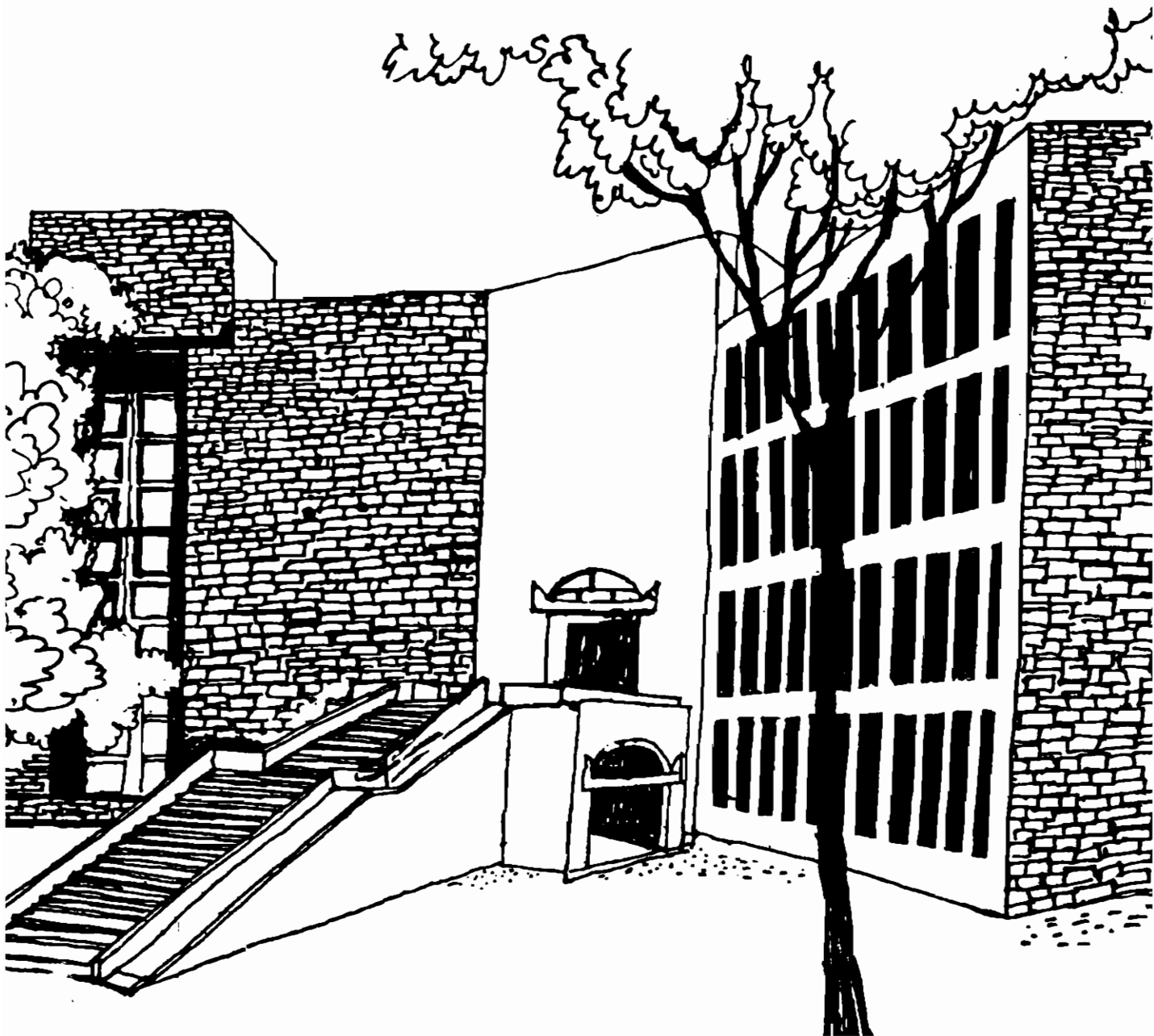# Working Paper

# TRANSFER PAYMENTS AND OTHER DETERMINANTS
# OF WORKING POVERTY IN CANADA 1971-90

By

Ravindra H. Dholakia
&
Archana R. Dholakia

INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD - 380 015
INDIA

# Transfer Payments and Other Determinants of Working Poverty in Canada, 1971-90

- Ravindra H. Dholakia[*]
and
Archana R. Dholakia[**]

