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SOCIO-ECONOMIC CHARACTERISTICS OF INFORMAL VS FORMAL SECTOR LABOR IN EGYPT

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1- Introduction

During the last three decades economic policies that have been implemented in Egypt have neither stimulated the growth of the industrial sector nor have encouraged the private sector investment. Informal sector had been growing at about 2.8% per annum between 1976 and 1986 (Handoussa, 1991). This rate of growth increased to 3.6% per annum between 1980and 1985 (Rizk, 1991). With this rate of growth, informal sector employment accounted for about 24 and 26% of the total active labour force in 1976 and 1986 respectively (Al-Mahdi, 1996). When agriculture activities are excluded, the informal sector would contain about 45 and 40% of the total employment in 1976 and 1986 respectively. Informal sector would account for about 93 and 90% of the total labour force in the non-agriculture private sector in 1976 and 1986 respectively (Handoussa, 1992b).

During the 1990's, informal sector employment[1], outside agriculture, increased from about 40% in 1990 to 46.3% in 1998 according to Egypt Labor Market Survey of 1998. This share of informal sector employment would have been increased to 56.12% if all workers were considered. Moreover, the majority of jobs created in the 1988-1998 decade were among the informal sector. Informal sector employment share would account for more than 82% of the employment growth of private non-agricultural wage employment between 1988 and 1998. Informal sector employment grew at 7% per annum during 1988-98, while the corresponding rate for the formal private employment was 4.8% during the same period.

[1] Informal sector employment includes those who have neither contract nor social security.

Recent data on the pattern of new entrants to the Egyptian labour markets since 1969 till 1998 (Figure 1, Figure 2) show that new entrants to the labour markets were disproportionately drawn into informal sector[2]. Figure2 shows that in 1969, around 75% of new workers were drawn into formal public employment and 20% into informal jobs. Since 1993, informal sector has been providing more employment than formal public employment. Thus, by 1998 about 70% of new workers were drawn into informal sector employment and only about 20% into formal public jobs. The relative share of formal private employment has doubled, however remain modest.

Any examination of the factors that influence people's choices in entering labour markets is conceptually difficult. The problem of causal inference is particularly complex, since an independent effect on joining the labour markets cannot always be identified. Workers who join the informal labour markets are different in many ways from those who join the formal labour markets (El-Bakly, 2001).

To examine the above hypothesis, it is appropriate to have an overview and to formulate a clear idea about the socio-economic and demographic background characteristics of both formal and informal sector workers. Particular attention will be directed to certain characteristics that are considered as the potential micro determinants operating on people to join the informal labor market in Egypt.

As comparing between informal and formal sector workers, a question must be raised whether any revealed difference between the two groups (in terms

[2] Informality in the two figures measured by whether job contract is existent or not.

of percentage distribution) is sufficient evidence for differentiating between them or whether the difference could have arisen by chance. This is can be done by using what is called a "Chi-squared Test". The classification of the two sector groups based some criteria that used to identify the informal sector workers from the overall private sector workers (El-Bakly, 2001)

2- Interpreting Chi-squared values

Table 5.2 presents X^2, d.f., and P values for each anticipated characteristic. The figures of the table suggest that more than half of the background characteristics have a highly significant level of differences between the two groups. Gender, level of education, principal work status, housing condition index, HH equipment ownership index, and all job indices[3] differentiate between informal and formal group of respondents[4]. The remaining variables either have a moderate or low level of significance. Age and income level are significant at about 0.2%. The table also suggests that there is no significant difference between informal and formal groups in terms of their marital status and type of family. Both variables have a significance level of less than 0.5%.

