RELIABLE DATA FOR MONITORING THE FORMAL INDUSTRIAL SECTOR

The annual survey of industry

by Mireille Razafindrakoto

Although monitoring formal industrial activity is, in principle, a routine activity for national statistics institutes, very few African countries have genuinely reliable data available on the sector. Macroeconomic diagnostics rely heavily on information on productivity, and in particular manufacturing productivity. In the case of Madagascar, awareness of trends in the country's industry is essential, given that the sector has been given a key role in the country's development strategy and process of opening up. The Malagasy experience of an annual survey of industry therefore illustrates the possibility of implementing a solid and reliable system for analysing changes in the formal industrial sector, and the benefits of doing so.

There are very few countries where statistical data on the industrial sector are non-existent. Monitoring industrial activity, or at least formal industrial activity, is usually a routine matter for national statistics institutes or the ministries responsible for statistics. It should not therefore present major difficulties. Indeed, most of the countries of Sub-Saharan Africa which are members of Afristat have a system of monitoring industrial production and produce accounting data on production (Afristat, 1998). What is therefore the interest in highlighting the Malagasy experience to illustrate the implementation of a statistics system for the formal industrial sector?

Firstly, appearances are often misleading with regard to the statistics that are assumed to be standard on the countries of Sub-Saharan Africa. Data on industry are provided by international yearbooks. They come from surveys carried out in the countries concerned and, by dint of the fact that they are in the yearbooks, have, to a certain extent, been endorsed by institutions whose reputation cannot be questioned (the World Bank, UNIDO (the United Nations Industrial Development Organisation), ILO (International Labour Organisation), etc.). However, even a cursory analysis of the way in which the statistical operations have been carried out disappoints observers initially impressed by the availability of information. Most often, the problem lies in the quality of the data. Many statisticians take short cuts under the pretext that it is difficult to do better because of a lack of material or human resources. Analysts, after churning out a ritual introduction bemoaning the lack of reliable data, appear *in fine* to regard the problem as secondary (Naudet, 1999).

In addition, the importance of having high-quality statistics on the industrial sector seems to have receded as the strategic priorities advocated by international institutions have changed. Whereas in the 1980s there was a clear interest in having information on the manufacturing sector, since emphasis was being placed on the industrialisation of developing countries, high-quality data

in this area now appear to be far from essential[1]. Efforts to improve knowledge of the industrial sector have thus become limited in the countries of Sub-Saharan Africa.

This article aims to use the Malagasy experience to show how it is possible to set up a solid and reliable system to monitor the formal industrial sector and to demonstrate the interest in doing so. Information needs are driven by an awareness of their potential use. At the same time the durability of the system depends largely on benefit being gained downstream from the results obtained.

This article will begin by presenting the background and the challenges of implementing a reliable system in Madagascar. It will then go on to describe the methodological choices made to monitor the formal industrial sector. The third and fourth parts of the article will indicate the main difficulties encountered and the ways of resolving them. Finally, the article will summarise the results produced and demonstrate the interest of the system implemented.

Background and challenges

Serious gaps in the system of information ...

In 1994, information on the industrial sector in Madagascar was particularly sketchy. This may seem surprising in view of the wide range of sources of information available. The Ministry for Industry had been carrying out a quarterly survey with the support of the UNIDO since 1990. Instat had been collecting monthly information on industry since 1970. The Ministry for Planning had carried out a business survey on all enterprises (in the industrial and service sectors) in 1991, 1992 and 1994. Ad-hoc surveys had also been carried out, particularly on the free-zone enterprises. Finally, the Ministry for Labour had also been collecting statistics on employment from the country's major businesses. Although the number of various surveys might, initially, have been viewed in a positive light, it was in fact merely a symptom of the serious shortcomings to be found in each of the surveys. It was also indicative of the coordination problems that existed between the institutions.

Detailed diagnosis of the methodology and the results of the various collection operations highlighted the weak points of the information system in the industrial sector (Razafindrakoto, 1994a). None of the sources was complete or reliable, so much so that it was difficult to judge whether the industrial sector had grown or shrunk over previous years. A comparison of the analyses resulting from the different sources also revealed major discrepancies in industrial activity trends (Razafindrakoto, 1994b; Randrianarison, 1995). In fact, two major faults were common to the various surveys.

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[1] Funding from donors in terms of support for the statistics system has focused more on household surveys. In particular, the statistics system for health and education has been consolidated (Afristat, 1998).

Firstly, because there was no precise sample design, none of the surveys used a representative sample. The most recent relatively reliable census of businesses was more than ten years old (1984). Since then, no serious attempt had been made to update the files so that they could be used as a sampling frame. Instead, the tendency had often been to base surveys on a few large businesses. The underlying philosophy was that this was sufficient to assess changes in the sector. It is, however, a far from satisfactory solution, and even produces erroneous results, since the objective is to produce a macroeconomic snapshot and not simply microeconomic information on a few selected businesses. Overall, the importance of survey quality, and in particular of the scope, has been identified by Séruzier (1998) and Desrosières (1998) as essential to the production of macroeconomic data, and in particular accounting data.

Secondly, the data collected were rarely used. Some surveys had apparently never been exploited. Where analysis documents existed, they were often too succinct, limiting themselves to a succession of tables. It was therefore difficult to be persuaded of their utility.

Other problems related to the formulation of the questionnaire (too unwieldy or incomplete) and to the organisation of the collection in the field, not to mention the absence of a coherent, global policy for the publication and dissemination of the results of the various collection operations.

... For a sector meant to be a driving force

Despite its relatively small contribution to GDP, the industrial sector plays a major part in Madagascar's economic development. The policy of liberalisation pursued by the authorities since the mid-1990s has turned the emergence of the private sector, and in particular the industrial export sector, into the spearhead of the country's development strategy. However, the sector is more than emblematic. Analyses of the country's macroeconomic outlook show that the growth in domestic production, particularly in terms of products manufactured, and the increase in private investment are signs that the Malagasy economy is on the road to sustainable growth (Razafindrakoto and Roubaud, 1998). As the country opens up, opportunities on the external market, particularly for free-zone enterprises are far from negligible. In addition, the sharp increase in imports is a further sign of an expanding internal demand which, not being met locally, may exacerbate the external deficit. In view of all these factors, the lack of reliable information sources on developments in the industrial sector since the end of the 1980s was particularly problematic. The paradox of the situation was highlighted by the 1-2-3 survey carried out in 1995 under the Madio project, which almost resulted in more information being available on the informal sector than on the formal sector[2].

The availability of information on the industrial sector affects the transition process in Madagascar at several levels. Firstly, the government uses this

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[2] See the article on the 1-2-3 survey by Faly Rakotomanana, Rachel Ravelosoa and François Roubaud in issue 27 of InterStat

information to define, direct and assess economic policy (since any assessment of the country's direction must be based on familiarity with the dynamics of the productive sector and thus industry as a whole). Private operators also need data to be aware of the environment in which they are growing, to better manage their businesses and to thus increase their efficiency. Finally, the democratisation advocated by the major international institutions in all countries depends on an ability to mobilise sufficient information. In concrete terms, entrepreneurs, who represent a section of civil society and play an important role in the economy, can exert pressure on the government and influence the way in which national issues are managed on the basis of statistics documenting the impact of policies. There is therefore no doubt about the need for a reliable system for monitoring changes in the industrial sector. Based on these conclusions, the Madio project implemented an annual survey of industry in 1995.

The methodological choices

The objectives

In view of the almost non-existence of quality statistics on industry, two main objectives were identified for the annual survey of industry (ASI).

The primary goal was to find out more about Malagasy industry by means of a national survey, to quantify its role in the economy, and observe its main characteristics. Apart from its structural variables, interest was focussed on the economic performance and behaviour of the formal industries. Finally, the outlook and the problems encountered by operators were to be reviewed so that the main obstacles to industrial growth could be identified and, if possible, removed.

The second objective was to set up a continual system of monitoring for this strategic sector, since an industrial survey would lose some of its interest if it was not continuous, and economic policy cannot be effectively directed if changes of direction in industrial dynamics, their limitations and the means to redirect them are not tracked in real time.

The scope of the survey

The survey covers all formal industrial enterprises with a presence in Madagascar.

Each enterprise fills in one questionnaire, even if it consists of several establishments. Although it would have been preferable to carry out the survey at each establishment, the choice of the enterprise as the survey unit is based on three limitations:

- Accounting for establishments is often carried out at head-office level (consolidated accounts);

- A number of qualitative data (for example, on future perspectives) can be provided only by a head office;
- The most up-to-date available database (the Minas Directory[3]) lists only the head offices of businesses.

