

*The Puerto Rican Entrepreneur:  
Personal and Company Characteristics*

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# ***The Puerto Rican Entrepreneur: Personal and Company Characteristics***



**Abstract:** Using survey data covering Puerto Rico's manufacturing sector, this study develops a descriptive profile of the Puerto Rican entrepreneur. It then adopts several statistical techniques to explore the relationships between successful entrepreneurs, their personal traits, and the characteristics of their companies.

## **I. Introduction**

The importance of entrepreneurial ability as a factor of production is amply recognized in economic development literature.<sup>1</sup> As Palmer (1971) points out, back as far as the 18th century there was recognition of the role of the

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1. Most economics textbooks mention entrepreneurial ability as the fourth factor of production. For recognition of its critical role in economic development, see Lewis (1955). For its declining significance in economic development literature, see Leff (1979). For a contrarian view of the "folklore" of entrepreneurial functions and distinctiveness, see Brockhaus (1987).

entrepreneur, and in the 20th century Joseph Schumpeter (1934) placed the entrepreneur at the very core of his business cycle and economic development theory. In most parts of the developing world subsequent to World War II the government assumed an entrepreneurial function, but experience accumulated over the past several decades has led to a shift away from public sector productive activities toward greater emphasis on the private sector's role. Clearly the private sector entrepreneur represents the key to making the market work more efficiently.

To a large extent Puerto Rico followed this same pattern in its drive toward economic development, adding to it an external capital import strategy stimulated via a program of tax incentives. Since the late 1940s external capital flowed in to create the foundation for Puerto Rican economic development. It is often overlooked that Puerto Rican development strategy was one of export-led development, preceding the more recent successful experiences of southeast Asia.

It might be argued that a nation's economic development is not at all dependent on the growth of local entrepreneurial talent, especially in view of the globalization phenomenon; see, for example, the works of Reich (1991) and O'Neil (1991). Often cited is the case of Singapore, where multinationals have played the leading role in generating high economic growth rates. Nevertheless, the role of external investment and the multinationals has been far more significant in the Puerto Rican context where, over the 1972-83 period, net long-term capital inflows as a percentage of gross fixed domestic investment amounted to 92%. For this same interval the corresponding percentages for Singapore, South Korea, and Taiwan were significantly lower at 31%, 14% and 8% respectively, in part because gross domestic savings rates are higher in these countries than in Puerto Rico (Stewart, 1987). Moreover, it is not mere coincidence that in the late 1980's Singapore adopted a goal that half of total investment in manufacturing should be in local firms (Lockwood, 1988). Reliance on external capital, although significantly

contributing to economic development, does have its drawbacks, one aspect of which has been the growing gap between gross domestic product (GDP) and gross national product (GNP).<sup>2</sup> For this reason alone Puerto Rico should look toward its entrepreneurial class to stimulate higher levels of domestic savings and investment.

Over the past four decades a native Puerto Rican entrepreneurial class has remained relatively underdeveloped. Cochran's (1959) study of Puerto Rican entrepreneurs across all economic sectors found a mind-set among Puerto Rican businessmen inimical to entrepreneurial development. A study focusing

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<sup>2</sup> In the 1950s this gap was minimal, but it has grown by leaps and bounds during the past 20 years. Between the years 1988 to 1993 the absolute dollar amount of the gap averaged \$9.3 billion, or some 42% of GNP.

only on manufacturing carried out two decades later (Gapp and Mayne, 1978) concluded that one of the most important limiting factors to local business development was the lack of financing. A recent socio-political interpretation (González Díaz: 1991) of the lack of a dynamic domestic entrepreneurial class (in all sectors) attributes its low development level to the fact that it has channeled its energies toward activities complementary or subordinate to foreign companies, concluding that while there do exist Puerto Rican entrepreneurs there does not exist a Puerto Rican entrepreneurial class.

This paper has a dual purpose: the development of a profile of the Puerto Rican entrepreneur in the manufacturing sector and the identification of possible statistical relationships between successful entrepreneurs (and their companies), their personal traits, and the characteristics of their companies. The manufacturing sector has been chosen given its present day importance in the Puerto Rican economy. It generates two-fifths of gross

domestic product and the vast majority of exports, which by themselves constitute approximately nine-tenths of gross national product.