Table 1
Chi Squared Test Values for the Comparison Between Informal and Formal Workers

Variables	X^2	d.f	P
Gender	13.618801	1	<0.001
Age	14.634355	11	0.21085104
Marital Status	2.0235181	5	<0.5
Level of Education	45.405535	5	<0.001
Principal Work Status	26.238677	3	<0.001
Type of family	0.0338561	1	<0.5
Housing condition index	7.3063484	3	0.06614268
HH equipment ownership index	9.7515506	3	0.02197324
Income Level	4.133627	3	0.24834389
Job General Index	35.38576	3	<0.001
Job Education Index	76.51216	3	<0.001

[3] for details on the job indices see El-Bakly, 2001.
[4] All of these variables have a P value of less than 0.02. This means that the probability is less than 0.02% that such observed difference in these variables could have been arisen by chance.

Job Skill Index	22.15086	3	<0.001
Job Barrier to entry (1) Index	59.55182	3	<0.001
Job Barrier to entry (2) Index	68.55232	3	<0.001
Job Autonomy Index	13.90856	3	0.00375387

Source: El-Bakly, 2001.

3- Background characteristics (informal versus formal)

3-1 *Gender*

Both informal and formal sector workers are predominantly male (Table 2). This is more evident in the case of informal sector workers since over 90% of them are male, while the female informal sector workers account for as little as 8%. The formal type of worker is different. Although it is still dominated by males, female workers account for over quarter of the formal sector workers (27.45%).

3-2 *Current age*

Informal sector workers are on average more than one year older than their formal counterparts (the mean age are 37.17 and 35.88 years respectively) (Table 2). Looking at the distribution by age groups is also indicative. The majority of the formal sector workers belong to the under forty five years of age (76.5%) with high proportion dominated within 30-44 age brackets, while the informal sector counterparts are scattered across all of the age groups. However, looking at more disaggregated age groups reveals that the proportion in informal sector workers is higher than the formal counterparts with regard to the first three age groups (El-Bakly, 2001).

It may be also seen from Table 2 that the formal sector group dominates within the labour force age group (15-65) (96.08%). The proportion is higher than that which prevails among the informal labourers (91.80%). Child labour

phenomenon is slightly evident among the informal sector workers than among the formal counterparts. More than 1% of the informal sector workers are among the under 14 age group, while none of the formal labourers belongs to that age group. Furthermore, the fact that informal sector workers has a higher proportion than the formal group with respect to the over 65 age group, could lead to a conclusion that the informal sector workers have a longer working life span than the formal counterparts. Alternatively, this could be partially due to some of the formal sector workers continuing to work informally after retirement (for stronger evidence, this needs further examination using life path technique).

Table 2
Workers by Formality Status
And Some Selected Background Variables

	Informal	Formal
Gender		
Male	91.80	72.55
Female	8.20	27.45
Total	100	100
Current Age		
>14	1.10	0.00
15-29	39.3	33.4
30-44	29.5	43.1
45-64	23.0	19.6
65+	7.10	3.92
Total	100	100
Mean Age	37.17	35.88
SD	15.35	11.91
Marital Status		
Less than the Legal Age	1.09	0.00
Never-married	48.09	54.90
Married	46.99	43.14
Widowed & Divorced	3.83	1.96
Total	100	100
Level of Education		
Illiterate	21.31	9.80
Read & Write	34.97	3.92
Less than intermediate	8.74	11.76
Intermediate	19.67	17.65
Above intermediate	5.46	17.65
University & above	9.84	39.22
Total	100	100

Mean Years of School	7.02	12.27
SD	5.26	4.55
Principal Work Status		
Employer	14.75	1.96
Self-employed	23.50	3.92
Paid worker	55.19	94.12
Non-paid family worker	6.56	0.00
Total	100	100

Source: El-bakly, 2001.

3-3 *Marital status*

There is only a small difference between informal and formal labourers irrespective of their current age, regarding the never-married and married categories (Table 2). The gap between the informal and formal sector groups is clearly evident with regard to first and last marital status categories (less than the legal age and widowed and divorced groups). The proportions of informal sector workers that belong to the first and last marital status categories are higher than those found among their formal group correspondents. This gap could lead to a conclusion that young age, as well as some family disruption (widowhood or divorce), with their association with economic needs, could be considered among the factors that push people to join the informal labour markets.