The first criterion chosen to define the scope of the annual survey of industry was the enterprise's **administrative registration**. The survey therefore relates to industrial enterprises whose establishments have been assigned a statistical number, since registration with Instat is, in principle, a mandatory step in the formal registration of an enterprise.

However, this criterion seemed insufficient to cover all of formal industry and to establish a boundary with the informal industrial sector.

On the one hand, a number of enterprises which should have come under the scope of the survey (because of their status, activity, mode of operation or size) were not registered with Instat. This was the case in particular with certain enterprises approved under the free-zone system or the investment code. It was clear that the latter must be included in the survey. Except where they are deliberately exercising a clandestine activity, these enterprises at least appear in an administrative file (for example, with the Ministry for Industry, the customs service, the inland revenue, the national social security fund, etc.). Cross-checks of the various files would enable the sampling frame to be completed.

On the other hand, some registered enterprises run operations in a style which is closer related to the informal sector than the formal sector, often neglecting to keep formal written accounts. This problem relates in particular to individual firms (which are *a priori* small). But, in view of the difficulties in knowing in advance their mode of operation, we limited our scope to all registered enterprises. Businesses of the informal sector can then be identified when the data are exploited by means of a specific question on the keeping of formal accounts (balance sheets, production accounts or simplified accounts for declarations made to the inland revenue). This approach also enables us to assess the number and characteristics of establishments that have a statistical number but can be classified under the informal sector.

The second criterion used to define the scope of the annual survey of industry was the **activity sector**. All industrial sectors (including the mineral-extracting industry and agro-industry) are covered by the survey. Enterprises working in the construction and public works industry between the secondary and tertiary sectors are also included in the survey. It should also be mentioned that the scope of the survey also includes arts and crafts businesses that are formally registered, since the borderline between arts and crafts and "modern" industry is not clearly defined.

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3 A directory compiled by a private service company for other businesses.

Simple criteria are therefore used to define the survey's scope in order both to make it easier to collect data and to cover the entire formal industry of Madagascar. (Informal industry had already been covered by the 1-2-3 survey of the Madio project.)

The sample design

The sampling frame was drawn up from various sources for the first version of the survey in 1995 (see Box 1). It is updated every year: enterprises whose disappearance was confirmed in the field during the previous survey are removed, and new, registered set-ups recorded in Instat's file are added.

The sampling frame is divided into four strata or segments, depending on the legal status of the enterprises and their tax system. The way in which the sample of enterprises for the survey is selected varies according to the segment.

The first segment comprises **public limited companies** outside the free zone, which are almost always large businesses in terms of staff, turnover and production[4]. The coverage of these companies in the survey is exhaustive.

The second segment consists of **private limited companies** outside the free zone[5]. These are usually medium-sized. The survey is exhaustive for a first sub-group made up of large businesses. In the second sub-group, created on the basis of Instat's register of establishments, sampling is stratified according to activity sector.

The third segment comprises the **individual firms**. The survey is carried out on a sample of firms taken from Instat's register of establishments, stratified according to two criteria: activity sector and province[6]. In view of the large number of individual firms, the sampling rates are much lower than for the second segment. The rates may vary considerably between the sectors, since we ensure that a minimum number of enterprises represents each sector in the survey sample.

Finally, the fourth segment identifies the **free-zone enterprises**, regardless of their legal status. The survey is exhaustive for these enterprises in view of their low number and the interest in recording their specificity and dynamics[7].

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4 This group also includes state-owned companies and mixed-economy companies. Cooperatives or associations known for their large size are also included.

5 Cooperatives and associations falling within the scope of the survey are classified with the private limited companies, except for those known for their large size.

6 Apart from the enterprise's name and legal status, the only other variables recorded in Instat's register of establishments are the activity sector and the address.

7 Whereas in the first year (1995) only industrial enterprises were included in the scope of the survey, in the following years free-zone enterprises working in the service sector have also been included. This decision is justified by the need for information on the free zone as a whole. However, the service enterprises are removed when the data are exploited.

Box 1 Constitution of the sampling frame

The existence of several administrative sources (Razafindrakoto, 1994a) enabled a sampling frame of industrial enterprises to be created for the first annual survey of industry in 1995. A working party was set up under the Madio project with the support of a number of institutions (Instat, the inland revenue, Ministry for Industry, UNIDO, the national social security fund, and the customs service) to create the basis for cooperation between these various partners. The main objective of the working party was to compare and update the various administrative files. This was, however, a long-term project because, in particular, the various files also included tertiary-sector establishments, and, because of the urgent need for reliable statistics on industry, we did not therefore wait for its completion.

Instead, the largest industrial businesses which appeared to be active were identified by means of laborious cross-checking and using specialist knowledge. Around 800 enterprises (public limited companies, state companies, mixed-economy companies, and a few private limited companies) were selected. To complete this initial stage, we used:

- *Instat's register of establishments (2,293 companies): this register does not record the disappearances of companies. Businesses created in the 1960s and which ceased to exist a long time ago are therefore still included in the register;*
- *the Ministry for Industry's file (1,525 companies);*
- *the register of companies who exported or imported in 1992;*
- *the file of businesses included in Instat's 1993 and 1994 surveys;*
- *the file of enterprises from the Ministry for Planning's business survey;*
- *the Indian Ocean Commission's register of companies;*
- *the Minas Directory produced by a private company and providing relatively detailed up-to-date information on businesses in Madagascar.*

Following on from this initial identification of the major companies, four groups of enterprise (segments) were formed within the sampling frame.

Segment 1: public limited companies outside the free zone

This segment consists of previously-identified large businesses which are public limited companies (outside the free zone), together with recently-created public limited companies (which are therefore less well-known and may not be included in previous registers) recorded in Instat's register of establishments.

Segment 2: private limited companies outside the free zone

To ensure that the survey covers all enterprises in the formal industrial sector, smaller, less well-known businesses than those of Segment 1 must be included. Thus, a second sub-group of private limited companies made up of other businesses in Instat's register of establishments were added to the list drawn up in the first stage.

Segment 3: individual firms

In view of the high number of individual firms, we adopted a different strategy from that used for the companies above. Since the criterion chosen to define the scope of the survey was registration with Instat, Instat's register of establishments was used to make up the sampling frame. This register included around 26,000 individual establishments, of which around 5,000 are active in construction and public works, 7,000 in textiles and 3,000 in the agri-food business, and around 23,300 are industrial individual firms. Of the latter, addresses were available for only 13,000. Only this sub-group was retained, as we assumed that most of the establishments without an address no longer existed in official form.

Segment 4: free-zone enterprises

For this segment, we had to draw up as complete a list as possible of all the free-zone enterprises from the list of approvals granted by the Ministry for Industry, since applying for approval is mandatory for free-zone enterprises wishing to exercise their activity. This list was not really up-to-date and the addresses of the enterprises were not always mentioned.

Since, initially, we preferred to set the objectives in terms of the number of enterprises actually included in the survey (sample sizes), and we were at an exploratory stage, the sampling rates applied for the private limited companies and the individual firms varied from year to year, depending on the number of newly-created and disappeared enterprises. After a few years of surveys, these rates have tended to stabilise, since the demographic dynamics of the businesses are better known, and the number of businesses included in the survey (around 800 in total) are judged sufficient to provide reliable data. The sampling rates are therefore around 30% for private limited companies and approximately 5% on average for individual firms.

The questionnaire

The questionnaire of the annual survey of industry consists of three parts: a reply file (separate from the questionnaire), a quantitative part and a qualitative part.

The aim of the **reply file** is two-fold: firstly, it allows the progress of the survey to be monitored, and secondly it can be used to calculate the weightings needed for exploitation of the data. It must be scrupulously managed and also fully completed, even for enterprises that are no longer active, but included in the survey's scope. The following information is recorded in the file:

the variables identifying the enterprise (company name, address) which are not included in the actual questionnaire in order to ensure the survey's confidentiality[8];

the variables used to calculate the weightings: the sector, the segment, a variable identifying the size, and a variable providing information on whether or not it is an old enterprise (and, in which case, whether or not it responded to the previous annual survey of industry) or a newly created one;

the progress of the survey: the dates on which the questionnaire is sent and returned, the number of passes, the level of completion and the reasons for non-completion.

The **quantitative questionnaire** is relatively standard and consists of six modules:

- an identification module detailing the date on which the enterprise became active, its legal form, its tax system, the form of its capital (public, private, foreign), whether or not it has kept accounts and over which period, and its activity sector;
- a module on the enterprise's results, detailing the main accounting variables for net production;

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8 Only the identification numbers are given in the actual questionnaire and in the exploited files.

