do not have enough collateral to pledge in order to acquire the funds that they need from the commercial banks.

As an attempt to overcome this problem in the credit market, governments have established commercial loan guarantee scheme for SMEs. To this end, the Jordan Loan Guarantee Corporation (JLGC) was established in 1994 to offer loan guarantees to SMEs. The objective of the Jordanian Loan Guarantee Scheme (LGS) is to overcome the "difficulties encountered by owners of productive projects, including their inability to provide adequate conventional collateral to acquire the required financing from commercial banks to start or expand their feasible projects" (JLGC, 1994). The corporation offers guarantees to commercial banks participating in the Loan Guarantee Scheme to encourage them to extend the required credit to the owners of target SME projects (although the commercial banks have the ability to assess the cash-flow for the projects that required fund, but still need additional guarantee to encourage them to provide credit facilities to SMEs), as long as the individual loan guaranteed by the Corporation does not exceed 100,000 Jordanian Dinar (J.D.), and the number of workers in the project does not exceed 50

employees. Although, the guarantees provided by the JLGC play a major role to encourage the commercial banks to provide loans to SMEs by reducing the risk, which must lead to decline in the interest rate. But the present paper does not aim to study the main effect of the JLGC activities on reducing the rate of interest. This goal is recommended for further research.

## **2. Objectives of this Study**

The main objective of this study is to investigate the effects of the Jordanian Loan Guarantee Scheme to establish its role in improving the supply of funds to small and medium-sized enterprises in Jordan. The study aims to measure the scheme's 'additionality' and its economic effects of the project that would not otherwise occur without the guarantee. These include such things as the opening-up new markets, new products and services, new processes, the introduction of leading-edge technologies, an increase in exports and new sources of supply. They also include other effects on the level of firm activity, such as on sales turnover, total assets or employment. In the field of loan guarantee scheme evaluation in Jordan, this study must be considered as a pioneering research. Adams (1997) report that they are "unable to find any evaluation of loan guarantee programs in low-income countries" (p, 26). Also Cressy (2000) reports that "despite widespread use of LGS [loan guarantee schemes], only a few attempts have been mad to evaluate the contribution of these schemes, especially in Europe" (p, 251). As such, this is the first evaluation of loan guarantees in developing countries, and an important contribution to the literature.

## **3. Hypothesis of this Study**

The main hypotheses of this study are as follows: *Firstly*; Loans provided by the commercial banks and guaranteed from the loan guarantee scheme are not

additional loans. *Secondly*, the projects that are funded by the guaranteed loans have not any economic effects.

#### **4. Methodology of the Study**

In order to realize the target of this paper, the researchers believe that a well-designed questionnaire is the best instrument. This is because the data on the scheme provided by the JLGC is insufficient for a full evaluation, while the commercial banks refused to provide any data to us on their lending activities. To overcome these and the other problems mentioned in the previous section, the only feasible source of such information is from the recipients of the guaranteed loans.

This also provides an opportunity to discover the firms' views on the loan guarantee scheme. The questionnaire is the most suitable tool to make measurement of additionality, because the data from the JLGC and the commercial banks do not provide any reliable indicators about whether a project or a loan would otherwise go ahead. Finally, the recipients of the guaranteed loans know better than anybody else about the economic effect of the loan on their business. This approach for data collection and information gathering is an adaptation of the UK experience for evaluating the loan guarantee scheme, as we have seen in NERA, PIEDA and KPMG. In the evaluation of the UK scheme, which has been operating for more than two decades, the questionnaire survey of recipients is widely used, even though data from the scheme and from the commercial banks is more readily accessible.

To assess the impact of loan guarantees it is necessary to determine the 'counterfactual position', that is, what the borrower would have done without the loan, and then to compare this with what was done with the loan (Camino and Cardone, (1999)). The determination of the counterfactual position helps determine the additionality of the scheme. There are many ways to determine the counterfactual, such as a control group, but this is difficult in Jordan because of the

lack of information available about the other firms. Further, if firms were chosen randomly then there was a high chance that they would refuse to provide any data. Venetoklis (2000) also found that the selection of the control group is not an easy exercise; logically the treatment and the control group must be as similar as possible. Venetoklis (2000) states that "in the case of firms receiving subsidies it is really hard to build the control group due to a couple of reasons. First, we can not use the random distribution of subsidies because aid is distributed under certain pre-defined criteria. Second, there is a high heterogeneity among all firms" (p, 18). Another method to determine the counterfactual is by the econometric techniques (see Wren and Storey (2002), for more details). However, this is also difficult due to insufficient information about the firms that received the guaranteed loans. Finally, the counterfactual can be determined by the direct interview with the recipients firms of the guarantees, and this is the approach used here. This is the most suitable way to determine the scheme effect and the additionality of the loan guarantee scheme.

To achieve the study aims we had to choose a representative sample from the total population of guarantee recipients in order to minimize costs and to save time. The following three criteria were used: the firms had taken a loan from a commercial bank which was guaranteed by the LGC over the period 1994-99; the firms were located either in Amman, Irbid, Zarqa, Balqa or Aqaba, as these are the main business areas of Jordan (more than 90 percent of the guaranteed loans by JLGC are located in these governorates); and special attention had to be paid to the firms in the manufacturing sector, because this sector is the focus of development and government interest. Thus, the sample was both random and stratified. The period until the end of 1999 was chosen because one of the important aims of the study is to measure the impact of the scheme, and it takes at least 18 months after the receipt of the loan for the effects to appear (NERA, 1990).

From the data supplied by the JLGC, the total number of firms receiving guaranteed loans during the study period 1994-99 was 2,244, of which 2,052 were in the five main governorates. The desired achieved sample for the study is 150 firms. This is considered a suitable number of firms to be representative of the overall population. It is probable that any increase in this sample size will not affect the representativeness of the results of the study, as the SMEs have reasonably homogeneous characteristics. The information about the firms that the researcher received from the LGC for the five governorates (Amman, Irbid, Zarqa, Balqa and Aqaba) was distributed between the four main economic sectors: manufacturing, services, retail and agriculture. The achieved sample was 142 firms.

## **5. Model Estimation**

A big advantage of the regression techniques is that it gives the evaluator an indication of probable casual relationships between variables, and it allows him to make inferences about these relationships, but within a multivariate setting. It also allows the direction and the magnitude of changes to be established. The data are categorical in nature and they can be expressed as probabilities, so that in order to achieve the research objectives, we explored several models, but the most suitable of these was the Linear Probability Model (LPM). An alternative to this is the logit model, but it seemed to perform no better (It is worth mentioning that the logit model have been estimated and the estimated results indicated that the LPM perform better than the logit model i.e. the logit estimates gave poor results), while being more difficult to interpret. The choice of the LPM was despite some potential problems that are associated with it, which are given in Gujarati (1995) as follows: non-normality of the errors heteroscedasticity; the possibility that the predicted values of the dependent variable lie outside the 0-1 range; and the generally lower  $R^2$  values. However, Gujarati (1995) reports that that these problems are surmountable. The use of LPM in this study has the following good features: it is

used quite extensively because of its simplicity and it is easier to interpret. In addition, as we mentioned above, it does not seem to give inferior results. To simplify the presentation, the parsimonious versions of the results are given, which includes only those variables that are significant at about the 15 percent level.