3-4 Level of education

Education data conform to the suggestion that informal labourers are poorly educated compared to formal labourers. More than half the formal sector workers have intermediate or higher levels of education (74.52%), while about 35% of the informal sector workers belong to this same education category (Table 2). With respect to all other lower education categories, the situation is reversed. The proportion of the formal sector workers is lower than that of their informal sector counterparts, except for one category, which is less than intermediate. This difference in the level of education between the informal and formal sector workers is revealed also by mean number of years of school

achieved by each group. Formal sector workers, in general, have achieved about twice as many years of school as the informal sector workers have achieved (12.27 and 7.02 years for the formal and informal sector groups respectively). Therefore, how important is education in determining individuals' working lives?

3-5 Principal work status

Data on principal work status could be of great importance in measuring differences between informal and formal sector workers. As Table 2 indicates, the majority (94%) of formal sector workers are paid workers, but only 55% of the informal sector workers belong to paid worker category, with the other 45% distributed among the other work status categories. The majority of them are self-employed, which is higher than that found among their formal counterparts. Also, it is notable from the same table that the non-paid family workers exist only among the informal sector group. Family business is clearly one of the determinants of joining the informal labour market.

3-6 *Job indices*[5]

Job indices data may conform to informal sector theories that indicate that the informal sector does not need either high level of education or skills and could be classified by ease of entry (Table 3). However, the data suggest that not all-informal sector jobs belong to one classification. There are still some (about 10%) informal sector jobs that might be classified as high or medium class jobs. These jobs require a high level of education and skills so they might be classified with high or medium barrier to entry. For example, a civil engineer and an accountant as well as a lawyer can be found in informal sector jobs.

[5] for details on the job indices see El-Bakly, 2001.

This result does not persist after controlling for each factor alone. As can be seen from Table3, this 10% of the informal sector jobs classified by a high or medium status job (job general index) is attributable only to one out of three factors included in the calculation (education, skills, and job autonomy). This one factor is the education factor. The other two factors, skills and autonomy, show a different pattern.

Table 3
Workers by Formality Status and Job Indices

Job Indices	Informal %	Formal %
Job General Index		
High status job index	4.4	25.5
Medium status job index	6.6	19.6
Low status job index	46.4	39.2
Extreme low status job index	42.6	15.7
Total	100	100
Job Education Index		
High status job index	9.8	41.2
Medium status job index	2.7	23.5
Low status job index	56.8	0.0
Extreme low status job index	30.6	35.3
Total	100	100
Job Skill Index		
High status job index	4.4	25.5
Medium status job index	18.6	15.7
Low status job index	21.3	19.6
Extreme low status job index	55.7	39.2
Total	100	100
Job Barrier to entry (1) Index		
High status job index	5.5	25.5
Medium status job index	3.8	17.6
Low status job index	27.9	51.0
Extreme low status job index	62.8	5.9
Total	100	100
Job Barrier to entry (2) Index		
High status job index	8.2	39.2
Medium status job index	2.7	3.9
Low status job index	20.2	51.0
Extreme low status job index	68.9	5.9
Total	100	100
Job Autonomy Index		
High status job index	9.8	29.4
Medium status job index	10.9	13.7
Low status job index	21.9	17.6
Extreme low status job index	57.4	39.2

Source: El-Bakly, 2001.

3-7 *Household criteria*

Other characteristics related to household criteria indicate that they differ between the two sector groups according to their formality status (Table 4).

The first panel of Table 4 shows that informal and formal sector groups are almost similar with respect to the type of family. The majority of each group is living within a nuclear type of family. Among each of the two groups, only about a quarter is living within an extended family[6]. It could be concluded that the two groups of workers are comparable in terms of family type, but they are little different with respect to mean family size. It seems that informal sector workers tend to have bigger family size than formal sector counterparts. This could be one of the factors that urge people to join the informal labour markets in order to cope with economic needs arising from a large family.