- a module on the (permanent or temporary) staff in terms of socio-professional category and staff costs;
- a module on the raw materials and other external charges giving the value of the (local and imported) inputs and the changes in the unit prices of the main products and their weighting in the total value of the raw materials to evaluate the volumes;
- a module on the sales and receipts giving the amounts on the local market and the export market and the changes in the unit prices of the main products and their weighting in the total value of sales to evaluate the volume dynamics;
- a module on investment and its financing, and on the value and type of fixed assets.

The **qualitative part** of the questionnaire comprises a fixed module, applied every year, on the activity conditions and future outlook. Managers are asked to assess the economy and forecast the performance of their own enterprise (production trends, investments and prices). There are also other modules which change every year. These are defined on the basis of topical issues and in line with requests made by public institutions or groups of economic operators:

- in 1995, a specific module was dedicated to the free-zone enterprises in view of the catalytic role planned for them in the following years;
- in 1996, the issues addressed were the restrictions and challenges of Madagascar's economy and industrialists' view of economic policy;
- in 1997, the issue of taxation was addressed, together with the problems of managing human resources (wage and social policy);
- in 1998, industrialists were asked for their opinion on four topics: credit access, competition and the market, state reform, and privatisation and the opening up of the country to foreign investment.

Organisation of the operations

The timetable for the operations of the annual survey of industry is presented in Figure 1, and the manpower mobilised and the work organisation are summarised in Box 2. To ensure the collection is of the highest possible quality, interviewers are sent to deliver questionnaires and collect them at the end of a specified period, rather than sending the questionnaires through the post[9]. Field operations are conducted by Instat's offices at provincial level. The central team carries out the survey in the capital, an area of high enterprise density.

The quality of the collection depends to a great extent on the abilities and determination of the approximately fifty interviewers, led by a dozen

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9 This was the method used for the business survey carried out by Instat, which was used to calculate the industrial production index, and the poor quality of which was mentioned above.

supervisors, who have a difficult task in the face of reluctant entrepreneurs[10]. They must locate the enterprises (whose addresses are not always exact), convince the entrepreneurs of the interest of the survey (in particular, by presenting the results of previous annual surveys of industry), prompt their replies, help the heads of individual firms to fill in the questionnaire[11], and finally check the quality of the information provided (data consistency, whether or nor the key variables of the questionnaire have been answered).

Experience shows that this collection phase in the field lasts four to five months. To reduce this time, or at least remain within it, it is essential that awareness be raised among the enterprises. To this end, several ideas have been implemented:

- Co-sponsorship of the survey by Instat and two organisations representing the main groups of industrial operators (the National Council of Industry and the Competitiveness Research Committee) has been instituted. These groups are thus involved in drawing up the questionnaire, and then remind their members of the importance of participating in the annual survey of industry.
- The summary of results of the previous annual survey of industry is distributed to all the enterprises surveyed.
- A copy of the full report of the previous annual survey of industry is given to each of the interviewers, so that they can present it to entrepreneurs who have doubts about the interest of the operation. The copies are recovered at the end of the survey.
- Media items (on television, radio and in the written press) on the annual survey of industry and its results have been multiplied to give the operation a better chance of success.
- Finally, short messages about the start of the survey and its objective and to prompt reluctant enterprises are also broadcast and published in the media at the start of field operations and one and a half months before the official end of the collection.

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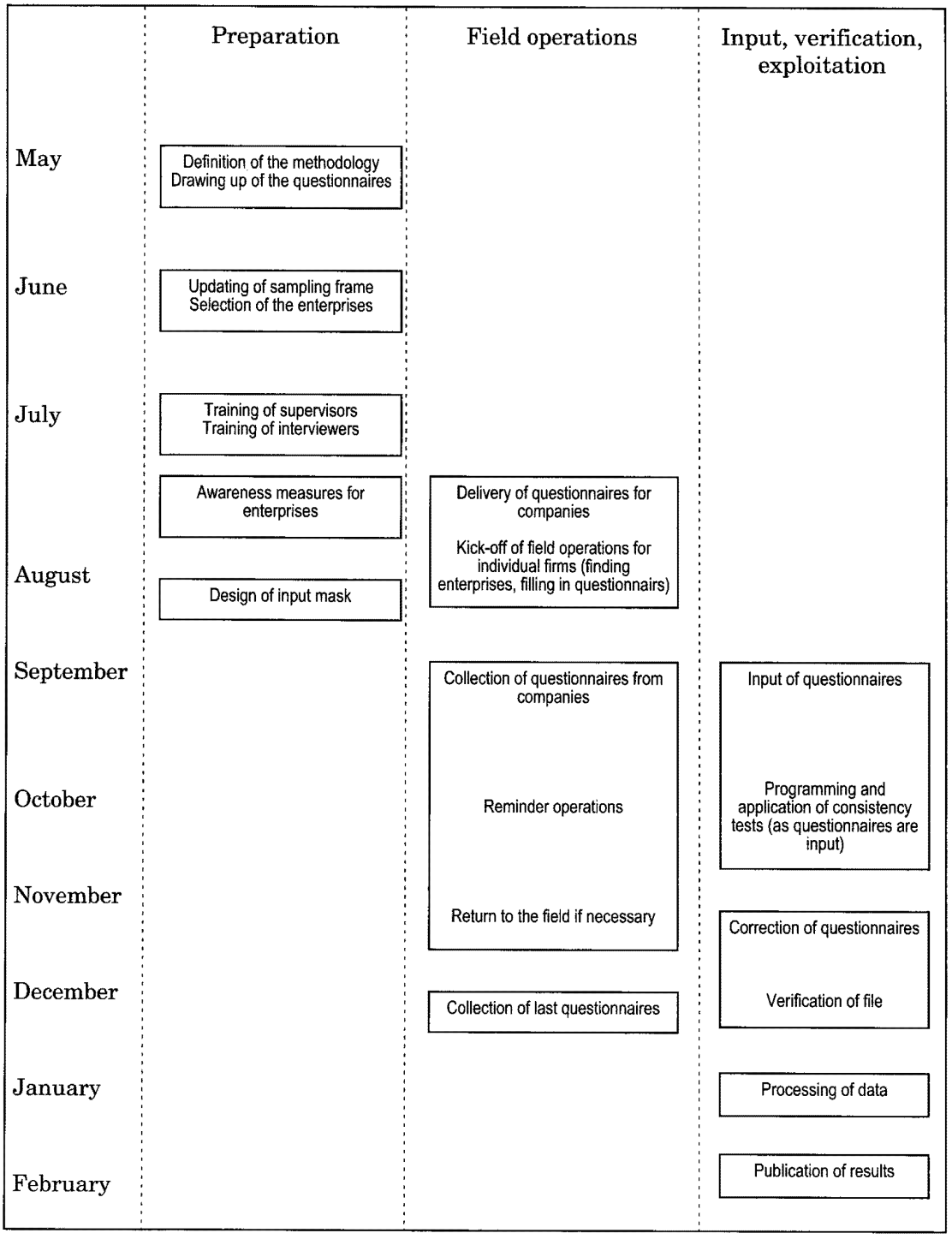
[10] This problem of the reluctance to provide information is referred to below. The annual survey of industry is an official survey and therefore compulsory, but the fine meted out to enterprises which refuse to respond is ridiculously low (2 000 Malagasy Francs). This difficulty, which is peculiar to business surveys, is not encountered in household surveys, at least in Madagascar.

[11] Most heads of individual firms do not keep very precise accounts.