There are 142 firms included in the survey, which means that each variable should have this number of observations, the variables that used in this study are given in Table 7. However, as we have seen there are some missing cases due to non-response, especially for the variables that concern financial matters, such as income, profit, sales and so on. In order to solve this problem, we created a dummy variable for each term with missing observations. These dummy variables are included in the regression, so that it can be run for the maximum number of observations. Another feature of the data is non-applicable cases, which is when the interviewee is unable to answer a question because it is not relevant. As a further point, many of the variables are categorical in nature, and this means we are also confronted with the problem of a dummy-variable trap. For example, the firms' principal activity, *SECTOR*, has four statuses: manufacturing, services, retail and agriculture (*SECTOR1* to *SECTOR4*). If we include these variables in one of the models then we have to drop one of the statuses. Usually, where the variables can be ranked then this is the lowest ranked status, or if not then it is the least important category with a small number of non-zero observations.

## **6. The Rational for a Loan Guarantee Scheme**

It is difficult for small and medium-sized enterprises especially in the developing countries to begin or to grow without access to credit, particularly from the commercial banks. The main factors that limit the access of SMEs are now considered. Castellanos (1997) illustrates three basic reasons to explain why banks may be biased against lending to small and medium-sized enterprises. Firstly, SMEs have a higher rate of failure than the large firms, so they are seen as riskier.

Secondly, the administrative costs of providing loans to SMEs are high, which reduces their profitability. Moreover, SMEs are often unable or unwilling to provide any kind of documentation to banks or to provide collateral. Thirdly, "with few exceptions, financial institutions have not developed alternative techniques for lending against the prospective cash flows of SMEs. There is some evidence that banks can use the techniques of informal finance to profitably serve even the smallest borrowers. Nonetheless the supply of loans to SMEs is not sufficient, and there are important gaps in the coverage of these borrowers" (Castellanos, 1997, p, 35).

Governments have tried to overcome these problems by providing credit (loan) guarantees to banks. Seibel (1995) defines a loan guarantee scheme as a complement to direct credit and as an incentive in commercial lending to enterprises without sufficient collateral or track record. So, loan guarantee schemes are a substitute for collateral to overcome the lack of information, which makes financing SMEs through the commercial banks so difficult. Vogel and Adams (1997) argue that "collateral is seen as a substitute for informational imperfections" (p, 22). Also Seibel (1995) argues, "Credit guarantee may either be a substitute for collateral, or in some cases a security of last resort, in addition to collateral" (p, 172). See also Kanbur et al (1994) on this. It is because SMEs suffer from the lack of collateral, and due to the risk of financing small and medium-sized enterprises, so that it leads to a search for alternatives to protect the lender's rights.

## **1 Objectives of a Loan Guarantee Scheme**

Loan Guarantee Schemes (LGS) are set up to improve the corporate relationship between banks and the small and medium-sized enterprises, and to help the SMEs to receive the funding that they need. Riding (1997) reports that the main objective of a loan guarantee scheme is to assist small firms and not to subsidise risky firms. While KPMG (1999) argues that "the primary objective of all loan

guarantee programmes is to redress a perceived flaw in the credit market. The desired outcome is to facilitate access to debt capital for firms" (p.3). Levitsky and Parasad (1989) consider the following objectives of a loan guarantee scheme. Firstly, the main purpose of the scheme is to cover some portion of losses incurred when borrowers default on loans. This will encourage the financial institutions, especially the commercial banks, to lend to small and medium-sized enterprises. Secondly, a LGS provides guarantees against loans and promotes investment in fixed assets or working capital. Thirdly, the risk of loss is shared in specific proportion between the lender and scheme provider. Fourthly, the financial institutions and commercial banks seek to protect their rights by demanding securities or collateral, but the LGS reduces these requirements, making lending to SMEs much easier.

## **6.2 Costs and Benefits of Loan Guarantees**

The costs and benefits of a loan guarantee scheme are considered by Vogel and Adams (1997) and Camion and Cardone (1999). The cost of a loan guarantee scheme depends on three things. First, the cost of setting-up a new organization, including costs such as offices, equipment, employee salaries, and benefits and advertising the programme. The second is the cost of funding the subsidies; most of loans guarantee schemes involve hefty subsidies to sustain their operations. These subsidies may come through grants or concessionary-priced funds to establish the initial guarantee fund or to later replenish it. Finally, the lenders usually incur additional transaction to participate in the scheme, such as having to prepare special reports on the portions of their loan portfolios covered by the loan guarantees. They also incur additional transaction costs when they make claims on defaulted loans covered by the scheme. In some cases the guaranteeing agency may unilaterally decide not to honour its guarantee unless the lender has pursued all legal remedies against the defaulting borrower.

The benefit that the loan guarantee schemes offers is increased economic activity. The purpose of a loan guarantee scheme is to encourage lenders to change their policies and provide more loans to SMEs, thus causing 'additionality' might be expressed "either in the terms of number of clients, number of loans, or volume of funds lent for targeted purposes" (p, 26). They report that the 'additionality is poorly measured since attributing it to a loan guarantee scheme is difficult, due to counterfactual and substitution problems.

### **6.3 Additionality**

Loan guarantee schemes aim mainly to encourage the commercial banks to provide loans to small and medium-sized enterprises. The success of these schemes, therefore, hinges on the extent to which guarantees cause additional lending to targeted groups, or more lending than would have occurred in the absence of the scheme. So, the extent of 'additionality' is thus extremely important in judging the effectiveness of the loan guarantee scheme subsidies. Roheds (1984) defines the 'additionality' as follows "It is used to convey a measure of something worthwhile happening which would not otherwise take place-caused, in this case, by the provision of a government guarantee. By providing that guarantee to a bank the government enables that bank to provide incremental lending to potentially viable businesses for which there would otherwise have been no way of providing the necessary finance" (p, 1).

In different evaluations of loan guarantee schemes two types of additionality are found. The first type is 'finance additionality'. This is whether the finance provided to the firm by the bank, and guaranteed under the scheme, would have been available from other commercial sources, or from the same sources in the absence of the loan guarantee scheme. Such finance, which would not be available

through other sources, is defined as 'additional finance' (KPMG, 1999). It has two components:

- Full finance additionality: when a firm would not have been able to obtain any finance through alternative sources; and
- Partial finance additionality: when firm would have been able to obtain some of the finance provided borrowed other sources, but not the full amount borrowed through the LGS.

The second type of additionality is 'economic additionality' This is defined by NERA (1990) "the economic activities that generates by the scheme, which would not otherwise have taken place" (p, 60). Economic additionality depends on finance additionality, first of all, and depends on the characteristics of the business to which the loans were made. Always the economic additionality result appears in the level of employment, turnover and value added.

One way to assess the finance additionality of a guarantee is to pose the following questions to the recipients of the guaranteed loans. Does the LGS represent a source of finance, which would not otherwise have been available to the firm or which would have been available only at a later date? Would the finance have been available but only on different terms? Have existing sources of finance been displaced by the LGS? The next step is to assess what would actually have been raised in the absence of the scheme. To measure the finance additionality (ADD) at the level of the firm, NERA (1990) define it in the following way:

$$ADD = (A+C-B)/A) \times 100$$

*Where:* A: Amount of loan guaranteed by LGS.

B: Alternative finance, which would have been raised in the absence of guarantee.

C: Other non-LGS finance raised of the same time as the LGS loan.

