

**Development Projects
(Proyectos de Fomento –PROFOs-) :
A partnership experience in Chile.**

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I BACKGROUND AND DESIGN

Early policy design¹ (*)

By late 1990 the Chilean Ministry of the Economy had already noted some European initiatives and realized that individual action could hardly respond to the export development needs of SMEs. Some outside catalyst was required to potentiate such initiatives, opening the door to benefits far superior to the sum total of individual benefits accrued, if any. For example, the outcome of trade missions abroad might be quite different if they were organized by a pool of businessmen than when undertaken separately.

A second driver was the realization that new across-the-board policy instruments set for SMEs – e.g. the Technical Assistance Funds (FAT) and Credit Insurance Bonus Coupons (CUBOS) – were not reaching those target groups due to lack of both information and experience among businessmen on how to operate with those facilities². They were used to the government's traditional and helpful role to give them a hand but were scarcely familiar with the kind of "third tier policies" under which financial matters were channeled through the banking system.

As a result, the Ministry of the Economy originally outlined the concept of "Development Projects" (PROFOs) as an association of small and medium-size businesses from a given industry and location, pooled together to develop their international competitiveness. The State would subsidize part of the financing cost of those projects over a three-year period, considered as a minimum for business owners to learn the basics about the benefits of working jointly through an association. In time, the subsidy would be phased out and the businessmen could then take over independent management of the own organization. The partnership would be both among business owners and between them and government agencies (or a private entity accredited by the government) that in turn would channel the funds disbursed by the government and provide the basic procedural guidelines for collective action.

The more specific goals of this initiative can be broken down into those designed to boost the development of individual participating companies, to foster collective action by the pool of businesses, and to improve their relations with the environment, both the market per se and local institutions.

Some specific company-oriented targets are:

- a) In the area of management, to enhance professional skills either by bringing in professional staff or introducing moderns accounting and information techniques and medium-term strategic planning. The latter is crucial to help business owners

¹ This section is substantially based on Muñoz (1996). For details on conceptual and design issues, see this paper and the references listed herein.

² See also Sercotec (1992, 1994) and Universidad de Chile (1997)

determine their key objectives and targets as players in the production arena. In other words, the idea is to find the optimum niche in the productive chain.

- b) Concerning productive and technological processes, the goal is to introduce new product designs of higher value added and quality, to improve the internal organization of shop floors, to access new sources of technology and financing for technological innovation.
- c) On the marketing side, the basic objectives include looking for both new local and international markets, and here organizing visits to other countries is a sine qua non strategy; access to new input vendors and to new subcontracting relations either among PROFO members or elsewhere.
- d) On the area of human resources, the emphasis is on training of both workers and executives and seeking new way whereby workers can play a more participative role.
- e) In financing, the purpose is to improve access to funding sources and while cutting financial costs, which could mean more.

Consolidation of each group of businesses further assumes setting certain goals such as strengthening mutual trust bonds, cooperative and complementary actions, for example to develop joint production arrangements or to hire technicians and consultants perhaps not affordable by each company individually. Other kinds of cooperative actions are exchange of information and joint negotiation with major buyers. It is also extremely important to develop contacts and ties with other central and local government agencies, with teaching institutions – particularly universities and technical institutes – as well as with other public and private corporations to pursue new joint programs. This involvement with the outside environment is of the utmost importance. The basic philosophy behind this policy is to achieve productive change not just in participating businesses but also among the local public and private institutional framework of which they are part. Competitiveness is not only a matter of internal company change. It also assumes development of effective institutions in a variety of spheres, e.g. education, technology, finance, legal, and infrastructure, among others. These institutions too contribute to the stronger social and productive fabric that make up a truly competitive system.

Finally, it is hoped that as the PROFOs develop they will also help develop the market, enhancing the demand appeal of SMEs vis-à-vis their consumers, suppliers, consultants and financing agents. Lack of a powerful enough demand often stems the development of a supply of services and consultants, which in fact perpetuates the vicious circle of small business slackness. As they boost their own demand for collective action locally, they stimulate the growth of supply.

II EVALUATION FINDINGS

This section presents a summary of some key findings highlighted by the formal evaluation of the PROFOs program in Chile. A methodological description and details of the study not discussed here are found in Universidad de Chile (1997) and Benavente (1998).