Figure 1 Schedule of operations



Box 2 Human resources and work organisation

The annual-survey-of-industry team consists of:
- *a general coordinator for the entire operation;*
- *a coordinator for operations in the field;*
- *an input coordinator;*
- *statistical economists to analyse the data;*
- *12 collection supervisors;*
- *48 interviewers;*
- *5 input supervisors;*
- *15 input operators.*

Collection
Number of enterprises contacted per interviewer (on average): 40
Number of survey weeks for individual firms: 7
Number of survey weeks for companies: 15
Total duration of collection operation:
- *number of effective weeks (including waiting times): 22*
- *number of weeks equivalent to full time: 11*

Input
Number of questionnaires to be input: 810
Number of reply files to be input: 1500
Number of questionnaires input per day per operator: 5
Number of reply files input per day per operator: 30
Number of questionnaires input per operator: 54
Number of reply files input per operator: 100
Number of days of input: 15
Total duration of input: 3 weeks

Verification and analysis
Verification and weighting calculation:
- *number of persons used (among coordinators and supervisors): 2 or 3*
- *duration of this phase: 3 weeks*

Processing of data and presentation of the initial results:
- *number of persons used: 5 or 6*
- *duration of this phase: 2 or 3 weeks*

Total duration of verification and analysis phase: 5 weeks

The difficulties

Drawing up the sampling frame: a dull but essential step

The drawing up of a sampling frame has been complicated by the lack of a complete, up-to-date database on industrial enterprises. The impact of this lack of information was greater than expected on the first year of the collection operation. The 1995 annual survey of industry was therefore referred to as an industrial census (IC95) in view of the aim of drawing up an exhaustive list of major enterprises and a wide, representative sample of small ones. Various problems were encountered, particularly with regard to individual firms and small private limited companies:

- the difficulty of locating the businesses because of incomplete addresses;
- the existence of bogus firms which had given false addresses;
- the high number of service or commercial enterprises registered as pursuing industrial activities in Instat's register of establishments;
- enterprises which were listed in Instat's register of establishments, but had been out of existence for more than ten or even fifteen years: the rate of disappearance of individual firms from the register of establishments proved to be particularly high: of the 600 individual firms of the initial sample of 1995, only 250 were still active (some of which proved to be outside the scope of the survey).

The lack of meticulousness and professionalism in the management of Instat's register of establishments remains a source of difficulty each year. However, this cannot be avoided, because there is no other exhaustive source which would allow us to update the sampling frame. Some enterprises are therefore wrongly classified (wrong sector code); information is not always complete (especially the addresses); there are delays in inputting records of newly-created enterprises, thus preventing the availability of a complete, up-to-date list; and, finally, the system for operating Instat's register of establishments, which has become obsolete, causes compatibility problems with the standard modern systems used on PCs[12].

Field operations: an uphill struggle

Since businessmen in Madagascar believe that discretion is essential to success[13] and administrative authorities are less than meticulous in recording information on enterprises, it is hardly surprising that some establishments are extremely difficult to locate. Various sources therefore have to be used to find out their exact address: telephone directories, the Minas Directory on businesses, information from groups of economic operators, information from competitors, etc. Finally, if exact addresses are still not forthcoming, interviewers are asked to carry out investigations in the neighbouring area.

Apart from the problem of locating enterprises, the reluctance of industrialists to reply to the survey constitutes a major difficulty. Convincing them of the interest of the annual survey of industry has taken a good deal of energy, particularly in the first survey in 1995. Until then, entrepreneurs had been submerged in questionnaires from various government departments, without being informed of the results or the impact of the surveys being undertaken. Public institutions were in such disrepute that carrying out the annual survey of industry, an official operation, was an arduous task.

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[12] In 1997 for example it was necessary to work on the listings manually to complete the sampling frame.

[13] This is no doubt in part due to a desire to bypass the tax authorities, but also to avoid competition or arouse jealousy towards a prosperous activity.

Following major awareness work, and the keeping of promises to communicate the results of the annual survey of industry, there are now few entrepreneurs who still remain recalcitrant. However, if doubt about the interest of the survey has, to a large extent, dissipated, businessmen are far from making participation in the annual survey of industry one of their priorities. On average, interviewers have to return a little more than twice to obtain a completed questionnaire (four times or more for more than 20% of businesses)[14], not to mention reminders made by telephone[15]. Complaining of heavy workloads in a difficult economic climate, company heads do not keep their promises and continually put back the date they had agreed on for returning the questionnaire.

Unavailability of information is also an argument regularly used by entrepreneurs to request extensions to the return of the questionnaire. A number of them are in fact several months behind in their accounts. However, prolonging the survey period to give enterprises more time would counter the need to have results available quickly. Since accounts for year *n* should, in theory, be closed and sent to the tax authorities at the end of June in year *n+1*, the information is collected from August to December. The results of the annual survey of industry are therefore available at the start of year *n+2*. If the dynamics of the industrial sector are to be effectively monitored in real time, it is not possible to extend the deadline for publication of the results. In any case, experience shows that pressure and strict deadlines need to be applied, as entrepreneurs often leave their reply to the survey to the last minute.

The verification and weighting calculation phase: where meticulousness is the key

In view of the smaller size of the sample in comparison with household surveys, and of the heterogeneous nature of the surveyed units, greater accuracy is required to ensure the reliability of the data collected. The figures provided by the large enterprises, which significantly influence the diagnostic of trends in the industrial sector, require particular attention. Meticulous verification is required to ensure consistency within each questionnaire and with data from other years. A large number of tests are therefore carried out on the returns from the field in the verification phase.

The refusal of some large businesses to take part in the survey[16], despite the efforts made and the delays agreed, also complicates the weighting calculation,

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[14] In the 1997 annual survey of industry, where exact records were kept of the number of returns, there were 11 major enterprises whose information was essential to the survey's quality to which the interviewers and/or supervisors had to return more than 10 times before obtaining the questionnaire (the record was 16 times).

[15] In 1995, more than 250 telephone calls had to be made by two supervisors specifically responsible for prompting reticent enterprises. In 1997, around 100 calls were recorded in the survey progress files for free-zone enterprises alone.

[16] It should be stressed that, in the case of a few very large enterprises, it is considered essential to obtain at least the profit-and-loss account and a few key figures.

which must be carried out before the data can be exploited. For the group of public limited companies and private limited companies surveyed exhaustively, refusals must be treated on a case-by-case basis due to the existence of units which are relatively atypical, in particular because of their size and/or activity.

Conditions for success

In view of the difficulties inherent in large-scale surveys and of the vagaries of the information system in force, there were a few key factors in successfully setting up the annual survey of industry.

A pragmatic approach

If, by its nature, the annual survey of industry can be considered a standard operation, the plethora of faults in the existing system meant it needed to be rebuilt from scratch. The methodology has been improved as difficulties have been encountered, but without ever losing sight of the need to keep the survey simple, but of a high quality.

The first edition of the survey in 1995 (IC95) was experimental in character, but was nevertheless expected to meet the objective of making up for the lack of reliable information on the industrial sector. Although we did benefit from the experience of the industrial survey carried out by Dial in Cameroon in 1992 (Cogneau, 1993), adaptation to the realities of Madagascar was necessary.

At the end of the survey's first year, a number of adjustments were made to counter the imperfections we had discovered. The sample design was made clearer, since the sampling frame had already been created and the related information had already been verified in the field. The questionnaire was also simplified on the basis of the information actually available within enterprises. A (much lighter) specific questionnaire, which had been sent to individual firms for IC95, was found to be of little benefit and was therefore abandoned. The reply file for managing and monitoring operations in the field was revised and restructured to make the weighting calculations easier. In addition, the instructions given to interviewers on variable definitions and on methods of persuading reluctant business managers were made more precise. All of these changes contributed to a gradual standardisation of the survey's methodology.

It has also been found that a good knowledge of the industrial sector and the ability to identify major enterprises (either in terms of size or activity) are essential to the management of the operation in the field and of the verification and data-analysis phase. Although the consistency tests are programmed and automatically applied, most corrections are made manually by referring to the questionnaire and, where necessary, returning to the entrepreneur. It is also essential to compare the results of the survey with other indicators before ratifying the conclusions on trends in the industrial sector. A good understanding of the context of the survey, and in particular of recent developments in the economy and in economic policy, is also needed to explain and/or compare the results obtained after processing of the collected data.

The essentials: methodical accuracy and efficiency

For the data to be reliable, each stage of the survey, from the preparation of the sampling frame and the questionnaire to the exploitation of the data, must be carried out with methodical accuracy. In particular, management of the reply files must be meticulous. The reply files must be filled in correctly, even for enterprises not replying to the questionnaire itself. The grounds for not filling in the questionnaire (that the enterprise has ceased trading, is dormant, not yet active, cannot be located, is outside the scope of the annual survey of industry, or a refusal) are essential to the calculation of the weighting and to the update of the sampling frame each year.

Since the quality of the survey depends on the number of enterprises taking part, it is considered essential to obtain at least 600 questionnaires, including those of the major industrial companies. Interviewers must be convincing and tenacious when confronted with reticent and sometimes condescending entrepreneurs. The process does not stop at the first sign of refusal shown by an enterprise. Supervisors must intervene, contacting a person in a higher position than the first contact in the company if necessary. As a last resort, informal means should be used (acquaintances of the supervisors or Instat's directors should be contacted) or help should be sought from the groups of economic operators.

Since one of the main objectives of the annual survey of industry is to track the dynamics of the industrial sector, the data are painstakingly corrected and verified every year. Each questionnaire therefore undergoes a test to check the consistency of the figures provided by a company for a given year. Chronological tests are also used to check the compatibility of the data for each company surveyed from one year to the next.