Regarding standard of living in which respondents experience, Table 4 represents three indices: housing condition, ownership of household equipment, and income level (for more details on these indices see El-Bakly, 2001). According to El-Bakly, the income level index is based on the former two indices. For that, income level index could be used as a general measurement of standard of living. The last panel of Table 4 shows that informal and formal sector groups are different with respect to the income level index. However, the majority of each of the two groups could be considered among the poor as characterised by low level of income, with a higher proportion of the informal sector workers compared to their formal counterparts. The proportions of low-income level are 73.3% and 68.65% for informal and formal sector groups respectively. This also supported by the fact that the proportion of the informal

[6] Those families that include third degree relatives, for example son-in-law or daughter-in-law, grand-son or grand-daughter.

sector group with lowest level of income is more than three times than that found among the formal sector group. It is also noticeable that although more poor people are found among the informal sector group, some of them enjoy a high level of income. Some 0.5% of the informal sector workers are characterised by a high status income level while none of the formal sector workers belong to that income category.

Similar patterns are also found with respect to the housing condition index and the IHI equipment ownership index. As the income level index is built on these indices, this result is expected.

Table 4
Workers by Formality Status
And Some Selected Background Variables

	Informal	Formal
Type of Family		
Nuclear	73.22	74.51
Extended	26.78	25.49
Total	100	100
Mean Family Size	5.25	4.98
SD	2.05	1.75
Housing condition index		
High status	16.39	15.69
Medium status	66.67	80.39
Low status	12.02	0.00
Extreme low status	4.92	3.92
Total	100	100
IHI equipment ownership index		
High status	2.2	2.0
Medium status	16.4	27.5
Low status	41.0	52.9
Extreme low status	40.4	17.6
Total	100	100
Income Level Index		
High status	0.5	0.0
Medium status	19.1	29.4
Low status	73.2	68.6
Extreme low status	7.1	2.0
Total	100	100

Source: El-Bakly, 2001.

4- *Discriminating between the informal and formal sector workers (Statistical assessment)*

In differentiating between two or more groups with respect to several variables, a question must be raised about the rules that should be adopted so as to make as few mistakes as possible over a large number of similar situations. Questions of this type give rise to what is called "Discriminant Function Analysis", the general objective of which is to find rules of behaviour in the assignment of individuals to predetermined classes with optimal properties. However, it could be appropriate first to justify why "Discriminant Function Analysis" is used.

4-1 Why "Discriminant Function Analysis"?

In the strict statistical sense, several statistical methods can be used to differentiate between different groups of things or persons. These are called "Multivariate Analysis", which means the study of how several variables vary together (see El-Bakly, 2001).

Analysis of Covariance and Discriminant Function Analysis could be used in this study. However, there are two major differences between the two techniques that make the latter method more suitable for the present study. In 'Discriminant Function Analysis' the x and y variables are interdependent and have the same logical status (having similar categories). In 'Analysis of Covariance', on the other hand, the x variables are covariance variables and the y variables are dependent. The second major difference between the two methods is that the 'Analysis of Covariance' incorporates one or more treatment or comparison variables, which are represented by the allocation of persons to two or more groups. In 'Discriminant Function Analysis' every person is treated as if

he or she belongs to one and the same group. Thus the 'Discriminant Function Analysis' is considered the best technique to be used in differentiating between the informal and formal groups of workers.

4-2 Differences between informal and formal sector workers

'Discriminant Function Analysis' is applied in this subsection to investigate the differences between the two labour market groups (formal and informal) with respect to a selected set of socio-economic and demographic variables (see Appendix 1).

a. Mean values of discriminating variables

Table 5 presents the mean values and standard deviations of the selected background characteristics for the two sector groups. Workers in the two sector groups differ markedly in some ways and show similarities in others. Informal sector workers seem to be less educated, married, self-employed, and male-dominated population compared with their formal sector counterparts. Both groups seem to be similar with respect to their current age, family type, family size, and migration status.