The universe studied involved 290 companies from several productive sectors ranging all the way from tourism to the engineering industry. The field survey took approximately three months. The total sample included a control group of similar companies that had not benefited from the program; this was done to provide statistical control by way of differentials in the variables that might skew results.

2.1. Intermediate Impact and Underlying Determining Factors

There are two levels to approach assessment of the program's impact in response to actions taken by a company. The first consists of statistical tables describing the type of innovation made and the importance assigned by each company to PROFO, i.e. by means of a frequency distribution and mean intensity table as well as their related frequency diagrams. Second, through a behavior model that will be explained further on in this paper.

In term of business management, the interviewees stated that the most significant progress was made in labor organization, in implementing marketing strategies, and in focusing on production. In all cases, the importance attributed to PROFO was statistically significant. However, a comparison to the control groups indicates that the significant differences between both groups of companies lie in: company organization, strategic planning (significant to 90%), and implementation of marketing strategies (significant at a 99% degree of confidence). In other words, there are at least three actions focusing on business organization where the PROFO companies did better than the control group, and according to the answers this would be directly correlated to participation in the program.

On the matter of process innovation, the most relevant have been the introduction of quality control, automation and production planning. In all cases, the importance attributed to PROFO was statistically significant. However, a comparison to the control group shows no significant differences in the answers. According to the findings, the PROFOs companies have brought innovation to their processes but to an extent statistically indistinguishable from those outside the program. The same can be said regarding product innovation.

The benefits in the area of human resource management center on the training of managers, workers and clerical personnel, in this order. In all three the PROFO variable was statistically significant, and in managerial staff and worker training the assumption that PROFOs performed better than the control group was not refuted.

Another area where the PROFO appears to have produced significant differences relative to control groups was the improved ability of companies interviewed to access the National Industrial Extension System. In fact, on issues such as “better access to support facilities,” “technical cooperation with competitors, universities, NGOs and Public Institutions,” and improved “ability to access public funding sources,” the importance attributable to the program was statistically significant.

Along with the impact analysis, questions were asked about the key obstacles currently faced by the companies interviewed that hinder a better performance. This was construed to mean unaddressed issues that an eventually redesigned program should take into account.

According to the answers given and ranked strictly by order of priority, the “lack of financing” stands out as the most important item for nearly half the companies interviewed. It is followed by “a lack of skilled production workers” and “overdependence on just a few clients,” tied in second place. This shows that although the program did indeed advance some solutions to market flaws, these still persist primarily with regard to a shortage of skilled labor as well as in financing, and a poorly diversified customer base.

Finally, the fourth ranking barrier is “economic policy.” This reflects a certain concern shown by companies operating in the textile, apparel and related industries about their “inability to compete with their Southeast Asia counterparts, with exchange appreciation and tariff reduction.”³ The instrument has fallen short of expectations with regard to these issues.

Concerning the concrete and direct benefits perceived by each company as delivered by the program, some are “intangible,” such as information on markets, technologies and business opportunities. Under concrete benefits, the number one listed was the higher profits due to sales increase. To achieve this goal, the businessmen said they resorted more to tools conducive to generating information (fairs and visits, improved knowledge of support institutions) than to strictly technological skills.

Two key disadvantages stand out among others mentioned, both for their relevance and order of magnitude: too short a period of actual support and no facility to finance investments in plant and equipment. The role of the manager of the group is highlighted – the third-ranking difficulty mentioned was the inability to find skilled managers. Given the importance of this job, responders were asked to name some qualities required in an “ideal” manager’s profile. The most frequent replies were: managerial skills, initiative and communication skills. On the other hand, “knowledge of the business” ranked higher than “experience in production and professional skills,” which indicates that companies would rather have “sales-oriented” than “technically-oriented” managers.

Finally, on the ideal make-up of the group of companies, the businessmen suggested that engaging suppliers, some of them with expertise in exports, and a subsequent development of the group into a true partnership would be desirable. In contrast with this view, they felt

³ As indicated by the interviews made.

that the presence of companies of widely different sizes and discrepant goals would be detrimental.