A solid team to consolidate expertise

Since the annual survey of industry is a relatively complex operation presenting more difficulties in its implementation than in its methodology, it needs to be carried out by a solid team prepared to put in the effort to ensure its completion. The length of the operation in the field often causes a certain amount of interviewer demobilisation. The supervisors and coordinators of the survey must therefore keep the pressure on and find ways of keeping the team dynamic. Regular meetings are organised to keep members informed of the progress of the operation and the difficulties encountered and to define the strategy to be adopted.

To accrue expertise, it is important to maintain a hard core taking part in the survey every year (coordinators, supervisors and interviewers), at least until the annual survey of industry has become routine. The fact that the survey coordinators changed each year for the first three years of the survey has prevented any consolidation of the experience gained. However, rotation of the

coordinators has proved essential in meeting the objective of rapid internalisation of the annual survey of industry by Instat[17].

The importance of exploitation and dissemination to meet a demand

The efforts made in the preparatory phase and the collection operation are justified only if the results are disseminated and exploited. The durability and reliability of the system are also dependent on this happening, as industrial operators will not agree to participate in an annual survey of industry unless they are convinced of its usefulness. Publication, not only of the figures, but also of analyses of the data, is therefore a final, indispensable step of the operation and essential to the success of subsequent surveys. Various forms of feedback have been planned: publication of a document giving the initial results of the survey[18], dissemination of extracts of this document in the press, media contributions, organisation of public events to present the results, participation in conferences organised by the groups of economic operators and, finally, distribution of a summary of the initial results to enterprises surveyed in the following annual survey of industry.

By demonstrating the efficiency of the system implemented, dissemination of the results helps to consolidate the survey's quality. If they are convinced of the product of the operation, the various (public or private) institutions are more amenable to providing the annual survey of industry with support and, in particular, to making specific requests[19]. By meeting these requests, either by carrying out thematic analyses of the data already collected or by adding new questions to the variable section of the questionnaire for the next survey, the interest of the annual survey of industry can only be confirmed.

The results obtained

Quality data

The availability of reliable information on the industrial sector represents remarkable progress for Madagascar. The quality of the data is ensured in particular due to the interim objectives at various stages of the survey:

- the survey is carried out on a large, representative sample of the industrial sector: around 1,500 units are contacted with the aim of obtaining

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[17] The changes in coordinators are brought about by the objective of transferring to Instat an operation that was initially run and implemented by the Madio Project. They are also due to management staff movements at Instat, which is undergoing major restructuring.

[18] This document is distributed widely and free-of-charge (to the press, directors of various public institutions, groups of economic operators, trade unions, etc.), and is also on sale in bookshops.

[19] In some cases, support has had to be encouraged due to a lack of initiative on the part of the institutions. However, the requests, although not made automatically, are high in number once encouraged.

approximately 800 exploitable questionnaires (representing information on a number of key variables) relating to active enterprises falling within the scope of the operation (Table 1)[20];

- the refusal rate remains limited, varying between 10% and 12% over the different years;
- the verification phase does not end until each questionnaire is consistent within itself and with the results of other years.

Although it is difficult to make a detailed comparison of the annual survey of industry with other industrial surveys carried out previously in Madagascar, since the objectives, scope and results of those other surveys have not been fully clear due to a lack of precise documentation, there is no doubt that the annual survey of industry, carried out since 1995, has significantly improved the availability of information on the industrial sector.

This is illustrated by the following facts. The last industrial census carried out jointly in 1987 by the State Database, the organisation preceding Instat, and the Ministry for Industry covered 450 enterprises, 150 of which were large. At the end of the operation, only 132 questionnaires had been returned by the enterprises (72 for large businesses and 60 for small businesses), i.e. a refusal rate of 70% (52% and 80% respectively). These results compare poorly with the refusal rates of 10% to 12% recorded for the annual survey of industry.

A comparative analysis of the 1984 industrial census, which was the last one judged to be relatively reliable[21], and of the 1995 annual survey of industry (industrial census) shows that the enterprises surveyed in 1984 were, according to the national accounts, at the origin of only 55% of the industrial value added, as opposed to 75% for IC95 (Razafindrakoto, 1996). Thus, setting aside the intrinsic quality of the data (questionnaire consistency) and the accuracy and relevance of the processing and the results, in simple terms of representativity the 1995 industrial census showed important progress.

In addition, justification for the methodology for selecting the sampling frame and the stratification choices made is demonstrated by the major differences in the characteristics of the enterprises of different segments, as shown in Table 2.

In addition to the improvement in the quality of data, the post-1995 period has seen for the first time a homogeneous series for Madagascar's industrial sector.

Finally, the continuous series of annual surveys since 1995 has enabled a large panel of enterprises to be built up, and thus opened up interesting opportunities for detailed analysis (Figure 2 and Table 3). A total of 375 enterprises replied to all surveys from 1995 to 1998. Of these, 252 are large businesses (public limited

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[20] By way of comparison, the industrial surveys carried out in Sub-Saharan Africa with the support of the World Bank as part of the RPED (Regional Program on Enterprise Development) covered approximately 200 enterprises (Biggs and Srivastava, 1996).

[21] The 1984 industrial census was used to draw up the 1984 national accounts.

companies, state companies, mixed-economy companies and private limited companies, including free-zone enterprises). If we take the period of 1996-98, the panel consists of 441 enterprises. Compared with this, in Instat's business survey, the only industrial survey for which a series of individual data was available before the annual survey of industry, only 99 enterprises provided at least their annual production volume from 1990 to 1994. The number of businesses that regularly filled in the questionnaire by providing monthly data, the true aim of the operation, was 6. From these figures, it is obvious that with the annual survey of industry huge progress has been made in terms of tracking the industrial sector.

The importance of these results should be stressed with regard to the extent to which they distinguish Madagascar from most other countries of Sub-Saharan Africa. Very few industrial surveys in Africa have been able to set up a significant panel of enterprises. This is demonstrated by the non-existence or extreme fragility of studies carried out on the dynamics of industry. For example, Latreille and Varoudakis (1996), in order to analyse industrial productivity trends in Senegal, had to use data aggregated by branch. Their study was therefore based on a panel of 10 groups of enterprises from 1974 to 1994[22]. However, if the number of enterprises for which data have been aggregated in each group is not available, detailed analysis shows that this kind of approach is limited because the size of the sample does not remain constant over the years (Herrera, 1996). Work on a similar subject has been carried out in Cameroon at the request of, and under the supervision of, a World Bank team (Navaretti, Gauthier and De Melo, 1996). It applies relatively sophisticated analysis techniques, but, since it covers only 38 industrial units, the reliability of the results obtained must be questionable.

A briefing on industrial dynamics: the characteristics, performance and future of the formal industrial sector

The system in place in Madagascar since 1995 goes a long way towards providing a full picture of the characteristics and dynamics of the formal industrial sector, knowledge of which was previously poor. The operation does not end with the collection of data. Each annual survey of industry is analysed in relative detail in order to draw up a full report aimed at the general public[23]. To illustrate this point, here are the major characteristics and dynamics of Madagascar's formal industrial sector as concluded from exploitation of the 1997 and 1998 annual surveys of industry (Andrianarison *et al.*, 1998; Rakotomalala *et al.*, 1998).

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[22] Despite the choice of aggregation to offset the gaps in terms of data, the series had to be reconstructed for variables where information was lacking in some of the years.

[23] The results of previous surveys were limited, at best, to a series of tables whenever they were actually exploited.

Table 1 Size of the sample of various industrial surveys carried out in Madagascar

Annual survey of industry (ASI)		**1995**	**1996**	**1997**	**1998**
Number of enterprises contacted (reply file filled in)		1,500	720	1,450	1,450
Refusal rate*		10%	12%	12%	11%
Number of questionnaires that can be exploited		642	619	814	974
Including companies (segments 1, 2 and 4)		*411*	*408*	*488*	*511*
Industrial census	**1983**	**1984**	**1985**	**1986**	**1987**
Number of enterprises surveyed	351	355	347	346	450
Number of replies	329	331	-	-	132
Instat business survey**	**1990**	**1991**	**1992**	**1993**	**1994**
Number of questionnaires received	170	165	155	155	153
Number of complete questionnaires	103	53	72	70	21
Ministry for Industry survey		**1990**	**1992**	**1993**	**1994**
Number of enterprises surveyed***		250	250	550	550
Ministry for Planning business survey			**1991**	**1992**	**1994**
Number of enterprises surveyed***			200	235	195

* Refusals relate to enterprises which are active and fall within the scope of the survey.