Economic additionality depends in the first instance on finance additionality. So, if there is no finance additionality, there is no economic additionality, at the level of the firm that assimilates in the firm's turnover, profitability, value added and employment. Regarding the assessment of economic additionality at the level of the firm, NERA (1990) focused attention on LGS-induced changes in value added, turnover and employment, and they found, typically, that if there is some LGS finance additionality, then there will be also some additional turnover and employment at the level of the firm.

With reference to economic additionality at the level of the small firm sector and the economy, it was found that the level of economic additionality at the level of the firm is greater than on the level of the sector and economy as whole. This is due to the increase in turnover, value-added and the fact that, employment in the LGS supported firm may be at the expense of other firms elsewhere in the economy. Generally, additionality at the small firms' sector level reflects the extent to which the LGS supported firms are in competition with other small firms. Additionality at the level of the economy as a whole will be higher the more the activity of the firm is judged to lead to increase net exports or to improve the supply side performance of the economy through innovation or enhancement of labor supply. The absence of such effects does not, of course, imply that wider economic additionality is zero. Displacement presumably occurs because the LGS supported firm is able to offer a cheaper or better service or product to some purchasers (NERA, 1990, p, 47).

Measurement of additionality and attributing it to a loan guarantee scheme is difficult, because of counterfactual and substitution problems. The term counterfactual refers to what the lender would have done in the absence of loan guarantee scheme. It is impossible to know with certainty what might have occurred, but Vogel and Adams (1997) outline two subjective ways to deal with this issue. The first is to ask lenders, ex ante, what they would likely do regarding

targeted lending with and without a loan guarantee. The other alternative is to ask the same question of participating lenders ex post. Both alternatives are vulnerable to the Hawthorne effect: lenders' responses may be influenced by what they think the interviewer wants to hear. Regarding the substitution problem, Vogel and Adams (1997) differentiate between two types of substitution. The first occurs within the lending institution. It is defined by the researchers as follows "a loan guarantee scheme may, for example, cause a bank to transfer part or all of the qualifying portion of its existing loan portfolio to the guarantee programs and then expand its lending in no targeted area" (p, 27). The second type of substitution that occurs is among lenders: interlender substitution. In conclusion, Vogel and Adams (1997) argues that "the problems of substitution and the counterfactual could lead casual observers to conclude that a credit guarantee programme had a major impact on lender behavior when, in fact, the guarantee caused much less additionality in lending for targeted purposes" (p, 27). And they were unable-according to their opinion-to find any evaluation of loan guarantee scheme that correctly documents additionality.

## **7. The Loan Guarantee Scheme in Jordan**

The Jordan Loan Guarantee Corporation (JLGC) was established in April 1994 to administer the new Loan Guarantee Scheme (LGS). It is a limited public shareholding company with capital of JD 7 million, increased to JD 10 million in 1995 (approximately US\$ 14 million). There are 23 founders of the JLGC, which include the Central Bank of Jordan, representing the Jordanian Government (with share of JD 4.8 million granted by USAID), three other government institutions, 15 commercial banks, two insurance companies, the Chamber of Commerce and the Jordan Mortgage Refinance Company.

The Jordan Loan Guarantee Corporation was the first venture of its kind in Jordan to guarantee bank loans to firms based on a cash-flow assessment rather

than the traditional collateral. Since its inception, JLGC seeks to cover the risk associated with lending by the commercial banks to small and medium-sized firms in Jordan, whether these are in manufacturing, agriculture, retail, services or related to handicrafts or professional activities. The objectives of the Jordan Loan Guarantee Corporation are as follows(JLGC, 1994):

- (i) Provision of guarantees under the LGS necessary to fully or partially cover loans of different types and terms granted by banks and financial institutions for small and medium-sized enterprises. Loans can be for the purpose of start-up, expansion and for raising the productive and marketing capacity of firms, with the aim of creating job opportunities and saving on foreign reserves.
- (ii) Provision of export credit guarantees for pre-shipment and the provision of guarantees to cover the export risks of any economic sector.
- (iii) Undertaking re-guarantees (or reinsurance) to cover all or any of the risks associated with the guaranteed loans provided by the Corporation.
- (iv) Conducting economic feasibility studies and project evaluations, as well as reviews of its operations and policy amendment in the light of issues affecting the economic developments of Jordan.
- (v) Development and implementation of innovative and/or traditional methods of production, as well as offering training on their utilization in all related aspects.

The most important objective of the JLGC is to overcome difficulties encountered by owners of potentially productive projects that are unable to provide adequate conventional collateral to get the required financing from commercial banks. The Corporation offers guarantees to financial institutions participating in the Loan Guarantee Scheme to encourage them to extend the required credit to projects, as long as the individual loan guaranteed by the Corporation does not

exceed JD 100,000 and the number of workers in the firm does not exceed 50 employees. The aim is to encourage new projects, which will create new job opportunities, reinforce the productive base of the national economy, and provide potential for earning and saving on foreign currency. Applications for guaranteed of the loan is presented either by the borrower to support his track record or by the bank looking for more security.

### **7.1 The Activities of the Loan Guarantee Scheme**

The primary objective of the JLGC is to encourage the commercial banks to provide loans to the small and medium-sized enterprises. Loans can be partially, or in some cases, fully guaranteed. There were 19 participating banks in the loan guarantee agreement by the end of 1999, and the total guarantee ceiling of these banks was around JD 26 million. Loan guarantees are provided directly to the banks, and are available for start-ups and other projects. The purpose of this section is to consider the operation of the scheme over the period 1994-99. The number of applications received from the participating banks over this period stood at 2,606, amounting JD 50 million. The guarantee amount was JD 27 million. During the period the JLGC received 41,166,264,567,731 and 837 applications for the years 1994 through to 1999 respectively.

Over the period 1994-99 around 86 percent of the total loan applications received was executed, to a total value of J.D 42.5 million. Of this, the scheme guaranteed J.D. 22.5 million. Also around 11 percent of the total applications received (ie. 283 out of 2,606) were cancelled by banks. These cancellations were due to the borrowers' inability to meet the loan requirements. Only around 3 percent of applications were rejected by the LGS. The reasons for this was related to insufficient initial information, the intended use of the loans, the client's financial position, or simply because the Corporation was not convinced that the project was viable. The JLGC also rejected applications because the applicant was heavily

indebted, engaged in litigation, or had defaulted in the repayment of the previous LGP scheme.

## **7.2 Distribution of the Guaranteed Loans**

This section considers the distribution of the guaranteed loans that were executed over the period 1994-99, according to the following characteristics: economic sector, geographical location, banks identity, status of borrower, number of employees and the purpose of the loan. In total 2,244 loans amounting to J.D 42.5 million were considered. These loans have an average value of around J.D 19.000 Further, the LGS guaranteed J.D 22.5 million of the loans, which means that around 53 percent of the total loan value was guaranteed by the JLGC. However, the total guaranteed loans during the period 1994-99 was around 0.18 percent of the total credit facilities provided by the commercial banks (i.e. J.D 42.5 million out of J.D 23.640 million). This has been consistent with the SFLGS in UK, where lending under the scheme represented only small percentage of overall bank lending (KPMG, 1999). Over its life, the SFLGS has fluctuated between 0.5 percent and 1.5 percent of total bank lending. In this case such schemes have to have some improvements or development and a chance as well to achieve their goals.