Explanation of the Findings

While a company may have attributed its decision to undertake a given action to PROFO, actually a number of factors may have affected the effects reported. Some of these concern the class and extent of services received under the PROFO, others have to do with each company's unique features. In the attempt to answer this question a statistical model was designed to estimate the probability that a given business would adopt a specific action in response to the services received under the program facilities^{4 5}. The findings refer the seventeen most important actions stated by companies the as resulting from the program.

First of all, the replies coming from the different sectors is heterogeneous with regard to some of these actions. For example, the inclusion of textile and apparel manufacturers increases the probability that the program will have a major impact on actions leading to a "reorganization of labor" via a definition of job stations and specific roles in the company, and also raises the likelihood that the program was most relevant in the item training of managerial staff in modern management practices. On the other hand, timber processing and furniture companies increased the probability that the program is important to improve business relations among the PROFO companies; this was the finding also for companies in the metal foundry sector.

Results suggest that the difficulty in finding skilled managers for the group, though not affecting all actions undertaken, certainly has a heavy impact on some of them. So the higher turnover of managers under the PROFO reduces the probability of the program having a positive impact in job reorganization, product enhancement, worker training, improving the ability to negotiate with customers, and boosting business relations with other companies in the PROFO. It also lowers the probability that the program will have a positive impact by increasing technical cooperation with public institutions and private consultants. All of the above underscores the fact that having a steady leadership in the group is a relevant variable, and if the matter is not addressed it may offset any positive impact the program may have.

The know-how of specific agents running the program also generates differential effects on certain actions. Thus, the private agent (ASEXMA) was shown to be more expert and/or more effective in helping the program achieve a stronger impact in promoting modern "marketing strategies," in improving business relations among PROFO companies and in boosting technical cooperation among the companies in PROFO. On the other hand, the public intermediary agent (SERCOTEC) appears to most effective in promoting the adoption of on-the-job safety standards and the training of workers and administrative staff. In short, the private agent has had a greater impact on joint and collaborative work among the companies

⁴ In fact, the model intends to explain the probability that a given company undertake an action that the responder attributes to the program. A company may take an action but not attribute it to the services offered by the PROFOs.

⁵ Model and variable specifications are in Universidad de Chile (1997) and Benavente (1998).

than the public agent. On the other actions there are no significant differences between the private and the public agent.

On the other hand, concerning plant size, the findings suggest that the greatest impact of the program is not necessarily felt by the bigger companies. The variable experience generally shows negative coefficients, indicating a certain trend for the program to weigh more heavily in action decisions made by younger businesses.

A last paragraph on the variable “duration”: it has been statistically significant in nearly all actions undertaken by the companies. It follows that the longer a company stays in the PROFO, the higher the probability that the program will have a positive impact on the actions it takes.⁶

2.2. Impact on Policy Goals

To answer the key question of whether the PROFOs have contributed to the competitiveness of SMEs to a sufficient degree so as to trim down structural heterogeneity, the core issue in this evaluation was to show evidence that the above achievements would not have occurred in the absence of the program. The most accurate way of demonstrating the net impact of the program is by using a control group for comparison. Thus, the performance of companies that actively participated in PROFOs was compared to the averages of their respective industries. The chief advantage of focusing on relative changes is that one can offset any unique industry-specific or regional bias.

Results show that, on average, the companies interviewed have experienced a statistically significant growth in employment, in real wages paid, and in productivity in absolute terms (respectively 13%, 10.3% and 8.3%). However, relative to their own industries, the statistically significant growth was accomplished only in employment (11.6%), with no significant results either in productivity or salary growth.⁷

Nevertheless, the above findings may be strongly skewed by different underlying data such as intermediary agent, sector, plant size and expertise.⁸

In order to pinpoint the effect of each such variable and advance some additional assumptions, a statistical model was developed and will be described in greater detail below.⁹

⁶ An exercise was run to determine how long it would take for the probability that a company take any of the pre-defined actions to increase by 50%. The concept of “mean dose” was used (see Universidad de Chile 1997:43).

⁷ See Table 2 in the Appendix.

⁸ A detailed breakdown by criterion employed is found in Universidad de Chile (op.cit) between Tables 19 and 31.

⁹ Again, see Universidad de Chile (1997) and Benavente (1998) for a detailed analysis of the methodology adopted.