** This survey was used to calculate the industrial production index. In theory, it covers monthly data, but in practice enterprises return the questionnaires once a year. Complete questionnaires are those actually containing the monthly data requested.

***The response rate for this survey is unavailable.

Sources: IC95, ASI96, ASI97, ASI98; Instat, Madio.
For the other surveys: Razafindrakoto, 1994a.

Table 2 Characteristics of the enterprises of different segments in the 1998 annual survey of industry (ASI98)

	Segment 1 Public limited companies	Segment 2 Private limited companies	Segment 3 Individual firms	Segment 4 Free-zone enterprises	Total
Total number of enterprises*	203	416	8,042	124	8,785
Number of enterprises contacted	237	427	618	168	1,450
Number of enterprises in existence**	203	284	483	124	1,094
Number of questionnaires that can be exploited	165	234	463	112	974
Average size (number of employees)	404	46	7	326	22
Average value added (in MGF millions)	6,006	467	36	2,022	222
Share of industrial jobs	42.6%	10.2%	27.5%	19.7%	100.0%
Share of total industrial value added	62.8%	10.2%	14.9%	12.1%	100.0%

* Estimated on the basis of an analysis of the results of the annual survey of industry.

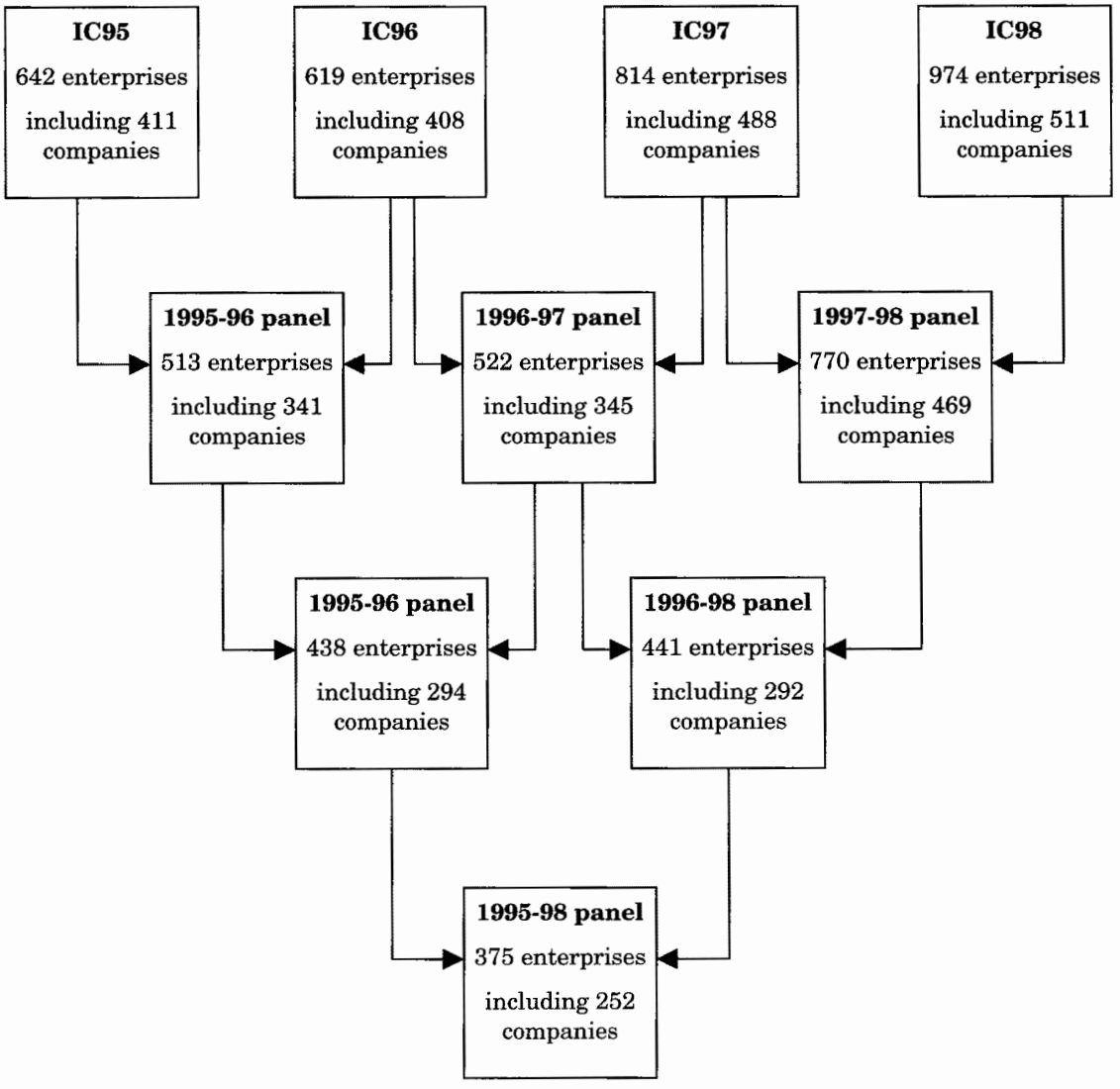
** Enterprises contacted for the 1998 annual survey of industry which are active and fall within the scope of the survey.

Source: ASI98; Instat, Madio.

Table 3 Number of enterprises surveyed per segment

	IC95	ASI96		ASI97		ASI98	
	Total	Total	Panel 95-96	Total	Panel 95-96	Total	Panel 95-96
Segment 1: public limited companies	172	156	145	169	129	165	161
Segment 2: private limited companies	183	192	153	226	167	234	205
Segment 3: individual firms	231	211	172	326	177	463	301
Segment 4: free-zone enterprises	56	60	43	93	49	112	103
Total	**642**	**619**	**513**	**814**	**522**	**974**	**770**

Figure 2 Breakdown of the samples of the different annual surveys of industry



The 1998 annual survey of industry found 8,785 enterprises to be active in Madagascar in 1997. The industrial sector consisted of 743 corporate and quasi-corporate enterprises (CQCs). 124 of these were free-zone enterprises. As in the previous year, 1997 was characterised by a strong increase in the number of industrial enterprises (+28%) (Table 4). However, this development concealed a certain rebuilding of the sector: while there were more than 2,360 business start-ups, at the same time 430 enterprises (6% of the total) disappeared during the year, a phenomenon which can only be described as marginal.

This dynamic was more noticeable among individual firms, achieving a growth rate of 31% (as opposed to 3.5% for the CQCs). The trend towards an increase in the number of enterprises was almost general, with numbers stagnating only in the food sector. Overall, industry experienced relative diversification, with individual firms in textiles and, to a lesser extent, firms working in construction and public works multiplying. These two sectors complemented three others which were already well-established: the food industry, the wood, stationery and publishing industry, and miscellaneous industries. However, the industrial sector continued to concentrate on the production of consumer goods (almost 60% of enterprises). Meanwhile, enterprises supplying intermediate goods (15% in 1997 compared with 17% in 1996) and capital goods (28% compared with 26%) experienced relative stagnation.

Formal industrial employment saw an annual increase of 18%, rising from 163,800 in 1996 to 193,300 in 1997. This growth was the same for men and women (the proportion of female employment reached a stable 29%), but differed depending on the legal form of the enterprise. Higher growth (36%) was recorded in individual firms: this is a fairly standard result connected to the creation of new individual firms, but was accompanied by another phenomenon: major use of temporary employment (68% of newly-created jobs).

The average gross annual wage per employee, which rose from 2,666 billion Malagasy Francs in 1996 to 2,829 in 1997, hardly changed in terms of purchasing power (an increase of 1.5% in constant Francs). However, it increased significantly in the individual firms, where in spite of 4.5% inflation, a 16% increase in purchasing power was recorded. In spite of the marked use of temporary employment, the cost of labour saw a slight increase (+2% in real terms).

The formal industrial sector produced 5,818 billion Malagasy Francs of manufactured goods in 1997. The value added which has been generated rose to 1,950 billion Malagasy Francs. With production prices and intermediate consumption prices in the industrial sector rising by 8% and 10% respectively between 1996 and 1997, the increase in real terms was 19% for production, and 23% for value added. Only three sectors missed out on this positive dynamic: the mineral-extracting industries, the wood, stationery and publishing industry, and the power industry. The decline in these sectors was due to the poor performance of existing enterprises. In the other sectors, the rise in the value added was more a result of the performance of surviving enterprises than business start-ups. One explanation of progress in the industrial sector in 1997

was the improvement in domestic demand, which presented major opportunities, particularly to small enterprises.