## II. Methodology

A structured questionnaire (see Appendix) was mailed to a stratified (by employment level in durable and non-durable branches of manufacturing) random sample taken from a universe of 904 (in 1990) domestic owners (i.e., Puerto Rico-born and/or long-time residents of Puerto Rico) of local manufacturing enterprises. It was sent to 135 company owners, with 104 completed questionnaires received after numerous follow-ups, including 23 personal visits.

Information was gathered regarding the personal traits of each owner/entrepreneur: sex, age, national origin, level of formal schooling of both the person and his/her parents, parental occupational category, age at time of entering the business, marital status, motivation in beginning the



business, initial assets, technical knowledge, and capital sources, governmental assistance received, perceptions of place in society, and personal satisfaction levels. Data were also generated on enterprise characteristics: length of time in business, employment levels, sales volume, input and market sources, technology used, market strategy relating to advertising, and problems most commonly confronted. In the cases of multiple choice questions, each alternative was taken as a dichotomous variable; i.e., it was given a value of zero if not chosen and of one if selected. Chi-square, discriminant analysis, and multiple regression techniques were subsequently applied (see Section IV).

### **III. A Profile of the Puerto Rican Entrepreneur and the Enterprise**

#### **A Personal Characteristics**

The term "Puerto Rican owner *current* entrepreneur" is defined in this study with certain flexibility. Three out of ten of the sampled persons were

actually born outside Puerto Rico. Of this 30%, almost half were from the United States and another 29% were from Cuba. These "non-natives" were nevertheless classified as Puerto Rican entrepreneurs given that they had demonstrated a long-term commitment to Puerto Rico.

The large majority (96%) are male. This contrasts distinctly with employment by sex within the manufacturing sector, which in the same time period (1990) was 53% male. Some 82% fell in the 35 to 64 age category, which again offers a contrast with the age bracket of manufacturing employees overall, where 57% appeared. This is not surprising, for it clearly takes a greater accumulation of skills and experience to move from a salaried position to one of ownership and own-capital risk-taking.

Two-thirds had university degrees, with some having a MA or Ph.D. Another one-fifth were high school graduates. At least one of their parents had also achieved a university degree in 27% of the cases, evidence that the sons far surpassed the parents in formal education attained. Given that only

43% of the Puerto Rican labor force had attained 13 or more years of formal education (high school plus at least one year of higher education) versus 76% for the sample, it is evident that formal educational levels are correlated with being an owner/entrepreneur.

Prior accumulated experience was important to having entered manufacturing operations, in that 83% had been in some manner previously linked to the area in which they are presently found. While 22% had always been in their present manufacturing branch, the remaining 61% had previously been salaried employees (administrators, managers, salesmen) in that branch. Interestingly, some 84% of their parents had worked in occupations that had required some measure of entrepreneurial skills: 25% as industrialists, 20% as independent salespersons, 14% as farm owners, 13% as managers, and 12% as self-employed or salaried professionals. In a sense, then, there is a "quasi-genetic" inter-generational association.

Some two-fifths had begun their business activities between the ages of 25 to 34, with another 30% having initiated ownership operations between the ages of 35-44. While having accumulated a certain amount of work experience and capital is important to the entrepreneurial function, that 40% had ventured into manufacturing before reaching 35 appears to place greater emphasis on certain personal characteristics (e.g., risk-taking) as opposed to long-term experience.

The principal reasons for having established their own business are quite varied: 27% cited the desire for personal independence, 13% that their father/family had been in the same line of business, 12% that they applied experience from previous jobs, another 12% the wish to supply goods that were not manufactured locally, and 11% to provide for a better retirement. Perhaps somewhat curiously, a mere 8% cited the desire for greater remuneration. Taken at face value, this study is dealing with a group of persons motivated by a distinctly mixed set of criteria.