Turning to other socio-economic variables, data in Table 5 also demonstrate that formal sector group is more likely to live in better housing conditions, own more household equipment, and hence are more likely to have a higher income level.

Table 5
Mean and Standard Deviation Values of Selected Variables Used to Differentiate Between Informal and Formal Sector Workers

Selected Variables	Informal		Formal	
	Mean	S. D.	Mean	S. D.
Gender	1.0820	.2751	1.2745	.4507
Age	37.1749	15.3531	35.8824	11.9107
Marital Status	3.0328	1.1188	2.9216	1.0741
Years of Education	7.0164	5.2618	12.2745	4.5479
Family type	1.2678	.4440	1.2549	.4401
Family Size	5.2514	2.0521	4.9804	1.7492
Migration Status	1.1366	.3444	1.1176	.3254
Principal work Status	2.5355	.8238	2.9216	.3372
Housing Condition Index	2.9454	.6932	3.0784	.5601
HH equipment ownership	1.8033	.7877	2.1373	.7217
Income level	2.1311	.5181	2.2745	.4931

Source: El-Bakly, 2001.

b. Discriminant function coefficients

To examine the contribution of the individual variables, the discriminant function coefficients should be used. There are two types of coefficients, unstandardized and standardized coefficients. While the former tells us the absolute contribution of a variable, this information may be misleading when the meaning of one unit change in the value of a variable is not the same from one variable to another. Thus, we must go beyond the unstandardized coefficients if we want to know the relative importance of a variable, i.e. the standardized coefficients should be examined.

b.1 The Unstandardized coefficients

Interpreting the discriminant functions can be done by either (1) examining the relative positions of the data cases and group mean (known as

group centriods) or (2) studying the relationship between the individual variables and the calculated function. Here, the first approach will be adopted.

In calculating the discriminant score, the discriminant functions (unstandardized), which are exhibited in Table 6, were multiplied by the raw variable values, the product summed and then added to the constant (shown in the same table) to give the discriminant score. This procedure provides the values of the discriminant scores (-0.29237 and 1.04911) for the informal and formal sector workers respectively. This means that each negative sign indicates a push towards the informal group, whereas the positive sign means a pull towards the formal group. Accordingly, migration status and level of income are important variables in identifying the informal workers. By contrast, all the remaining variables are significant in identifying the labour force in the formal labour market.

Table 6
Discriminant Function Coefficients, Classification Function Coefficients, and Correlation Coefficients between Selected Variables in Differentiating Between Informal and Formal Workers

Selected Variables	Discriminant Function Coefficients		Classification Function Coefficients		Correlation Coefficients
	Unst.	St.	Informal	Formal	
Gender	1.227	.394	12.215	13.861	.447
Age	.027	.394	.311	.347	-.066
Marital Status	.066	.073	-.165	-0.076	-.075
Years of Education	.155	.794	.366	.574	.766
Family type	.142	.063	6.579	6.769	-.022
Family Size	.017	.033	.698	.720	-.101
Migration Status	-.184	-.063	9.778	9.531	-.042
Principal work Status	.736	.549	8.370	9.358	.386
Housing Condition Index	-.002	-.001	5.139	5.137	.149
Income level	-.149	-.076	8.841	8.642	.208
HH equipment ownership	.213	.165	-3.303	-3.017	.322
(Constant)	-5.892	--	-50.298	-58.711	--

Source: El-Bakly, 2001.
Unst.: Unstandardized coefficients.

St.: Standardized coefficients.

b.2 The Standardized coefficients

Standardized coefficients are the ones that would be obtained if all original data had been standardized so as to have a mean of 0 and a standard deviation of 1.0. We can compute the standardized coefficients (C's) from the unstandardized ones (U's) by using the following transformation (Klecka, 1980; Norusis, M.J/ SPSS Inc, 1994):

$$Ci = U = Ui \sqrt{[Wii / (n. - g)]}$$

whereas Wii is the sum of squares for variable i, n. is the total number of cases, and g is the number of groups. The standardized coefficients are helpful because we can use them to determine which variable contributes most to the function. This is done by examining the magnitude of the coefficients (ignoring its sign). The larger the magnitude the greater is that variables contribution.