Elsewhere, the dynamic of the free-zone enterprises continued to be positive in 1997. Their multiplication was testimony to the opportunities to be found in exports. The number of active industrial free-zone enterprises rose from 110 in 1996 to 124 in 1997, an increase of 13%. Their contribution to job creation in 1997 must be stressed, since the labour force rose from 36,700 to 38,400. The results of the free-zone enterprises in terms of value added and of production were also positive. They generated almost 250 billion Malagasy Francs of value added in 1997, i.e. an increase in real terms of more than 30% over 1996.

With regard to raw materials, the dependence on imported inputs grew, rising from 46.4% in 1996 to 51.3% in 1997. This represents an increase in volume of 25.6% of the amount of imported inputs. But this increase was linked more with a positive dynamic than a poor performance, since it was enterprises which experienced a drop in their value added whose share of imported inputs declined. At the same time, the rise in exports was more modest (16% in volume). The external debt deficit thus deteriorated from 74 to 192 billion Malagasy Francs between 1996 and 1997.

Total investment rose slightly by 9% in value between 1996 and 1997. However, the investment rate fell from 24.5% to 21%. These figures are testimony to a climate of uncertainty amongst industrial operators, all the more so since the rate of use of production capacity remained relatively high (84% in 1997 compared with 82% in 1996). It can also be assumed that there is a connection between this investment dynamic and the slightly lower levels of optimism expressed by industrialists with regard to the outlook for their sales on the local market: in 1997, 34% of managers of companies contributing 50% of the industrial value added forecast a rise in the volume of their production, compared with 39% and 69% respectively the previous year.

Measuring the views of managers on topical matters

Apart from the standard information on the dynamics of the industrial sector, specific topical matters or issues crucial to the definition of economic policies are also addressed in the annual survey of industry. The 1997 and 1998 surveys, for example, broached four topics: taxation, the problems of human resource management, privatisation and government reform.

Entrepreneurs often cite business **taxation** as being at the source of their problems. On this point, it should be stressed that a relatively high number of industrial enterprises are exempt from VAT (17% of enterprises in 1996). This phenomenon, found even in sectors where exemptions are not provided for under the general tax code, explains why industrialists have a poor view of VAT: 45% of them felt in 1997 that it had a negative impact on their activity in comparison with competitors. Indeed, VAT is neutral only if it is universal. On the question of whether taxation favoured local products or imports, no clear trend could be concluded from the industrial operators' opinions. In fact, they

found tax fraud (probably including unjustified exemptions) to be one of the main factors affecting competition.

Table 4 The formal industrial sector, 1994-1997

	1994	1995	1996	1997	Progression 97/96
General data					
Total number of enterprises	5,891	5,504	6,857	8,785	+28.1%
Number of individual firms	5,318	4,852	6,139	8,042	+31.0%
Number of corporate and quasi-corporate enterprises (CQC)	573	652	718	743	+3.5%
Share of formal industrial sector in official GDP	11.6%	10.0%	9.3%	12.0%	+2.7pts
Production (in billions of current MGF)	2,588	4,055	4,506	5,818	+29.1%
Value added (in billions of current MGF)	1,052	1,371	1,514	1,951	+28.9%
Production price index (based on 100 in 1996)	66.1	87.7	100.0	108.4	+8.4%
Raw material price index (based on 100 in 1996)	63.0	87.6	100.0	110.2	+10.2%
Value added price index (based on 100 in 1996)	72.5	88.1	100.0	104.9	+4.9%
Production (in billions of constant MGF 1996)	3,915	4,624	4,506	5,367	+19.1%
Value added (in billions of constant MGF 1996)	1,451	1,556	1,514	1,860	+22.9%
Employment					
Total number of jobs	140,300	154,300	163,800	193,300	+18.0%
Number of jobs in individual firms	38,800	37,200	39,200	53,300	+36.0%
Number of jobs in corporate and quasi-corporate enterprises	101,500	117,100	124,600	140,000	+12.4%
Average size of enterprises	24	28	24	22	-8.3%
Average size of corporate and quasi-corporate enterprises	177	180	174	188	+8.0%
Average gross annual wage per employee (in thousands of current MGF)	1,582	2,349	2,666	2,829	+6.1%
Capital					
Total of capital (in billions of current MGF)	1,815	2,473	3,083	3,101	+0.6%
Total invested amount (in billions of current MGF)	235	273	371	405	+9.2%
Investment rate (GFCF/VA)	22.3%	19.9%	24.5%	20.8%	-3.7pts
Performances, local and world-wide integration					
Average value added (in millions of current MGF)	178.5	249.1	220.8	222.0	+0.5%
Average value added of CQCs (in millions of current MGF)	1,574	2,024	1,928	2,233	+15.8%
Share of the total wage sum in the value added	25.7%	30.5%	33.0%	33.5%	+0.5,pt
Share of imports in the inputs of the formal industrial sector	40.3%	50.9%	46.4%	51.3%	+4.9,pts,
Share of exports in the total production	24.9%	24.3%	25.8%	25.7%	-0.1,pt
Manufacturing exports (in billions of current MGF)	645	985	1,161	1,496	+28.9%
Input imports (in billions of current MGF)	547	1,229	1,235	1,688	+36.7%
Manufacturing exports (in billions of constant MGF 1996)	933	1,108	1,161	1,344	+15.8%
Input imports (in billions of constant MGF 1996)	838	1,378	1,235	1,550	+25.5%
Free-zone enterprises					
Number of active industrial free-zone enterprises	66	98	110	124	+12.7%
Number of jobs in free-zone enterprises	17,400	29,600	36,700	38,400	+4.6%
Value added of free-zone enterprises (in billions of current MGF)	58	127	154	245	+59.1%
Exports of free-zone enterprises (in billions of current MGF)	164	392	590	747	+26.6%
Value added of free-zone enterprises (in billions of constant MGF 1996)	36	88	154	202	+31.2%
Exports of free-zone enterprises (in billions of constant MGF 1996)	134	404	590	658	+11.5%

Sources: IC95, ASI96, ASI97, ASI98; Instat, Madio.

The constraints on **human resource management** were another factor that might hamper development of the industrial sector. However, the minimum wage level does not appear to have been considered a hindrance to hiring in 1997: 51% of enterprises (controlling 53% of jobs) even found it to be too low. However, enterprises are fond of connecting remuneration with work productivity: 64% of them had instituted a system for differentiating same-position salaries according to productivity, and 38% (representing 65% of jobs) declared that they had awarded productivity bonuses. Contrary to the theory that Madagascar's education system is unadapted to the needs of enterprises, a 60% majority of industrialists felt in 1997 that it was at least of the same quality as foreign education systems for equivalent studies. However, the presence of foreign managers, which company heads attributed to either their capacity to communicate with foreign contacts or the inability to find a Malagasy equivalent, reveals the shortcomings of the country's education system.

The **privatisation of state-owned enterprises** has been established by the Malagasy government as one of the central strategies of economic policy and identified as one of the main conditions set by fund donors. More than 90% of company heads stated in 1998 that they were in favour of the ongoing process of privatisation. However, more than two thirds of industrial operators felt that privatisation should not be systematic and extend to all state-owned enterprises. Between 65% and 70% of operators said they were in favour of the transfer of the five main state-owned enterprises (BTM, BFV, Solima, Jirama and Telma). Foreign operators were those most in support of privatisation.

Overall, the industrial operators who were against privatisation of the major state-owned enterprises represented only 3% of the industrial value added, whilst those who were in favour accounted for around 80% of the value added. Although 37% of industrialists called for domestic firms to benefit from privatisation, they represented only 18% of the value added. By contrast, the share of those that felt that only competence and efficiency should be of importance, regardless of the origin of those benefiting, was slightly higher (38%) and represented a great deal more economic weight (53% of the value added). Finally, the remaining 25%, representing 46% of the value added, were in favour of partnerships between domestic and foreign firms.

Company heads were more critical of the way in which privatisation was being conducted. Only 13% of them (representing 9% of the value added) felt that the conditions of transparency which were essential to a fair process were being fulfilled, domestic heads being by far the most doubtful. 36% (representing 31% of the value added) considered the strategy to be unclear and to favour personal interests. The share of those taking a direct interest in the operations underway was far from negligible. Whilst more than two thirds were not interested in contributing to the capital of the enterprises that could be privatised, 9%, i.e. more than 800 industrial operators, stated that they had already taken steps, and 25% that they were waiting for more information on the privatised companies and on the process of participating in the privatisation operation.