Factors Underlying the Differences in Job Creation

Broadly speaking, findings indicate first of all that there are sizable differences in effects by sector: the rubber and steel sectors create fewer jobs than industry as a whole, while the heavy machinery sector generates more jobs than its respective industry.

On the other hand, the time spent by a company in PROFO seem to be relevant; for each additional year in the program, the differential annual growth rate of employment increases 6 percentage points. The variable heterogeneity is important; so the less similar the businesses are between the group, the greater the job generation. This supports the assumption that big companies are needed to stimulate smaller ones, but negates the idea that having similar businesses is a sine qua non for cooperative association.

For the other variables, the plus sign next to production experience just shows that older companies have created more jobs than the newer ones; the variable manager, in turn, suggests that problems were experienced in job generation by PROFOs companies that had a high manager turnover. Strong rivalry between PROFO companies seems to be a positive impact variable as far as employment is concerned; while companies with several plants and PROFOs with too many participating companies show negative coefficients in terms of employment. Finally, the variable sales reveals that job creation was negatively correlated to size.

Factors Underlying the Differences in Salary Growth

Results again suggest different responses per sector; however, the degree of diversity here is smaller than in the case of employment rate.

Another explanatory variable is experience, which is shown to have a positive correlation to the relative growth of salaries, though its absolute coefficient is quite low. The variables Duration and Manager are only significant to an 80% level of confidence, but they reveal that PROFOs where manager turnover rates have been high show relative salary growth rates 12 percentage points lower than those that have the same manager throughout. The variable duration, on the other hand, indicates that for each additional year in the program salaries grow by an additional 5% relatively speaking.

The variable heterogeneity indicates that the more heterogeneous the group, i.e. if the variation coefficient of company size grows by one unit, the growth rate of salaries increases by 33%, and this result is significant for all levels of confidence. The variables plants and sales suggest that companies with a single plant and smaller businesses have achieved the highest relative wage growth rates. Finally, the variable competition or rivalry indicates that the lower this factor the higher the growth, while the variable number suggests that the more companies involved the worse will be the performance of the program. However, the statistical significance of the two latter variables is low.

Factors Underlying the Differences in Productivity Growth

This is the variable where one finds the widest diversity of sectoral responses, with significant variations between the rubber sector at one extreme and the wine industry on the other.

The variable experience indicates that the newer companies have benefited the most, showing positive relative growth rates in productivity. The variable agent suggests that PROFOs managed by ASEXMA have a 31% higher relative growth rate in productivity than those managed by SERCOTEC. The variable heterogeneity shows a positive relative growth rate, supporting the idea that variance in company size within a PROFO is an advantage.

2.3. Cost-Benefit Analysis

This section is a summary of the cost-benefit analysis performed on the program. The cost-benefit analysis consisted in accounting for both program-generated income due to increased sales reported by the participating companies and costs such as manpower, raw materials, program administration costs, as well as the investments made by public agents and the businessmen alike.

To compute the benefits, account was taken of the fact that the PROFOs in general have performed better than their respective industries only in terms of relative growth of employment, while the effect was nil concerning productivity. Obviously, the upward effect on employment should have resulted in a relative growth of sales. If that is so, the main benefit from this program lies in the higher sales it has generated, which in turn materializes into a rise of the same magnitude in “consumer surpluses” (see Fontaine 1993). The key assumption of this analysis is that the companies studied are price “takers” and therefore face a perfectly elastic demand curve.¹⁰

The findings indicate that the mean annual growth rate of sales is 11% (the same as employment growth). This goes to show that the growth of these companies has been greater than that of their industries but also that the source of this growth was due rather to the cumulative effect of several factors than to improvements in productivity.¹¹

¹⁰ This implies that as the sales of these companies increase, they will be able to place their production “at the same prices” and without crowding out the competition. For this reason the benefits of “fund disbursements” were not considered. Another key assumption is the lack of distortions in the markets where the PROFOs companies operate, which will allow them to work with private prices. To compute income increase due to program-driven sales, the author had to overcome the problem that with rare exceptions there was never full quantitative information for the totality of companies in each PROFO. Therefore, only those PROFOs with a certain number of significant answers were included (over 50% quantitative answers per PROFO); non-responding companies were assigned the “average” of the responding companies’ answers.