Table 6 also shows the standardized coefficients. It can be seen that years spent in education makes the greatest contribution in differentiating between informal and formal group of workers. This followed by principal work status that comes next in the rank order. All of the other variables are of minor importance compared to these two variables. Gender, age, and household equipment ownership are next in the rank order. These results can be revealed also by looking at the correlation coefficients between the discriminating variable and the discriminant function (see Table 6). These findings confirm that the enhancement of workers education qualifications and capabilities might increase their chance of holding a formal type of job.

5- Accuracy and test of significance of the discriminant functions

For every statistical analysis, there are always ways to determine the extent to which the analysis provides accurate and reliable results. As far as 'Discriminant Function Analysis' is concerned, two methods can be used to measure the accuracy and significance level of the derived results. Both methods will be used here.

5-1 Accuracy of the derived discriminant functions

The purpose here is to investigate the adequacy of the derived discriminant function. In that respect, the second type of the discriminant function's activities, which is the classification function, will be dealt with. Classification is the process by which a decision is made that a specific case belongs to or most closely resembles one particular group. This could be done by calculating a classification score for each case on each group using the same way of calculating the discriminant score. Each case is then classified into the group in which it has the higher score. The output of this procedure is presented in Table 7.

Table 7
Comparison between Actual and Predicted Classification For Formal and Informal Sector Workers

	Actual Groups	Predicted Group Membership		Total %
		Informal %	Formal %	
Original	Informal	74.3	25.7	100
	Formal	17.6	82.4	100
Cross-validated	Informal	70.5	29.5	100
	Formal	25.5	74.5	100

Source: El-Bakly, 2001.
a Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
b 76.1% of original grouped cases correctly classified.
c 71.4% of cross-validated grouped cases correctly classified.

Figures in Table 7 show the classification matrix for the two labour market groups. The diagonal elements are the number of cases classified correctly, according to the model, into the groups. For example, 74.3% of the informal sector workers are classified correctly and 82.4% of the formal workers are classified correctly, according to the model. The overall percentage of cases classified correctly is the sum of the number of cases classified correctly in each group divided by the total number of cases. The proportion of respondents who are correctly classified into informal and formal sector groups is equal to 76.1%, which is higher than the expected percentage of correct classification (50 percent) if assignment were made randomly, but the improvement is moderate. This could mean that the discrimination power is moderately accurate.

There is another measure of the improvement called "proportional reduction in error statistics "TAU". In this case TAU is equal to 0.239, which means that classification based on the discriminating variables made 23.9% fewer errors than would be expected by random assignment.

The second panel of Table 7 represents the cross-validated classification matrix. The difference between the original and the cross-validated figures is that in cross validation, each case is classified by the function derived from all cases other than that case. The table shows that the proportion of cases that are correctly classified according to the model is (71.4%), when cross-validation is applied, is lower than that found when original grouping is applied (76.1%). However, the discrimination power is still moderately high and consequently can be defined as accurate.

5-2 Test of significance of the discriminant functions

When there are no differences among the populations from which the samples are selected, the discriminant functions reflect only sampling variability. A test of the null hypothesis that, in the population, the means of all discriminant functions in the two groups are really equal and zero can be based on what is called "Wilks' lambda". "Wilks' lambda" is not just the ratio of the between-groups to within-groups sum of squares but is the product of the univariate Wilks' lambda for each function. Based on a chi-square transformation of the statistics, the significance level of the observed "Wilks' lambda" can be tested. The value of Wilks' lambda and its associated chi-square value, the degrees of freedom, and the significance level are 0.763722, 61.054, 11, and 0.0000. Since the observed significance level is less than 0.00005, the null hypothesis that the means of both functions are equal in the two populations can be rejected. In other words, the two populations (the informal and the formal) are different.