Resistance to privatisation appeared to be directly linked to a feeling among the economic operators that foreign interest in Madagascar's economy was too high. This sentiment was widespread among the directors of the state-owned enterprises (74%). Surprisingly, 40% of foreign operators shared this view. Despite these apparent doubts, 70% of industrialists (representing 92% of the value added) said that they were in favour of the policy of encouraging foreign investment. Almost half of them (representing 76% of the value added) even felt that the existing system should be consolidated.

Next to privatisation, **government reform** is one of the main areas of work in the process of change in Madagascar. Overall, industrialists were unhappy with the government. Less than 4% felt in 1998 that all departments were operating correctly. The police and the tax office were criticised the least, with one company head in five finding their operation acceptable, in contrast with 10% for the judiciary, customs and the sectoral ministries. Of the many manifestations of malfunction, corruption was identified as the most harmful. 36% of company heads stated that they had been personally approached by dishonest officials in the course of their activities. The police service seemed to be most affected by this phenomenon, with almost a quarter of enterprises affected. Foreign enterprises appeared to be the biggest victims of corruption (46% compared with 36% for domestic private enterprises and 14% for state-owned enterprises). For public contracts, for which 23% of formal industrial enterprises stated that they had previously submitted tenders, less than 10% considered the transparency conditions to have been fulfilled, with 60% stating that commissions had to be paid to obtain a contract.

Sub-administration and disorganisation were the reasons most commonly given by the industrial operators to explain the problems they had with the government. Two in three industrialists mentioned a lack of motivation among officials, and also insufficient resources. 60% blamed poor organisation and 44% unsuitable legislation. However, incompetence of officials and a deliberate willingness to discourage operators were much more rarely identified as the source of difficulties encountered.

Asked where work on improving government's productivity should start, 38% of industrial operators named the cleaning up of government, 35% the recruitment of young people, 13% the updating and clarification of legislative texts, and 12% the provision of additional resources. Industrialists also felt that officials' performance was poor through a lack of financial motivation. Whilst one operator in five thought that salaries should be index-linked to inflation, the others felt that officials should be given a substantial pay rise. However, 91% of industrialists (controlling 95% of the value added) proposed the institution of performance bonuses in the public sector. 86% of company heads, accounting for 98% of the value added, wished to see incompetent officials effectively sanctioned. It was therefore felt that an improvement in officials' salaries should be accompanied by an improvement in productivity, which could be influenced on three fronts by sanctions, result-driven salaries, and the recruitment of young, qualified staff.

Thematic studies on the industrial sector

As a complement to the diagnosis of the industrial sector provided by the first results of the annual surveys of industry, thematic studies have also been carried out. Thus, in addition to the now standard publications on the annual survey of industry, 17 detailed analyses have been performed on the data collected from 1995 to 1998, five of which have been presented in a seminar or published in a periodical. Four of these were in response to requests from public or private bodies. The analyses covered very different topics: the comparative performances of private, public and foreign enterprises; the performances of specific branches or sectors; trends in the characteristics of industry over a long period; the dynamics of the free zone; productivity gains; the wage dynamic; business taxation, etc.

Progressive awareness of the interest of the annual survey of industry

There are two indications that entrepreneurs have become aware of the interest of the annual survey of industry. Firstly, there is no doubt about their satisfaction with the way in which the results of the survey are presented. Questioned on this point, 80% of industrialists who replied to the survey said they were satisfied in 1996. This rate, already high, rose even higher to 92% in 1997 and 1998. Secondly, the time effectively spent by the enterprises in replying to the annual survey of industry is also an indication of the growing interest shown by company heads in this operation. Although there has been little change in the response times, which have dropped from 27.3 to 24.7 days from 1995 to 1997, the time for recovering the large majority of questionnaires has shortened considerably: for 90% of enterprises, the time between delivery and collection of the questionnaire was 64 days in 1997, compared with 76 days in 1995; 99% of enterprises replied in under 100 days in 1997, compared with 122 days in 1995.

However, the annual survey of industry does not achieve its real goal until the resulting diagnosis of the industrial sector is made available to the public, and used effectively. Public authorities cannot then steer by instinct, but must define and direct industrial policy on the basis of the available figures and analyses. In 1998, which was proclaimed the Year of Industry, the groups of economic operators used the data of the annual survey of industry to draw up a White Paper together with the Ministry for Industry, which acts as the basis for a joint programme between the two parties on the policy to be implemented over the following years.

The increase in specific requests made by various public or private bodies is a genuine sign of the importance attached to the system in place. For example, the central bank used the annual survey of industry to learn the views and behaviour of enterprises with regard to credit access. To find out about the demographic development of the small businesses working in construction and public works, UNIDO asked the coordinators of the annual survey of industry to analyse the sector. The group of free-zone enterprises has also expressed an interest in specific tracking of the free zone. Other bodies providing support to

the private sector, such as the French development agency, use the data of the annual surveys of industry to define their policy of action.

Finally, we should mention the interest of the system implemented for statisticians: the annual survey of industry has been used to draw up sampling frames for various statistical operations on industry (particularly business surveys), and the data collected have been used to produce national accounts.

Conclusion

Despite the difficulties encountered, and in particular the reticence of some entrepreneurs, the fact that the annual survey of industry is renewed each year is proof of its success. It is a relatively simple and standard statistical operation from a methodological point of view, and continues to be inexpensive (Table 5), but demands energy, efficiency and a great deal of accuracy to be implemented. As a result of the major efforts to ensure the quality of the data, exploit them in a relevant manner and make use of and disseminate the results, the interest of the annual survey of industry is now widely acknowledged. The need to track industrial trends by using reliable statistics leaves no doubt. The system therefore seems to have established itself in the long term within Instat. Apart from the information on the characteristics and performance of enterprises that it provides, the annual survey of industry has contributed to a new dynamic, not only within Instat, but also among the various public or private bodies working on the industrial sector. The availability of high-quality detailed information constitutes genuine progress that every user can benefit from.

Thus, dialogue between the authorities and the groups of economic operators has been held since 1996 on the basis of figures from the annual survey of industry. It is to be hoped that the progress made in terms of statistical information will be reflected by the definition of a suitable policy to develop the industrial sector. However, that is another matter altogether, relating more to the question of the abilities and willingness of decision-makers.

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Table 5 Budget elements (in French Francs*)

	IC95	ASI96	ASI97	ASI98
Reproduction of questionnaires	4,200	4,100	3,600	3,500
Remuneration of staff	72,400	79,400	72,700	69,400
Input and verification of data	11,300	4,000	3,450	4,000
Materials and supplies	10,900	13,300	12,650	8,300
Publication of initial results	11,400	12,400	14,650	15,800
Total	**110,200**	**113,200**	**107,050**	**101,000**
Number of enterprises surveyed**	642	619	814	974
Total per enterprise	**172**	**183**	**132**	**104**

* The conversion into French Francs was made on the basis of the exchange rates of the last five months either of the survey period or of the corresponding year: FRF 1 was equivalent to MGF 879 in 1995, MGF 805 in 1996, MGF 888 in 1997 and MGF 947 in 1998.

** Enterprises for which the questionnaires have been validated.

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IN THIS ISSUE

by Philip Crook

As promised, this issue of Inter-Stat contains the final three articles related to the MADIO project in Madagascar.

In the first article, Philippe Antoine, Philippe Bocquier, Thierry Maminirina and Nicolas Razafindratsima describe a survey known as Biomad. Biomad was a retrospective survey of the dynamics of the urban job market and household living conditions over a 30 year period to 1998. It was one of a wave of surveys designed to renew the system for the collection of demographic data on geographical and social mobility, and follows on similar work in Bamako, Dakar and Yaoundé. The article well illustrates the benefits of such a survey and gives details of how it was undertaken.

The second article is by Mireille Razafindrakoto, who discusses how problematic it can be to monitor the formal activity of industries. This is often taken as a routine statistical activity, but Mireille argues that very few African countries have genuinely reliable data on the sector. The Malagasy experience of an annual survey of industry therefore illustrates the possibility of implementing a solid and reliable system for analysing changes in the formal industrial sector, and the benefits of doing so.

Our final article is by Isabelle Droy, Raphaël Ratovoarinony and François Roubaud, and concerns the setting up of four rural observatories across Madagascar. The word *observatoire*, I feel, does not translate easily into English, since the obvious equivalent, *observatory,* is so strongly linked with looking at the heavens that the sense in which it is meant now is obscured. That was of course the origin too in French – but in this context "the paramount aim of observatories is to identify, by means of a number of indicators, the dynamics of improvements or deteriorations that affect people and their living standards." In the case of Madagascar, that meant not merely viewing from afar a focal group of villages but also setting up a number of institutions which had a permanent staff for a fixed time period within the chosen survey areas.

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