¹¹ See Table 3 in the Appendix.

As a whole, the fifteen PROFOS analyzed report an additional income (higher consumer surplus) of over 10 million dollars a year. The drivers of this increase are scattered and behave in a strongly heterogeneous way, although in general the Asexma PROFOS account for 60% of the gross income and the remaining 40% were brought in by SERCOTEC. This should be no surprise, however, because while the sales growth rates of both groups is similar, the “average size” of the ASEXMA PROFOS is greater than that of SERCOTEC companies, showing that the private agent specialized in bigger companies.

The sectoral income breakdown indicates a heavy concentration in two sectors: machinery (60%) and wines (29%), with mean per company annual income increases of a little over one hundred thousand dollars in both cases. The timber PROFOS have made only a marginal contribution (9% with per company income increases of twenty thousand dollars), while the contribution of textiles is nil.

The production and sales growth of PROFOS companies relative to their respective industries surely involves resources that must be accurately assessed in terms of their opportunity cost. Thus, two such resources seem to be relevant, (*) manpower and semiprocessed inputs.

To better evaluate additional manpower costs, the annual “additional” employment generated by the PROFOS companies was computed, and this figure was valued at current labor market prices.

On the other hand, to avoid underestimating the program costs, one should bear in mind that a growth in sales also implies more intensive use of raw materials and inputs. Furthermore, the costs evaluated must include those associated to the program’s administration and operation.

To compute the profitability ratio, first the corporate surplus (income) and direct costs (operating costs) were discounted at an annual 10% rate at the start of the program, assuming for “duration of the project” the full three years of operation of each PROFOS.

The results obtained show that the overall cost-benefit ratio is clearly higher than one.¹² For each dollar invested by a company in the program, 2.4 additional dollars were generated. The profitable PROFOS appear to be Wines 1, Wines 2, Software, Cindex, Unemas, Timber and Furniture, Unifama and Machine Engineering. However, a key element in these results has been the remarkable sales increase of PROFOS “Wines 1”, which accounts for 40% of the surplus. On the other hand, if one removes it from the estimation, the benefit-cost ratio would fall to 1.4 but the program would still be profitable.¹³

¹² See Table 4 in the Appendix.

¹³ It must be borne in mind that certain factors may induce either an overestimation and underestimation of profitability. Among the former are disconsideration of the indirect program costs (for example, the percentage of administrative resources devoted by CORFO to program monitoring, additional investments, etc). The latter include consideration of “static” benefits only; this means assuming that the PROFOS

It is also useful to explore the magnitude of the fiscal effort in terms of funds committed by the government to finance the program. As a counterpart, Treasury will also boost revenues thanks to the program and the resulting collection of value added taxes and taxes on earnings.

Given the above, just considering the fiscal costs and the higher revenues arising from the VAT collected on additional sales, from the fiscal standpoint the program generated a 3.2 cost-benefit profitability ratio (from the fifteen PROFOs analyzed alone). In other words, for each peso the government put into the program, it would ultimately collect three pesos due to a rise in income. In short, the program does not seem to entail a heavy burden to Treasury (a little over six hundred thousand dollars a year), which is more than offset by the increased tax collection.

III. SUMMARY AND CONCLUSIONS

Evaluation of the Development Programs (PROFOs) shows that this instrument can have a positive impact on participating companies. In response to the assistance granted, some such companies have carried out substantial changes in some production and corporate practices and this has reflected in productivity and wage improvements.

Results point to the conclusion that their main achievements have focused primarily around three areas:

1. Improved corporate organization and management (adoption of planning practices, better specification of roles and functions, focus on production to accomplish economies of scale, and adoption of modern marketing strategies).
2. Improved human resource development (more access to managerial and worker training).
3. Improved access to the National Extension System (mainly technological institutions, advisors, consultants, and even development funds like the Technological Fund-Fontec- and the Technical Assistance Funds-FAT).

However, the scope of program's benefits is more modest in terms of fostering significant improvements and stimulating development and enhancement of manufacturing processes and/or products (except for changes in layout or in automation) .

companies perform better than industry overall only during their three years in the program, with no consideration for the learning dynamics. For this reason, these findings must be interpreted as merely "indicative" of positive profitability.