### **Economic Sector**

The distribution of guaranteed loans by sector is shown in Table 1. It shows the service sector received the lion's share of the guaranteed loans, i.e. 1.503 loans or around 67 percent of total guaranteed loans. The average value of these loans was around J.D 18,700. The next greatest share was in manufacturing, which received 563 loans or around 24 percent. The average loan value in manufacturing was J.D 19,300. The retail sector had 160 loans (7 percent) the average value of which was J.D 19,600, and the agriculture sector received 45 loans (2 percent),

average value of which was J.D 19,600, and the agriculture sector received 45 loans (2 percent), with an average value of J.D 20,800.

The distribution of guaranteed loans by economic sector according to year is also shown in Table 2. It shows an important switch occurring over time, away from manufacturing and towards services. In 1994 the LGS guaranteed only 28 loans, but the majority of these (57 percent) were in manufacturing. In the next year the share of this sector was 53 percent, but in 1996 it had only 34 percent, and by 1999 its share was only 12 percent (see Table 1). The large share of the manufacturing sector in the LGS activities early on reflects the history of the loan guarantees in Jordan. The Loan Guarantee Project that was managed by the IDB led firms to believe that the LGS was aimed at the manufacturing sector. Firms began to recognize that this was not the case, but the switch to the service sector also arose because of the difficulties of entry into the manufacturing sector. It also reflected the greater opportunities for service activities after the Peace Treaty between Jordan and Israel in 1994. At this time, entrepreneurs expected to find new markets in the Palestinian areas for manufacturing, but their hopes proved false.

The service sector share in the total loans increased yearly (see Table 1). In 1994 its share was only 29 percent of the total loans, but in 1995 it increased sharply to 40 percent and the average value increased as well from J.D 15,000 to J.D 17,000. By 1999 the service sector share had around 81 percent of the total loans provided by the banks and guaranteed by LGS. The average value of a loan was around J.D 19,000 (see Table 1). This shows that the scheme is now predominantly aimed at the service sector. Generally, this distribution of the guaranteed loans by economic sector reflects the nature of the Jordanian economy, which is a service economy. Also, service activities are much easier to enter through relatively small-scale start-up projects.

The loans granted to the agriculture sector are also shown in Table 1. In 1994 and 1995 this sector's share was 14 and 7 percent respectively. After this time, it

was no more than 5 percent of the total loans guaranteed, and in 1999 it was only 1 percent. The average value of a loan to agriculture was between J.D 15,500 and J.D 24,300, so that these loans are much larger. The low proportion granted to the agriculture sector reflects the lack of cultivatable land, which is only 7.8 percent of the total land area. This has been compounded by a lack of rainfall in the last decade, and by the reluctance of entrepreneurs to invest in this sector. Finally, the retail sector started to take up guaranteed loans from 1996. Its share since then has been in the range 6-11 percent. The average value of the loan was similar to the manufacturing and service sectors.

### **Geographical Location**

As in all developing countries, most of the economic activities are centralized in the capital and one or two main cities. Table 2 shows the geographical distribution of the loans between the twelve governorates of Jordan. These are loans provided to SMEs, guaranteed by the LGS and granted over the period 1994-99. In this table it can be seen that more than half (58 percent) the loans were to firms located in Amman (1,302 loans out of 2,244 loans). The total value of these loans was around J.D 26 million, and the average value was around J.D 20,000. The other 42 percent of the loans were located in the other eleven governorates. Most of these loans had been to firms located in Irbid (16 percent of total number of loans), Aqaba (7 percent), Zarqa (6 percent), and Balqa (4 percent). The other 9 percent of loans went to the other seven governorates. This distribution of loans has been compatible with the population distribution and density, and with the distribution of SMEs between governorates. Table 3 also shows the average loan value in each governorate. It was J.D 20,000 in Amman, but the highest average was around J.D 27,700 in Karak and the lowest was J.D 7,900 in Tafelah.

### **Status of Borrower**

During the period 1994-99, a total of 1,609 guaranteed loans or 72 percent were granted to male borrowers, while females received 196 loans or around 9 percent of the total guaranteed loans. Despite the similar number of males and females in total population, this situation reflects the oriental characteristics and conservative nature of Jordanian society. It means that males have the main role in life and they are more prevalent than females in economic activities. Legal entities (Companies with three or more partners) received 342 loans, constituting around 15 percent of the total loans and individuals received 97 loans or 4 percent of the total guaranteed loans (see Table 3)

### **Number of Employees**

The total number of employees in the firms that received guaranteed loans during the period 1994-99 is around 10,176. This means that the average number of employees for each loan is 5 workers (there are 2,244). The distribution of the total employees between economic sectors is shown in table 4. The manufacturing sector employs 5,898 workers, which is around 58 percent of the total employees in firms receiving guaranteed loans. The average number of workers in each manufacturing project is 11. The service sector has around 33 percent of the total employees, with the average of only 2 workers for each loan project. This low average of workers is due to the nature of the firms in this sector. Retail sector employs 5 percent of the employees, and the agriculture employs 4 percent. Table 5 shows the distribution of the employees in firms receiving guaranteed loans between the governorates. It can be seen that around 66 percent of the total employees are in firms working in Amman, which is because most of the economic activity is concentrated in this city. The average number of employees in the firms located in Amman is 5 employees. Irbid has 9 percent of these employees, 8 percent in Zarqa and 5 percent in each of

Balqa and Aqaba. The other 7 percent of the total workers are located in the other seven governorates.

### **Purpose of Loan**

The Loan Guarantee Scheme (LGS) categorizes the purpose of guaranteed loans into main three categories: start-up projects, working capital aims and capital purchases. Table 6 shows the distribution of the guarantees by the purpose of the loan over the period 1994-99. There were 1,260 loans provided to start-up projects, which was around 56 percent of the total loans. Loans provided to these increased yearly until 1998, but it was decreased from 412 to 383 loans in 1999. Working capital accounted for 19 percent of guarantees and capital purchases for 25 percent.

## **8. Finance Additionality**

One of the main issues for any type of scheme providing finance to firms is whether the finance would have been available from other sources or not. Finance, which would not be available through others sources is defined as 'finance additionality'. This section examines the loan finance 'additionality'. It examines the effect of the interviewee demographics (group A of variables), the firm characteristics (group B of variables) and some other variables on whether the firm believes that the bank would have lent to them if the guarantee had not been available (ADD) (i.e. ADD= 1: 'additional'; ADD =0:' non-additional'). This is model I, and Table 8 shows the full and parsimonious versions of the results.

Table 8 shows that if the interviewee has high level of education (EDUC) then in his or her opinion the provision of loan finance is more likely to have depended on the guarantee. This may reflect the fact that educational advantage has helped the borrower to take advantage of the scheme or it could be that these people are more sophisticated in their answers (i.e. an interview bias). Interviewees with a long experience (*EXPER*) indicate that the guarantee is less likely to be

additional, so they could have got finance elsewhere. These borrowers may have a sufficient track record and be more knowledgeable about the sources of funding available. Guarantees to private ownership firms (*LEGAL3*) are more likely be additional, and when the firm is a single plant enterprise (*ORGI*) the guarantee is also more likely to be additional. These kinds of plant may have more limited access to finance. Model 1 in Table 8 also shows that older firms (*AGE*) seem to get more benefit from the loan guarantee scheme. Firms in the manufacturing sector (*SECTOR1*) are also more likely to have financial additionality. These may have more need for fund than the firms in other sectors, as they are larger in size. This is an important result, as the manufacturing sector has a key role in the Jordanian economy, and much attention is paid to it by the JLGC. The size of the firm (measured by the capital used for start-up *CAP*) is negatively related to the additionality variable, so that interestingly the finance additionality is greater the smaller is the size of the firm at start-up. There is evidence that the current size of firm (*TURN*) is also significant and negative, while there is also evidence for the project size (see below).