With respect to the principal initial capital source to initiate business activities, it too is varied: personal savings (41%), commercial banks (30%), Puerto Rican development banks (15%). Given that under normal circumstances personal savings represent a fairly limited capital source and that the commercial banking system does not usually make long-term development loans, it can be concluded that most of this entrepreneurial sample began operations on a modest scale (as far as manufacturing activities are concerned).

Despite limited access to public sector development lenders, the large majority (83%) did receive some type of government benefit: tax exemption (37%), special government-provided incentives such as quality control and technical assistance (41%), and buildings rented from the government's Industrial Development Company (18%).

When queried as to the causes of the scarcity of Puerto Rican entrepreneurs, the responses were multiple: the government gives greater

priority to helping non-Puerto Rican entrepreneurs than to Puerto Ricans (19%), Puerto Ricans are too conservative (16%), Lack of capital (16%), Lack of incentives due to a social welfare system which inhibits the growth of entrepreneurial ability (14%), and external competition (13%).

## **B Enterprise Characteristics**

Of the sample companies 82% were organized as corporations, 14% as individual proprietorships, and 4% as partnerships. 72% had been initially founded by the owner individually or in partnership. 44% had been operating less than 10 years, 31% from 10 to 19 years, and the remaining 25% had been in business for 20 or more years. Overall, this is not indicative of a deep-rooted and long-term entrepreneurial class.

By bigger country standards, the employment and sales volume figures corresponding to these firms do not appear to be large. Nevertheless, by Puerto Rican standards they are substantial. As of the survey date 26% of the companies employed 10 or less persons, 33% had employment levels between

11 and 49, 20% between 50 and 99, and 21% had over 100 employees. In terms of the dollar value of sales volume, whereas 36% had annual sales volume under \$500,000, 14% moved from \$500,000 to \$1,000,000, 26% from one million to five million, and the remaining 24% grossed over five million. While the employment and unadjusted (for inflation) sales volume growth that has occurred in the large majority of instances since inception is not necessarily a valid indicator of recent business success and dynamism, it can be stated that, on the whole, the sample comprises a viable entrepreneurial base. By definition, of course, those that had fallen by the wayside in the past are not included in the sample.

Most of the firms have a domestic market orientation. While almost half of the firms do carry out some export activities, their *principal* clientele are: local wholesalers (19%), individual consumers (16%), local retailers (15%), governmental agencies (15%), other local factories (10%), and externally-owned firms located in Puerto Rico (8%). In other words, 83%

of the firms rely principally on the domestic market, while a mere 17% find their principal markets outside the island. Of this 17%, all export to the United States or the Caribbean, and the exported output is less than 10% of the total for the majority. Nevertheless, one-fourth of these exporting firms do export over 75% of their output, which brings out a significant dichotomy between those few firms which overwhelmingly rely on export markets versus the large majority which either do not export at all or export very little. In general, these data point toward a very poor export performance for an economy which depends to such a large extent on export markets. This implies at least two things: local entrepreneurs do not know how to export, and there might potentially be large scope for expansion by learning how to do so. Apropos this statement, over half the sample expressed interest in carrying out future export activities.

The principal difficulties encountered may be grouped under access to capital and high operational costs (28%), personnel problems such as



absenteeism and turnover (28%), and marketing/external product competition (21%).

#### IV. The Statistical Results

While the descriptive results summarized in Section III do throw some light on the behavior of the Puerto Rican entrepreneur, in order to gather a better understanding of such behavior several exercises using different statistical techniques will be applied in this section.

##### A Chi-Square Tests

As an initial approach to data analysis, the chi-square "goodness of fit" test is applied. This involves the simple comparison of expected and observed frequencies to determine if the discrepancy is or is not greater than might be expected to occur by chance.

**Table 1** demonstrates that firm employment levels, the number of years the business has been operating with the interviewed person as its owner, the

stratum (durables versus non-durables) to which the company belongs, the magnitude of export activities, the entrepreneur's national origin (Puerto Rican native-born versus non-native born but long-term resident of Puerto Rico), and the number of years of formal studies are all (statistically) significantly linked to the level of gross sales.