In other areas affected by the program it was found that companies benefit the most if they take a more intensive part in it. From this standpoint, a reduction of the entry money withholding and an extension of the program duration by at least one year might increase the number of companies recording a favorable impact. However, merely extending the term is not enough, intensity is also important. So it would be advisable to bring down the management turnover rates because it is detrimental both to the potential benefits and to economic and policy outcome of the program. Alternatively, the learning rate should be speeded up via a more transparent managerial role on the part of the intermediary agent and/or managers.

The type of intermediary agent also makes a difference, and it is clear that a private agent built around talents from corporate associations in general turn out better economic returns and increases the likelihood of expanding the potential for technical and business cooperation among participating companies.

The program has shown that it is selective ex-post given the sectoral differences in relation to the kind of actions performed by the distinct sectors and the results observed in productivity. In this regard, the heavy machinery PROFOs have been more receptive considering the number of actions implemented under the program and a better productivity record. This sector is also proof that productivity growth does not necessarily go hand in hand with job cuts. Smaller and newer companies have also evidenced greater receptiveness and stronger benefits.

As to how the group should be structured, there are two important aspects to be considered. First, the need to have some measure of heterogeneity among the companies (perhaps one or two bigger companies and especially exporters to act as role models for the others), and second, companies with their own markets and little overlapping.

The program nevertheless has worked well enough to correct such market pitfalls as access to financing for investment and innovation on an equal footing with large corporations, and access to skilled manpower. All companies pointed to these factors as their main obstacles. The need to supplement the program with other equity investment and innovation financing facilities might be looked into. On the other hand, there is a need to assess the basic skills of the working force. Many training efforts fail because of "the workers' inability to retain the information imparted" and for lack of a clear incentive program to motivate workers for on-the-job training. Many of the businessmen stated that "*the workers do not want to learn,*" but the fact is that corporate management makes no commitment to raise wages and at the same time requires training to be done after working hours.

An important finding is that consolidating the program in-house depends heavily on the capabilities of the intermediary agent and the manager. Most of the managers interviewed were more oriented to management than to production, and among other things, it was noted that consulting services performed under the program were strongly skewed toward the former.

Theory suggests that it is harder to build cooperation between companies around “hard” technologies than the so-called “soft” technologies. For the latter to work the group must have non-competing and technologically similar businesses, but even then the labor division issue and the “free rider” problem will come up. It might be better in technological environments to direct the facility to individual plant level, not requiring any kind of partnership effort.

Finally, it should not be forgotten that the demands of group work considerably increase coordination costs and the time needed to reach consensus. To quote a PROFO business owner, *"we are asked to work as a group, but during the first year we got to know each other and overcame our mutual distrust; in the second year we started to work together, and finally in the third year the program is over."*

Last but not least, the cost-benefit analysis suggests that the program is “socially profitable” and does not involve massive government budget spending, which is more than offset by the increased revenues thanks to the taxes generated by the companies involved.

The experience with PROFOs in Chile has been relatively successful. It has created an institutional framework to tap the benefits of collaborative efforts. It is particularly useful in situations where production scales and expertise are not enough to reach the minimum threshold for the companies involved to achieve sustainable development.

The Chilean experience suggests that not all partnerships have been successful. Success has hinged on factors such as the design of the facility and substantially on the unique features of each association formed.

These Development Projects are a great step forward in Chilean industrial policy by adding market considerations to the allocation of public funds. The role played by the intermediary agents in the whole process is crucial and constitutes a pioneering experience for South American countries.

Other experiences with intermediary agents like the FAT suggest that such institutions have narrowed the information gap between know-how providers and demanders, helping to focus government support and to promote the dissemination of facilities to assist SMEs. This in turn has allowed third-tier institutions to concentrate on their supervisory role as well as in setting up an institutional framework to help those trapped by their size and isolation.

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IV. APPENDIX.