The remainder of Table 8 shows the effect of a number of other variables on finance additionality (*ADD*). It shows that if the firm approached the JLGC directly for a guaranteed loan (*NEGI*) then they are less likely to have needed the guarantee. Thus, the direct approach seems to be a bad signal. The size of the project (*LG3*) has a negative relationship with the additionality variable, so that smaller projects are more likely to need a guarantee. This is in addition to the size of the firms. The value of collateral (*LG17*) also shows a negative relationship, which is encouraging, as the more collateral projects have the less they are in need of a guarantee. This is in line with the JLGC's objective which is to encourage the banks to lend to SMEs without sufficient collateral. The other variables are for the purpose of the guaranteed loan (*LG4*) All of the included variables have a positive

relationship with the dependent variable, suggesting that guarantees for projects concerning with new products and services (*LG4.4*) are less likely to be additional.

The factors influencing the level of additional of the SFLGS in UK according to the KPMG study (1999) are as follows: geographical region, sources of finance, markets, competition, firm-level objectives, personal characteristics, legal form and loan size. The main findings is that none of these variables is significantly related (at 5 percent level) to the level of finance additionality. At 10 percent level, two variables were significant: larger firms (measured by sales) lower finance additionality, which similar to our study; and firms facing regional competitors had more finance additionality. However, in our study we have found a range of other effects related to demographic data, firm characteristics and variables including the loan size, the purpose of the loan, the project size, the value of collateral, the history of receiving loans from banks and the firm's approach to the loan guaranteed corporation (we don't have data on regional competition as it is difficult to obtain in Jordan). Thus, we are able to obtain a much richer set of results.

## **9. The Economic Effect of the Project**

The finance additionality may lead to 'economic additionality', which are economic effects the project that would not otherwise occur without the guarantee. These include such things as the opening-up of new markets, new products and services, new processes, the introduction of leading technologies, an increase in exports and new sources of supply. They also include other effects of the level of firm activity, such as on sales turnover, total assets or employment. Together, these are the main indicators of the economic effects of the loan guarantee scheme. The following discussion presents the empirical results for those effects, beginning with the first six effects identified above.

### **9.1 The Effects of the Project**

This section analyses the interviewee demographics, firm characteristics and some other variables on each of the following effects of the project: opening-up of new markets (*EFFECT1*); developing new products and services (*EFFECT2*); developing new processes (*EFFECT3*); the introduction of leading-edge technologies (*EFFECT4*); increases in exports (*EFFECT5*); and the creation of new sources of supply (*EFFECT6*). The parsimonious results for each of these are given in Table 9 as well as the variables indicated above, it includes a regressor for the finance additionality (*ADD*) of the project.

**Opening-up of new markets (*EFFECT1*):** Model II of Table 9 shows that if the interviewee has a long experience (*EXPER*) then he or she is less likely to open-up a new market. This might be because the interviewee already has an established share of the market, and sees no need for new markets. However, partnership firms (*LEGAL2*) or firms located in Amman (*LOCATE*) are more able to open new markets. The first of these reflects the more dynamic nature of partnership firms (it was found above that they are able to access greater finance), while for firms in Amman it may reflect the greater market opportunities. However, newer firms (*AGE*) are less able to open-up new markets because they probably have less capacity and they are focusing on their existing markets, while firms in manufacturing (*SECTOR1*) are more able to open-up new markets, possibly reflecting greater competition in this sector. Likewise, smaller firms (measured by *EMP*) are more likely to open-up new markets, possibly due to competition. The additionality variable (*ADD*) has a positive relationship with the dependent variable, but it is only mildly significant. It means that if the borrower believes that the loan was made because of the guarantee then he or she is more likely to open-up new markets.

**New products and services (*EFFECT2*):** Model III of Table 9 shows that the interviewees with a higher level of educational attainment (*EDUC*) are more likely

to develop new products services. This reflects the ability of such interviewee to realize the advantages of developing their product or service and to be more innovative. Firms in the service or retail sectors (*SECTOR2* and *SECTOR3*) are also more able to develop new products or services, possibly due to the lower costs of introducing these. The size of the firm (measured by *EMP*) has a significant positive coefficient which means that larger firms are more likely to develop new products or services. This is also the case for projects receiving larger loans (*LG2*), suggesting that scale considerations are important-However, firms that pledged more collateral are less likely to develop new products or service possibly reflecting the more risk adverse nature of these firms. The additionality of the guarantee (*ADD*) is insignificant, so that projects depending on the guarantee are no more likely to have introduced a new products or services.

**New processes (*EFFECT3*):** Model IV of Table 9 shows that if the interviewee is a partner (*TITLE4*) then he or she is more likely to develop new processes. It is also more likely the better educated is the interviewee (*EDUC*), and the younger is the interviewee (*AGE-INT*). The results also suggest that single-plant firms (*ORGI*) are more able to develop new processes, as are firms in the manufacturing sector (*SECTOR1*). This result no doubt reflects the higher level of technology used in this sector, and interestingly it also seems to be associated with single-plant firms. The size of the firm (whether measured by *EMP* or *CAP*) is positively related to the development of new, but as may be expected start-ups is less likely to. Finally, if the loan that the firm received was additional then it is more likely to develop new processes, suggesting that this is an important effect of the guarantee scheme.

**Leading-edge technologies (*EFFECT4*):** Model V shows that if the interviewee is financial manager then the project is less likely to introduce a new level of technology. These managers work in larger firms, and it may be that they

already have a high level of technology, or possibly that there are less dynamic. The more educated borrower (*EDUC*) is less likely introduce a new technology, while borrowers with a long experience (*EXPER*) are less likely to, possibly because they see no reason to change and are suspicious of new technology. Firms in the manufacturing sector (*SECTOR1*) are more likely to introduce a new technology, while the firms in the retail sector (*SECTOR3*) are less likely to, because they do not need a high level of technology Also, when the number of employees decreases (*EMP*) the firm is more likely to use new technology, supporting the idea that it is associated with smaller and more dynamic firms. Model V so shows that the firms that approach the JLGC directly (*NEGI*) are more likely to introduce a new technology and the size of the loan and project are also positively related to the dependent variable. This suggests that new technology is associated with larger projects in smaller firms, but they are no more likely to occur in projects that are additional.

**Exports (*EFFECT5*):** In model VI relatively few of the variables are significant. It shows that if the interviewee is a financial manager (*TITLE3*) then the firm is less likely to increase its exports due to the project. This is worrying, as firms with financial managers tend to be larger in size. A multi-plant firm (*ORG2*) is also less likely to increase its exports as a result of the project However, a firm in the manufacturing sector (*SECTOR1*) is more likely to increase its exports, no doubt because it aspires to be in foreign markets more than firms in other sectors. Model VI also shows that the size of the loan (*LG2*) is positively related to an increase in exports, but that the additionality of the guarantee does not affect this.

**New sources of supply (*EFFECT6*):** Finally, model VII of Table 9 shows that if the interviewee is a manager of a financial firm (*TITLE3*) then he or she is less likely to create a new source of supply, and this is also the case for those that

are more highly educated (*EDUC*) firms in the retail sector (*SECTOR3*) are more able to create a new source of supply, which is plausible, as these firms are looking to provide different kinds of goods or services and can do so at relatively low cost. The size of the loan (*LG2*) and the size of project (*LG3*) are positively related to new sources of supply, but large firms (*EMP*) are less likely to, so that again it is larger projects in smaller firms that count. The additionality variable (*ADD*) is insignificant.