TABLE 1

Chi-Square Values for Cross-Tabulations Between Gross Sales and Selected Variables

Variables	Chi-Square	P-Value <sup>a</sup>
Employment Level	159.6	0.0000**
Years in Operation	86.0	0.0000**
Stratum	69.7	0.0000**
Export Activities	24.2	0.0015**
Entrepreneur's National Origin	14.7	0.0401*
Years of Schooling	33.6	0.0424*

\* Significant at 5% level.

\*\* Significant at 1% level.

a Denotes the probability that the chi-square value is greater than

the observed value, implying the strength of statistical

independence; i.e., the lower the value, the less the dependence

between variables.

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That employment levels and years of operation are strongly associated with sales is not at all surprising. This is simply a common sense result. Of greater interest is the breakout derived from cross-tabulations on the latter three variables:

1. Only 32% of the non-exporters in comparison to 73% of exporters had sales levels over one million dollars;
2. 43% of native-born Puerto Rican entrepreneurs versus 68% of non-native born were associated with companies that had sales over one million dollars;
3. 17% of manufacturers with less than a university degree in contrast to 83% of those with one generated sales over one million dollars.

From **Table 2** it can be observed which variables are closely associated with the extent of export activities.

TABLE 2

Chi-Square Values for Cross-Tabulations Between  
Export Activities and Selected Variables

Variables	Chi-Square	P-Value <sup>a</sup>
Employment Level	31.2	0.0001**
Imports from US	15.9	0.0002**
Stratum	20.2	0.0004**
Years of Schooling	18.1	0.0007**
Import Levels	19.2	0.0011**
Entrepreneur's National Origin	8.1	0.0047**
Local Purchases	7.3	0.0072**

\*\* Significant at 1% level.

a Denotes the probability that the chi-square value is greater than the observed value, implying the strength of statistical independence; i.e., the lower the value, the less the dependence between variables.

In this case some of the same variables (employment level, stratum, years of schooling, and entrepreneur's national origin) that cropped up in **Table 1** reappear, but new ones also enter (level of imports from the US,

overall import levels, and the magnitude of local purchases of inputs).

Additional information garnered from cross-tabulations reveals that:

1. 76% of the non-exporters and 36% of the exporters had employment levels of less than 50 persons in their factories;
2. 65% of the non-native born entrepreneurs versus 34% of the native born carried out export activities;
3. 89% of the exporters against 58% of non-exporters bought at least half of their manufacturing inputs from abroad; as a corollary, 38% of the exporters versus 64% of non-exporters made part of their input purchases from domestic sources.

In sum, this initial statistical approach yields certain insights as to those elements which are important to entrepreneurial success (as measured by sales levels): focusing on external markets, learning how to export, acquiring a solid academic base, and accumulating experience in running the business.

With respect to national origin, and despite the statistical dependence

between this variable and other characteristics, with one exception (the higher educational level attained by the parents of the non-native born) there appear to be no truly fundamental differences between native born and non-native born entrepreneurs:

1. There is no statistical dependence between the number of years the entrepreneur had been active in his business and national origin;
2. There is no statistically significant difference between the two groups as to years of formal schooling attained;
3. Singling out the non-native born group, there is no statistical dependence between sales levels and years of schooling, export activities, and the number of years the business had been operating.

## **B Discriminant Analysis**

The national origin comparison is further pursued in this subsection via the use of discriminant analysis, which permits the study of differences between groups with respect to several variables simultaneously.<sup>3</sup> At this juncture this statistical technique is applied to determine if years of schooling, the number of years in business, gross sales levels, and export activities can be used to assign the sample observations to entrepreneurs grouped on the basis of national origin; i.e., native born Puerto Ricans versus non-native born long-term residents of Puerto Rico.

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3 The canonical discriminant function, a linear combination of the discriminating variables that are formed to satisfy certain conditions, takes the following generalized mathematical form:

$$f_{km} = u_0 + u_1X_{1km} + u_2X_{2km} + \dots + u_pX_{pkm}$$

where  $f_{km}$  = the value (score) on the canonical discriminant function for case  $m$  in group  $k$ ;

$X_{km}$  = the value on discriminating variable  $X_j$  for case  $m$  in group  $k$ ;

$u_j$  = coefficients which produce the desired characteristics in the function.