6- Conclusion

The main purpose of this paper has been to formulate a clear idea about the socio-economic and demographic background characteristics of informal and formal sector workers. Comparison between the two groups was attempted. Particular attention has been directed to certain characteristics that are assumed to be the potential micro determinants for joining the informal labor market in Egypt. These include gender, age, marital status, education, principal work status, and some other socio-demographic characteristics. A 'Chi-squared' test and 'Discriminant Function Analysis' were applied as a statistical assessment in differentiating between the groups. The following are the main results.

6-1 Significance level of difference

Informal-formal comparisons were found to be highly significant with regard most of the variables used in the analysis. Informal sector workers are holding jobs that are significantly different from those held by formal sector workers. However, informal sector workers are significantly different from formal sector workers with regard to only some of the background characteristics.

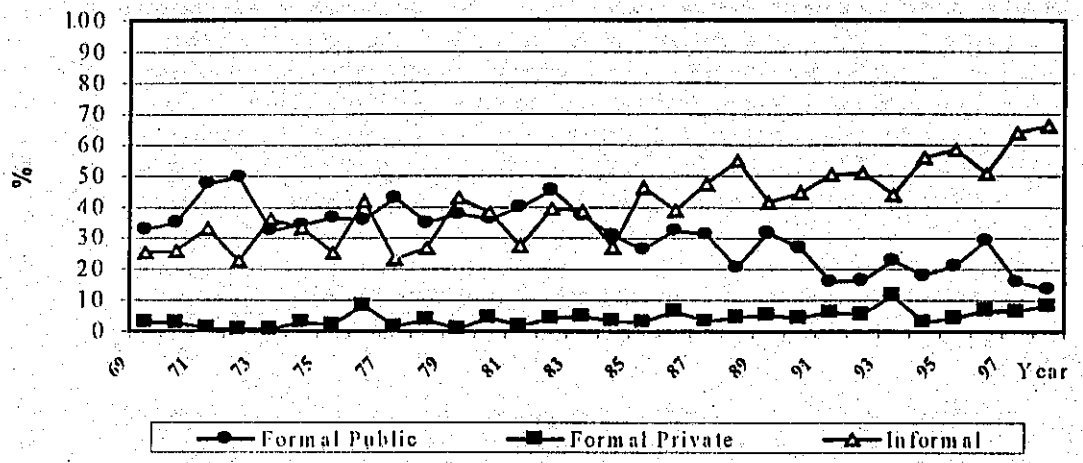
6-2 Informal-formal background characteristics

The results confirm to the hypothesis, mentioned in the beginning, that informal workers are different from those who join the formal labor markets. Informal sector workers are likely to be less educated, married, self-employed, and male dominated population compared with their formal labor counterparts. However, the two groups seem to be similar with respect to their age, family type, family size, and migration status. Formal sector workers are more likely to live in better housing conditions, to own more household goods, and hence, and according to the practical definition used, are more likely to have higher income level. This could be considered as a consequence of joining the formal rather than the informal labor market.

The data also lend support to the informal sector theories which indicate that informal sector jobs do not need either a high level of education or of skills and could be classified by ease of entry, with education being the most important factor in job classification. However, and not surprisingly within the context of Egypt, a civil engineer, an accountant, and a lawyer can be working informally.