Overall, these results indicate many interesting and plausible results concerning the effects of projects implemented by SMEs in Jordan. These represent new results, and they suggest that smaller firms with larger projects or loans are much more dynamic, and are having a range of desirable effects. However, the loan guarantee is generally insignificant, and only has an effect in opening-up new markets and developing new processes. Nevertheless, these are important effects.

### **1 The effects on Firm Activity**

We now investigate the effect of the project on the firm's activities, comprising its assets, sales turnover and its employment level. In so doing, we examine the change in these activity variables that the firm attributes directly to the project (so that we ignore other changes in the firm's activities that are not attributable to the project). This measures the change in the firm's activity from one year before the guaranteed loan until two years afterwards, so that the interpretation of the coefficients is now different. The purpose is to identify the characteristics of those projects that have larger or smaller changes in activity. We again include the term *ADD* for the finance additionality of the loan guarantee, and we focus on the parsimonious results.

**Change in assets:** The dependent variable in the case is the change in the firms assets (*ASSTCHGADD*), measured in J.D 000's, but multiplied by the

percentage of this change that the interviewee attributes to the project (but not necessarily the loan or the guarantee). Model VIII of Table 10 gives the results. It shows that if the interviewee is male (*GENDER*) then the greater will be the asset change, suggesting that male entrepreneurs are able to get more benefits from the project. The experience of the interviewee (*EXPER*) is negatively related to the asset change, which again supports the idea that new and younger borrowers are able to get greater advantages. The size of the firm (whether measured by *EMP* or *TURN*) is positively related to the asset change. These support the JLGC's aim to help the young, new and smaller borrowers. This result is confirmed by the negative relationship between the asset change and partnership firms (*LEGAL2*) and multi-plant firms (*ORG2*). Both of these tend to be larger in size. The loan additionality variable (*ADD*) is insignificant, although in the full regression it is mildly significant but negative. However, there could be multicollinearity between the explanatory variables in this model, which is perhaps suggested by the relatively high value of the  $R^2$  but relatively low t-ratios on the individual explanatory variables.

**Change in sales turnover:** The dependent variable in this case is measured in a similar fashion to before, but for sales turnover, and given in J.D 000's. The results are shown as model IX in Table 10 and there is a similar pattern to the asset change model. It reveals that if the interviewee is a financial manager (*TITLE3*) then the greater is the change in sales, although smaller the greater is the level of educational attainment (*EDUC*). However, both of these are significant at the 10 percent level only. Male interviewees (*GENDER*) are associated with greater turnover changes, and this supports the earlier results on asset changes. However, interviewees with a long experience (*EXPER*) or in older firms (*AGE*) have smaller changes in sales. This confirms our earlier results that these are less dynamic firms. However, larger firms (whether measured by *EMP* or *TURN*) have greater sales changes. Model IX also indicates a range of other effects. A firm that has a history

with the commercial banks (*PLI*) is less likely to increase its turnover, as is a larger project (*LG3*). However, the size of the loan (*LG2*) and the value of collateral (*LG17*) are positively related to the sales change. The additionality of the guarantee has no effect on the sales.

In the KPMG study, there are three terms that show a positive relationship with the change in sales turnover due to the guaranteed loan: personal capital output (i.e. the initial start-up capital of owner), new markets and new products. These last two seem self-explanatory. The variables that have a negative relationship with an increase in sales turnover are related to market share, whether at the UK or European levels, but none of these variables are included in our study, although we find a large range of effects from variables that were not used in the KPMG study.

**Change in number of employees:** Again, the dependent variable in this case is measured in similar fashion to before, and it is equal to the increase (or decrease) in the number of employees attributable to the project two years after its implementation. The findings of model X of Table 10 show that the change in employment is negatively related to the level of educational attainment (*EDUC*). This is consistent with earlier results, as these individuals seem more able to use new processes and new technology in their operations, which are less labour intensive. Male interviewees (*GENDER*) and sole-trader firms (*LEGAL1*) are also less likely to have a positive change in the number of employees, the latter no doubt because these owners are reluctant to expand the firm beyond the personal span of control. This result is consistent with the results of the KPMG study. Regarding the location (*LOCATE*), model X shows that firms located in Amman have a greater employment change, although firms in services or retail (*SECTOR2* and *SECTOR3*) are less likely to do so. This supports the view that firms in the manufacturing sector create more jobs than other sectors. The KPMG study did not identify any sector effects.

The results show that the employment change is positively related to the employment size of the firm (*EMP*). Thus, surprisingly, larger firms seem to grow more. This is consistent with the results for sales turnover. However, once allowance is made for the effect of employment size, then there is a negative relationship between employment growth and turnover (*TURN*). This suggests that it is the larger but relatively inefficient or low-value activity firms (i.e. high employment but small turnover) that put on most jobs. The negative relationship with turnover is also found in the KPMG study (They do not include a term for employment).

As regards the purpose of the loan, firms engaged in capital purchases or working capital (*LG4.2* and *LG4.3*) have lower employment change than those who use the loan for start up. The firms that have a history with access to commercial banks (*PLI*) are less likely to have positive employment change, although the reason for this is not known. The KPMG study found that the age of the firm had a positive relationship with the employment change, although in our study age is not significant (*AGE*), and the initial start-up capital of the owner also had a positive relationship, but again in our study it is insignificant (*CAP*). The additionality of the guarantee (*ADD*) has no effect on the employment change in this study, suggesting that projects relying on the guarantee are no more likely to increase or lose jobs.

## **10. Conclusions**

Overall, the analysis provides a consistent set of results that indicate many interesting findings on the additionality and the effects of the loan guarantee scheme. In particular, it shows that there are seven broad groups of firms and entrepreneurs that have difficulty in obtaining bank finance and where the scheme seems to have had its main effects; these are: smaller firms, manufacturing firms, firms outside Amman, newer firms, younger borrowers, less-educated borrowers and female borrowers. We conclude by summarizing the main results in respect of

each of these broad groups. According to the smaller firms, the results suggest that the smaller-micro firms (generally less than five workers) were not able to receive the funds from the commercial banks in the absence of the loan guarantee scheme, which means that the finance additionality is greater, so that they are more likely to need a guarantee. As regards the economic effects of the projects implemented by these firms, it can be observed that they are significantly more likely to open up new markets, but less likely to develop new products or services. Finally, the smaller is the firm, lower is the sales turnover change, while the growth in assets and employment are not affected by the size of the firm.

The results also show that the manufacturing firms are more likely to need a guarantee. In terms of the economic effects of the projects implemented by these firms, we find that they are more likely to open-up new markets, develop new processes, introduce a new technology and increase exports. However, if a firm is in manufacturing then the greater is the employee change, but the change in assets and sales turnover are no different than for other firms. Overall, projects implemented by manufacturing firms have a great range of effects than firms in other sectors, which no doubt reflects the key role attributed to this sector in the Jordanian economy. As regards the economic effects of the projects implemented by the firms outside Amman, it can be observed that they are less likely to open-up new markets, but otherwise there are no significant differences. Finally, firms located outside Amman are less likely to create new jobs but there are no effects on assets or on sales change.