Table 1 presents the results according to the frequency of affirmative answers to each question (paired successful outcomes for purposes of the related inferences). The second column shows the percentage of a given affirmative result over the total number of answers to a given question; the third column presents the percentage of companies that attributed the success of the previous question substantially to the PROFO; the last column displays the answer of the control group companies. Finally, the asterisks in column one mean that there is a statistically significant difference between the actions of PROFO companies and the control group.¹⁴

Table 1
ACTIONS TAKEN BY THE COMPANIES

	Actions taken by PROFO companies	Importance attributed to PROFO	Actions taken by control group companies
Business management (adopted or changed)			
The organization *	64%	25%	43%
Strategic planning*	64%	32%	43%
Marketing strategies ***	69%	41%	36%
Defined roles for job stations	79%	30%	79%
Focused on production	77%	22%	93%
Process innovation			
Computer automation*	33%	16%	18%
Quality control	47%	22%	43%
Layout*	39%	13%	21%
Job safety standards	45%	17%	71%
Information collection	34%	34%	23%
Product innovation			
Improved existing products	62%	25%	69%
Management of human resources			
Worker training***	38%	28%	8%
Management training***	62%	48%	15%
Increased worker participation in production and quality improvement	40%	15%	67%
Outside relations			
<i>Scope of Business</i>			
Improved skills in customer negotiations	63%	30%	50%
Increased national coverage*			
Improved trade relations with other businessmen of the same PROFO	45%	21%	23%
	65%	53%	----
Improved ability to access public support facilities***	56%	41%	8%

¹⁴ Significance at 1% (***), at 5% (**) and at 10% (*).

Outside relations <i>Technological Scope</i>			
Public Institutions***	32%	23%	0%
Customers	47%	12%	31%
Suppliers	30%	5%	38%
Businessmen in the PROFO***	41%	27%	0%
Universities***	17%	9%	0%
NGOs***	14%	8%	0%
Outside relations <i>Financial Affairs</i>			
Project development skills	47%	26%	50%
Ability to access institutional funding***	50%	32%	17%

Table 2 presents the overall results for the total sample of companies with quantitative data. The three first columns display raw change data, i.e. not considering industrial sector, while the last three show relative changes vis-à-vis the industry. The last but one row highlights the statistical significance of those changes.

Table 2
PROFOs – BASIC STATISTICS
 (mean annual growth rates)

	Employment	Manpower Productivity	Salaries	Employment Differential	Salary Differential	Productivity Differential
Mean	0.131	0.083	0.103	0.116	0.023	0.017
Standard Deviation	0.259	0.428	0.212	0.167	0.230	0.467
Confidence	95%	95%	95%	95%	60%	28%
Observations	102	102	75	102	75	102

Table 3
Annual Income Increments Produced by the Program

PROFO Name	Agent	Annual Growth in Sales ¹⁵	Annual Income (1994 US\$)	%
Metalec1	Sercotec	0.34	1211484	11.2
Metalfuturo	Sercotec	0.16	301467	2.8
La Ligua	Sercotec	0.01	15009	0.1
Aemet	Sercotec	0.23	553042	5.1
Unemas	Sercotec	0.06	159850	1.5
Textiles VIII	Asexma	-0.02	-110204	-1.0
Heavy machinery	Sercotec	0.17	1589502	14.8
Timber & Furnit.	Sercotec	0.13	469606	4.3
Arts & Crafts	Sercotec	-0.05	-5467	-0.0
Unifama	Sercotec	0.15	348166	3.2
Wines 1	Asexma	0.14	2074830	19.2
Wines 2	Asexma	0.05	1127962	10.4
Software	Asexma	0.33	2784225	25.8
Cindex	Asexma	0.03	367114	3.4
Rubber Mix	Sercotec	-0.03	-85208	-0.8
Total		0.11	10801381	100.0

Table 4
Cost-benefit Ratio (1994 US\$)

	VP cost	VP income	B/C
Wines 2	316293	731050	2.3
Wines 1	118377	2455686	20.7
Software	183134	2193130	12.0
Textile VIII	249479	-157021	-0.6
Metalfuturo	82655	-888755	-10.8
Metalec I	208611	-494013	-2.4
Cindex	216177	275359	1.3
Rubber Mix	170097	-280035	-1.6
Arts & Crafts	9248	-12545	-0.1
La Ligua	151231	-32351	-0.2
Aemet	65907	-82288	-1.2
Unemas	103010	117977	1.1
Timber & Furnit.	175803	300485	1.7
Unifama	75933	349936	4.6
Heavy machinery	227839	1314469	5.8
Total	2434794	5791083	2.4

¹⁵ Four digit differential to the industry.