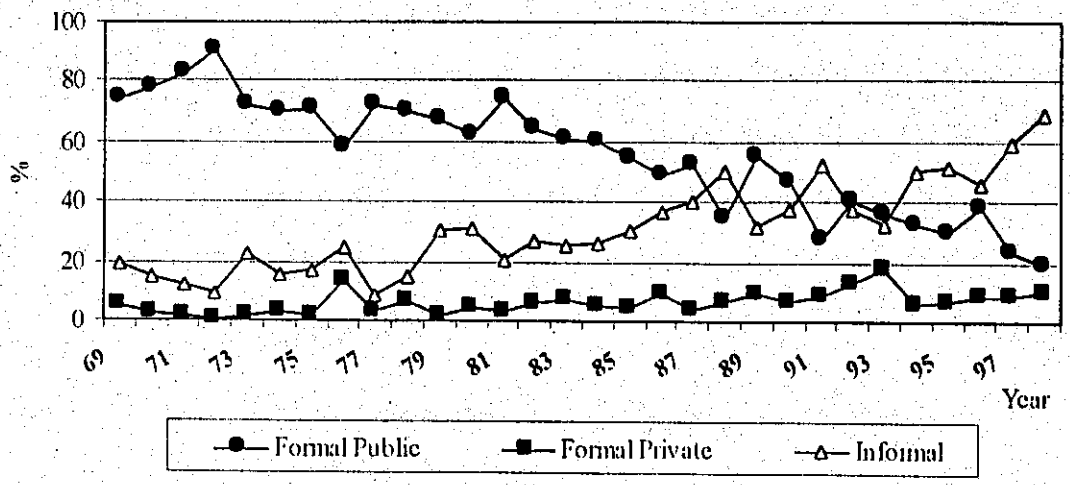
Years spent in education made the greatest contribution in differentiating between the two groups. This followed by principal work status, gender, and age. It can be also concluded, from the Discriminant Function Analysis, that migration status and level of income are more strongly associated with informal sector workers. The remaining variables, by contrast, are more strongly associated with workers within the formal labor markets.

Figure (1)



Percent of New Entrants into Formal & Informal Employment
Source: El-Bakly, 2001.

Figure (2)
Percent of New Entrants to Formal & Informal Employment
18 years old or more



Source: El-bakly, 2001.

Appendix 1

Variables and Their Measurement Used in the Discriminant Function Analysis

Variables	Measurement	
Gender	1	Male
	2	Female
Age	Actual years	
Marital status	1	Less than the legal age
	2	Never-married
	3	Married
	4	Widowed
	5	Divorced
Years of Education	Actual years	
Family Type	1	Nuclear
	2	Extended
Family size	Actual number	
Migration status	1	Native
	2	Migrant
Principal Work status	1	Employer
	2	Self-employed
	3	Paid worker
	4	Un-paid family worker
Housing condition index	1	High status
	2	Medium status
	3	Low status
	4	Extreme low status
HH equipment ownership	1	High status
	2	Medium status
	3	Low status
	4	Extreme low status
Income index	1	High status
	2	Medium status
	3	Low status
	4	Extreme low status

References

Al-Mahdy, A. (1996) "Employment Conditions in an Urban Informal Setting: The Case of Maarouf District", Paper Presented in Egypt Today: State, Society and Regional Role, Conference, Department of Sociology, University of Manchester, 16-19 May

El-Bakly, A. (2001) "The Informal Sector and urban Labour Markets in Egypy: A Life Path Approach", Unpublished PhD thesis, The University of Liverpool, UK.

Handoussa, H. (1991), "Crises and Challenge: Prospects for the 1990s", in Handoussa, Heba and Gillian Potter, Employment and Structural Adjustment: Egypt in the 1990s, Cairo, Egypt: The American University in Cairo Press, pp. 3-24

Handoussa, H. (1992), "Wages, Production and Inflation: The Case of Egypt Since the *Infitah*", in S. Soliman, ed., The Dynamic of Inflation in Egypt, The Centre of Economic and Financial Research and Studies, Cairo, Egypt: Cairo University, p. 385

Klecka, N.R. (1980) "Discriminant Analysis", Beverly hills, London: Sage Publications, No. (19)

Norusis, M.J/ SPSS Inc (1994) SPSS Professional Statistics 6.1, SPSS Inc

Rizk, S. (1991) "The Structure And Operation of the Informal Sector in Egypt", in Handoussa, H. and Potter, G., Employment and Structure Adjustment: Egypt in the 1990's, Cairo, Egypt: AUC Press, pp. 167-185.