The results of this exercise are picked up in **Table 3**. From the first function (Part A) which includes all four above-mentioned variables, it is seen that the incorporated variables are not statistically significant; i.e., the observations cannot be assigned on the basis of national origin. Note that 37% of them are incorrectly assigned.

From Part B it can be noted that elimination of two of the variables (schooling and experience) does produce levels of statistical significance attached to the two remaining variables, sales and export levels. This implies that what does somewhat explain the differences between the two entrepreneurial groups are these latter two variables. Thus, once again the need to export (and to learn to export) stands out as the crucial ingredient in entrepreneurial success in Puerto Rico.

**TABLE 3**

Discriminant Analysis: Native Born Versus Non-Native Born Entrepreneurs

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A Schooling, Years, Sales, and Export Function

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<u>Variab les</u>	<u>Coef fi ci ent</u> <u>Val ue</u>	<u>St andar d</u> <u>Error</u>
Years of Schooling	0.067	0.268
Years in Business	0.176	0.189
Gross Sales Level	0.230	0.160
Export Activities	0.860	0.563

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F - Value = 3.28

36.5% of observations incorrectly classified.

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B Sales and Export Function

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<u>Variab les</u>	<u>Coef fi ci ent</u> <u>Val ue</u>	<u>St andar d</u> <u>Error</u>
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Gross Sales Level	0.277*	0.148
Export Activities	0.925*	0.526

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F - Value = 6.19

35.6% of observations incorrectly classified.

\* Significant at 10% level.

## C Regression Analysis

To this juncture both chi-square tests and discriminant analysis offer viable evidence as to the factors which are important to entrepreneurial success in Puerto Rico's manufacturing sector. To obtain an even better understanding of these factors, the focus now switches to the use of multiple regression techniques.

The regression results reported in **Table 4** include the entire sample, and take gross sales levels as the dependent variable. As may be readily observed, formal education, years of experience, and export activities emerge as direct and statistically significant determinants of sales. Clearly, schooling, learning to export, and dedication to the job are important elements in the entrepreneurial function. In other words, there are generally no shortcuts to success other than hard-nose preparation and work. That the adjusted determination coefficient reaches a value of .3201 is certainly

acceptable, given the inclusion in the model of both quantitative and qualitative variables.

**TABLE 4**

Factors Associated with Gross Sales Levels

Explanatory Variables	Partial Regression Coefficient	Standard Error
Constant	1.465	0.823
Entrepreneur's National Origin	-0.485	0.341
Years of Schooling	0.345*	0.166
Years in Business	0.407**	0.111
Export Activities	1.071*	0.345

\* Significant at 5% level.      adj. R<sup>2</sup> = 32.01  
 \*\* Significant at 1% level.      F-Value = 13.12

Of note is that, for the entire sample, the national origin of the entrepreneur (Puerto Rican born versus foreign born) does not emerge as significant. Subsequently, the regressions found in Parts A and B of Table 5 were run. In Part A the same independent variables used in the Table 4 regression were included, but in this case the subsample incorporated only Puerto Rican born entrepreneurs. The results are very similar to those reported in Table 4, with the "explained" variations in gross sales slightly rising to 36%. On the other hand, in reference to Part B of Table 5, not a single one of the independent variables demonstrated any explanatory power in the case of the non-native born entrepreneurs. This appears to be due to the importance that export activities play in explaining sales levels. The foreign born entrepreneurial group contains a high proportion of exporters. Consequently, the export variable loses significance in a group where two-thirds do a significant amount of exporting. In other words, the marked

differences in gross sales between Puerto Rican born and foreign born have a great deal to do with access to export markets.