The newer firms do not believe that the guarantee is additional, as they have sufficient collateral to obtain a loan elsewhere. The results show that the newer firms are less likely to open-up new markets, but they are more likely to have a significantly greater change in sales. The change in assets and employment are not affected by the age of the firm. While the younger borrowers are more likely to develop new processes, but there are no significantly different, economic effects

and changes in the firm's employment, assets or sales turnover. The guarantees also do not appear to be additional. The less-educated borrowers also believe that provision of a loan is less likely to depend on a guarantee. Their projects are significantly less likely to have the following economic effects: develop new products or services, develop new processes and introduce new technologies, but they can have a new source of supply due to the project. The results also show that the lower is level of educational attainment the greater is sales and employee change. Finally, the results show that the economic effects of the projects implemented by such borrowers, it can be observed that there are no significant differences, but the results show that if the borrower is female then the lower is the asset and sale change, while the change in the number of employees is greater.

Table 1: The Distribution of Guaranteed Loans by Economic Sector, 1994-99

	year	Manufacturing	Services	Retail	Agriculture	Total
1994	No. Of Loans	16	8	0	4	28
	% value of Loans JD'000's	57	29	0	14	100
		403.5	121.0	0	62.0	256.5
		25.2	15.1	0	15.5	20.3
1995	No. Of Loans	70	52	0	9	131
	% Value of Loans JD'000's	53	40	0	7	100
	Mean JD'000's	1,594.3	917.2	0	172.7	2,747.0
		24.3	19.6	0	19.2	21.3
1996	No. Of Loans	73	130	2	11	216
	% Value of Loans JD'000's	34	60	1	5	100
	Mean JD 000.s	1,598.2	2,477.0	43.8	267.0	4,386.0
		21.9	19.1	21.9	24.3	20.3
1997	No. Of Loans	153	303	41	11	508
	% Value of Loans JD'000's	30	60	8	2	100
	Mean JD'000's	2,445.7	2,261.0	824.9	264.6	8,796.0
		16.0	19.4	20.1	24.1	17.3
1998	No of Loans	181	448	70	6	665
	% Value of Loans JD'000's	21	67	11	1	100
	Mean JD '000's	2,402.2	8,661.8	1,229.7	108.0	12,701.7
		17.0	19.3	17.6	180.0	18.6

1999	No. Of Loans % Value of Loans JD'000's Mean JD'000's	83 12 1.783.0 21.5	562 81 10.693.8 19.0	47 6 1.054.1 22.2	7 1 53.7 15.9	696 100 13.583 19.5
Total	No. Of Loans % Value of Loans JD.000's	536 24 10.326.9 19.3	1503 67 28.131.8 18.7	160 7 3.143.5 19.6	45 2 938.0 20.8	2244 100 42.540 19.0

Source: JLGC, Unpublished data, Amman, for different years.

Table 2 : Distribution of Guaranteed Loans by Governorates during 1994-99

Governorate	1994	1995	1996	1997	1998	1999	No.	%	Value JD*	Mean JD*
Amman	16	80	123	272	354	457	1302	58	26.038.7	19.9
Irbid	3	16	32	76	130	108	361	16	5.912.1	16.4
Zarqa	5	14	13	27	40	33	132	6	2.513.6	19.0
Balqa	4	13	15	28	17	21	98	4	1.849.6	18.9
Karak	0	5	1	6	7	8	27	1	748.4	27.7
Jerash	0	1	0	4	4	7	16	1	366.6	22.9
Madaba	0	1	4	17	25	10	57	2.5	743.6	13.0
Ajloun	0	1	3	10	5	8	27	1	586.5	21.7
Aqaba	0	0	16	60	70	13	159	7	2.646.6	16.6
Tafelah	0	1	0	0	1	5	7	0.5	55.8	7.9
Mafraq	0	3	7	8	7	16	41	2	836.7	20.4
Ma'an	0	0	2	0	5	10	17	1	242.1	14.2
Total	28	131	216	508	665	696	2244	100	42.540.2	19.0

Source: JLGC, Unpublished data, Amman, for different years.

\* Value of Loans and the average of loans by JD thousands.

Table 3: Distribution of Guaranteed Loans By borrower Status during 1994-99

Status	1994	1995	1996	1997	1998	1999	Total	
							No.	%
Male	14	80	153	366	481	515	1609	72
Female	2	8	18	32	56	80	196	9
Legal Entity	12	41	42	89	97	61	342	15
Individuals	-	2	3	21	31	40	97	4
Total	28	131	216	508	665	696	2244	100

Source: JLGC. Unpublished Data, Amman, for different years.

Table 4: Total Number of Employees and Its Distribution between Sectors

Sector	No. Of Employees	%	No. Of loans	Average of workers
Manufacturing	5.898	58	536	11
Agriculture	422	33	45	9
Services	3.306	5	1.503	2
Trade	550	4	160	3
Total	10.176	100	2.244	5

Source: JLGC. Unpublished Data, Amman, for different years.

Table 5: Total Number of Employees and Its Distribution between Governorates

Governorate	No. Of Employees	%	No. Of Loans	Average workers
Amman	6.761	66	1.302	5
Zarqa	575	9	361	6
Balqa	357	5	132	6
Karak	126	1	27	5
Jerash	56	0.5	16	4
Madaba	214	2	57	4
Ajloun	86	1	27	3
Aqaba	524	5	159	3
Tafelah	524	5	159	3
Tafelah	10	0.25	7	1
Mafraq	183	2	41	4
Ma'an	19	0.25	17	1
Total	10.176	100	2.244	5

Source: JLGC. Unpublished Data, Amman, for different years.

Table 6: Distributions of Guaranteed Loans by Purpose of Loans, 1994-99

Year	Star-up	Working Capital	Capital Purchases	Total
1994	9	11	8	28
1995	43	53	35	131
1996	93	84	39	216
1997	320	91	97	508
1998	412	73	180	665
1999	383	104	209	696
Total	1.260	416	568	2.244

Source: JLGC. Unpublished Data, Amman, for different years.

Table 7: Variable Labels that Used in the Empirical Analysis

I: Demographic Data						
Variable Label	Name	No. Of obser.	Min	Max	Mean	C.V
TITLE	Job title of interviewee:					
	1 = Manager	142	0	1	0.9	---
	2 = Sales Manager	142	0	1	0.03	---
	3 = Financial manager	142	0	1	0.04	---
EDUC	4 = Partner	142	0	1	0.03	---
	Level of educational attainment	142	1	4	1.68	---
	1=A level or less; 2= First degree;					
	3 = Master degree; 4 = PhD					
GENDER	The gender of interviewee	142	0	1	0.9	---
	1 = Male; 0 = Female					
AGE INT	Age of the interviewee (years)	142	25	68	45	0.22