**TABLE 5**

Factors Associated with Gross Sales:  
 Puerto Rican Versus Non-Puerto Rican Entrepreneurs

<b>A Puerto Rican Entrepreneurs</b>			
Explanatory Variables	Partial Regression Coefficient	Standard Error	
Constant	0.584	0.703	
Years of Schooling	0.593**	0.199	
Years in Business	0.429**	0.128	
Export Activities	1.212**	0.414	
** Significant at 1% level.		adj. R	= 36.45 F - Value = 14.77

TABLE 5 (Continued)

Factors Associated with Gross Sales:  
Puerto Rican Versus Non-Puerto Rican Entrepreneurs

**B Non-Puerto Rican Entrepreneurs**

Explanatory Variables	Partial Regression Coefficient	Standard Error
Constant	4.225	1.274
Years of Schooling	-0.247	0.285
Years in Business	0.267	0.244
Export Activities	0.764	0.591

adj. R<sup>2</sup> = 1.36

F - Value = 1.14

**V. Reflections and Policy Implications**

That three out of ten of the entrepreneurs in the sample supporting this study had non-Puerto Rican origins supports the hypothesis regarding the relative dearth of a native Puerto Rican entrepreneurial "talent bank". When



this is taken in conjunction with the historical preponderance of external capital as a financing source for investment in the manufacturing sector, the need to somehow stimulate a domestic entrepreneurial class becomes apparent.

Of course, such a need is easily remarked upon, but what can be "done about it" (if anything) is a far more difficult proposition. For starters, are entrepreneurs born or made? Can an entrepreneur be nurtured within the context of some policy mix? This is simply a variation on the genes versus environment issue. For the future of Puerto Rico this is not merely an academic question, and the recent (1993) changes in Section 936 legislation emphasize the critical importance of generating more capital domestically.

In this regard, there is some reason for optimism. According to data from the Economic Development Administration (Fomento), in 1965 the 1625 locally-owned manufacturing establishments generated some 40,000 jobs, or 36% of total manufacturing employment. By 1985 the local share had fallen to 25.8% of total generated employment, but by 1992 it had increased to 28.7%.

In this latter year locally-owned manufacturers operated over 1200 factories and employed almost 44,000 persons. Not surprisingly, it was in the light manufacturing branches (e.g., food, clothing) that the bulk of this employment is found. However, these figures do not distinguish the national origin of the "local" owner other than to state that he/she is a long-term resident of Puerto Rico.

It is evident from the preceding analysis that the following factors are related to entrepreneurial success: formal education, discipline, maturity, stability, self-esteem, the need for independence, being a self-starter, access to capital, and experience in exporting cum knowledge of export markets. ~~What~~, if anything, can be done as a policy measure to ~~hold~~ personal characteristics is an unknown. ~~Where~~ (public) policy may be able to play a role is in the provision of access to capital and in increasing knowledge of "how to export". This is consistent with what is already known

regarding the positive and direct links between international trade, the spread of technological change, and economic development.

There *is* a role for public policy in this equation. The recently established (1992) Economic Development Administration's FOMEXPORT program is giving technical assistance to smaller exporters. From the present study it can be concluded that such a program might be expanded---after a careful cost-benefit analysis; the last thing needed is the expansion of a governmental program that only generates benefits for more bureaucrats. A one-stop agency for exporters, which combines all Puerto Rican and US entities involved in export activities, should be established. The two Puerto Rican government development banks might develop healthier loan portfolios to the manufacturing export sector without generating explicit or implicit subsidies; i.e., loan analysis should be carried out on solid commercial terms.

Moreover, that 89% of exporters and 58% of non-exporters bought the bulk of their inputs externally leads to the conclusion that lending policies should

pay more attention to beefing up backward linkages. It might even be wise to take another look at a long-standing proposal to establish in Puerto Rico a Center for Entrepreneurial Development.<sup>4</sup> Given the correct selection of human resources being funneled into such a program, it just might be possible to provide the marginal boost needed to "create" a Puerto Rican entrepreneur.

This is not as far-fetched a proposal as might appear at first glance, for example, as Hull et al. (1980) have found, it is feasible to design tests via which it may be possible to identify individuals on the basis of their "entrepreneurial potential".

Finally, the numerous strategic policy measures, especially those linked to tax/venture capital incentives, proposed (in 1994) by the Puerto

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4 See Añeses y Asociados (1988).

Rican government in an attempt to reorient economic development strategy, is certainly a step in the right direction.<sup>5</sup>

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5 See Consejo de Productividad Económica (1994).

## Appendix

### Questionnaire used in the Survey



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