EXPER	Experience of the interviewee (years)	140	2	40	15	0.59
<b>II: Characteristics of the Sample Firms</b>						
Variable Label	Name	No. Of obser.	Min	Max	Mean	C.V
LEGAL	Legal status of the firm	142	0	1	0.65	---
	1= Sole trader	142	0	1	0.27	---
	2= Partnership	142	0	1	0.08	---
	3= private ownership					
ORG	Organization of the firm	143	0	1	0.89	---
	1= Single – Plant	142	0	1	0.07	---
	2= Multi – Plant	142	0	1	0.04	---
	3= Part of Large group					
LOCATE	The location of the plant 1=Inside Amman : 0=Elsewhere	142	0	1	0.53	---
AGE	Age of the firm					
	1 = 1 – 4 years					
	2-5-10 years	142	1	5	2.11	0.5
	3-11-20years					
	4-31-40years					
ECTOR	5-more than 40 years					
	The firm's principal activity:	142	0	1	0.49	---
	1=Manufacturing	142	0	1	0.36	---
	2= Services	142	0	1	0.08	---
	3= Retail	142	0	1	0.07	---
EMP	4= Agriculture	142	1	95	12	1.22
	Number of employees	142	1	95	12	1.22
TURN	Current turnover (J.D' 000s)	122	5	2,800	221	1.96
CAP	Capital used for the start-up (J.D)					
	1 = up to 10,000; 2 = 10,001 – 40,000; 3 = 40,001 – 100,000; 4 = more than 100,000	142	1	4	2.34	0.46
<b>III: Other Variables</b>						
Variable Label	Name	No. Of obser.	Min	Max	Mean	C.V
P1.1	Did the firm receive loans from commercial banks before the first loan from JLGC 1 = yes; 0 = No (99 cases applicable)	99	0	1	0.51	-
NEGI	The firm approached most recent loan through: 1= JLGG; 0 =Bank	142	0	1	0.18	

LG2	The amount of the guaranteed loan (J.D'000s)	142	0	1	0.18
LG3	The size of the project (J.D'000s)	135	3	300	45
	The purpose of the project:	141	0	1	0.28
	1= Start-up	141	0	1	0.39
LG4	2=Capital purchases	141	0	1	0.31
	3=Working capital	141	0	1	0.02
	4= Finance new product or service	141	0	1	
ADD	Firm believes that the bank would lent them if the guarantee was not available	141	0	1	0.29
	1 = additional; 0=Non-additional				

Table 8: Finance Additionality

	ADD	Coef.	T	Coef.	T
Demographic Data	TITLE1	0.187	(0.96)	---	
	TITLE2	0.139	(0.54)	---	
	TITLE3	0.356	(1.10)	---	
	EDUC	0.233	(1.80)	0.250	(2.27)
	GENDER	0.044	(0.77)	--	
	AGE-INT	0.005	(1.19)	---	
	EXPER	-0.017	(3.33)	-0.015	(3.81)
	EXPERM	1.684	(3.62)	1.503	(4.18)
Characteristics of the Firm	LEGAL1	-0.516	(3.32)	-0.250	(4.26)
	LEGAL2	-0.475	(3.16)	0.502	(3.97)
	ORGI	0.268	(2.22)	0.210	(2.09)
	ORG2	0.157	(0.89)	---	
	LOCTE	0.028	(0.30)	---	
	AGE	0.058			
	SECTOR1	0.188	(1.09)	0.114	(1.51)
	SECTOR2	0.086	(0.50)	---	
	SECTOR3			---	
	EMP	-0.001	(0.03)	---	
	TURN	-0.001	(1.34)	---	
	CAP	-0.089	(2.39)	-0.086	(2.44)
	TURNM	-0.157	(1.51)	---	
	PLI (Receiving loan Previously)				
	NEGI (Firms approach)	-0.014	(0.79)	---	
	LG2 (Loan size)	-0.002	(0.82)	---	
	LG3 (Project size)	-0.001	(0.93)	-0.001	(2.00)
	LG3M	-0.346	(1.55)	-0.494	(2.51)
	LG4.1 (Start-up)	0.667	(2.60)	0.543	(3.22)
	LG4.2 (Working capital)	0.689	(3.25)	0.165	(3.58)
	LG4.3M	-16.647	(3.05)	-14.846	(3.54)
	Lg17 (Value of collateral)	-0.001	(1.15)	-0.001	(1.96)
	Constant	-1.501	(2.88)	-0.932	(3.63)
	N	141	141		
	F	2.10	3.86		
	R <sup>2</sup>	0.38	0.35		

Note: The dependent variable in each case is ADD, which is whether the firm's believes that the bank will lend to them if the guarantee were not available ie. 1='additional' and 0= 'non-additional. There was one non-response. The t-ratios are based on heteroskedasticity errors.

Table 9: The Economic Effects of the Project

EFFECT 1	EFFECT1		EFFECT2		EFFECT3		EFFECT4		EFFECT5		EFFECT6	
	Model II Coef	T	Model Coef	T	Model IV Coef	T	Model V Coef	T	Mode VI Coef	T	Model VII Coef	T
<b>emog raph ic Data</b>	D TITLE1	--	--	-0.54 4	(2.43 )	---		--				0.280
	TITLE2	--		1.173	(3.66 )	0.079	(1.40 )	0.114	(2.09 )	--		
	TITLE3	--		0.173	(3.66 )	0.079	(1.40 )	0.114	(2.09 )	---		
	EDUC	--		--		--		--		--		
	GENDER	--		--	-0.00 9	(2.17 )	--	--	--	--		
	AGE-INT	--		--		-0.00 9	(2.17 )	--		--		
	EXPER	-0.00 6	(1.32 )	--		--		-0.00 6	(1.51 )			
	EXPERM	0.360	(0.76 )	--		--		1.291	(3.69 )			
<b>hara cteri stics of the Firm</b>	C LEGALI	--		--		--		--		--		
	LEGAL2	0.175	(1.98 )	--		--		--		--		
	ORGI	--		--		0.186	(1.68 )	--				
	ORG2	--		--		--		--		-0.161	(3.06 )	
	LOCTE	0.213	(2.58 )	--		--		--		--		
	AGE	0.063	(1.74 )	--		--		--				
	SECTOR1	0.141	(1.70 )	--		1.196	(2.31 )					
	SECTOR 2	--		0.153	(1.77 )	--		--				
	SECTOR 3	--		0.693	(1.99 )	--	-0.29 3	(3.69 )	--			
	EMP	-0.00 7	(3.71 )	0.006	(3.06 )	0.008	(3.43 )	0.004	(1.36 )	--		
	TURN CAP	--		--		--		--				
		--		--		0.097	(2.70 )					
	TURNM	--		--		--		--				
	PLI NEGI	--		--		--		0.250	(2.43 )	--		
	LG2	--		0.004	(2.14 )	--		0.007	(3.27 )	0.004	(2.49 )	
	LG3	--		--		--		0.002	(1.74 )			
	LG3M	--		--		--						
LG4.1	--		--		--		0.002	(1.74 )	--			
LG4.2	--		---		--		-0.49 9	(3.27 )				
LG4.3M	--		0.368	(0.50 )	11.55	(309)	--					

Lg17	--		-0.00	(1.85	5	---				
			1	)						
ADD	-0.74	(1.24	-0.04	(0.54	0.138	(1.44	0.047	)0.74	-0.02	(0.49
	4	)	7	)		)		)	5	)
ADDM	-0.74	(0.96	0.892	(1.21	00.59	(0.74	0.154	(0.20	0.077	(0.18
	4	)		)	2	)		)		)
Constant	0.380	(3.34	0.113	(1.09	0.654	(1.93	0.380	(2.07	-0.03	(1.07
		)		)		)		)	5	)
N	141		141		141		140		140	
F	2.84		3.22		3.67		4.12		3.32	
R2	0.16		0.18		0.29		0.38		0.15	

Note: The dependent variables record the effects of the project as follows: EFFECT (opening –up of new markets), EFFECT2 (new products or service), EFFECT3 (new processes), EFFECT4 (leading-edge technology), EFFECT5 (increase in exports) and EFFECT6 (new source of supply). In the first three models there is one non-response, and in the other model there are two non- responses. The t-ratios are based on heteroskedasticiy errors.

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