## Abstract

Government policy of reducing transfer payments drastically is based on arguments of strong preference for leisure by the beneficiaries. Since this has direct bearing on working poverty, empirical evidence on the relationship between the incidence of working poverty and transfer payments in Canada is presented in the paper. Different categories of working poor are considered separately and determinants identified. Impact of unemployment benefits and other transfer payments on working poverty is examined holding other factors constant. Our findings suggest that cuts in transfer payments are likely to impose considerable social costs in terms of raising the incidence of working poverty in Canada.

[*] Professor of Economics, Indian Institute of Management, Ahmedabad.

[**] Associate Professor of Economics, School of Social Sciences, Gujarat University, Ahmedabad.

# Transfer Payments and Other Determinants of Working Poverty in Canada, 1971-90

The government of Canada froze federal transfer payments for the years 1990, 1991 and 1992. It was preceded by indexation of transfer payments to the increase in GNP less three percentage points in the 1989 budget. All this indicates a sharp decline in the real transfer payments in the economy. There have been sharper cuts in the unemployment benefits, employment programmes, and public expenditure on health and education. (See, Ken Battle, 1992). The impact of all these policy changes on the poor is of critical importance for policy makers. There is a controversy on the likely effects of reduction in transfer payments on the poor. Danziger et al. (1981) argue that while direct effect of increasing transfer incomes is to reduce the poverty rate, the indirect effect on their work effort tends to reduce their earned income substantially. Plotnick (1984), Jones (1984) and Burtless (1986) also indicate similar kind of effect of transfer payments on poverty. It is argued that if transfer incomes are reduced, hours worked by the beneficiaries would have significantly increased. Murray (1984) goes to the extent of arguing that the welfare system might be a cause rather than a cure for poverty. There is a widespread feeling that the welfare system is abused by beneficiaries who are able to work but choose to work less. If such preferences between income and leisure do exist, it is expected that a decrease in transfer income  -

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particularly the unemployment benefits, other things remaining the same, would lead to a decrease in the number of working poor in the economy. On the other hand, the general belief is that transfer incomes directly benefit the poor, particularly alleviating poverty of the working poor. A reduction in unemployment benefits or other transfer incomes is, therefore, expected to increase the number of working poor in the economy. The question is ultimately empirical in nature.

In the present paper, we propose to investigate the relationship empirically by identifying the determinants of working poverty in Canada over two decades, 1971-1990. We begin by discussing briefly the concept and measurement of working poverty (Section II) followed by identification of possible determinants of different categories of working poor in Canada (Section III). Results of the empirical exercise are then presented (Section IV). Implications of our findings for policies are discussed in the concluding part (Section V).

## II. Concept and Measurement of Working Poverty:

Poverty in an economically developed country like Canada is dimensionally a very different concept as compared to the poverty in a less developed country. While in the latter case, absolute poverty measures are more relevant, in the former case the concept of relative poverty only can be meaningful. However, issues involved in the measurement of relative poverty, particularly the ones related to the tastes and preferences of

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people, make the estimates more subjective. Moreover, when we consider measuring working poverty, complications get compounded by the additional dimension of "work" in the concept. As a result, consensus on a definition or a measure of the working poverty among the scholars working on the subject is not only difficult but almost impossible to achieve. This is particularly so because the estimates are highly sensitive to the definition adopted (See Evans and Chawla, 1990).

Apart from the practical problems in arriving at a generally acceptable definition for measuring the phenomenon, the concept of working poor is intuitively appealing and too relevant for the policy makers to ignore. It points to the extent of failure of the working of the economic organization of the country to ensure a decent living standard to the household of a worker. Ross and Shillington (1989) preferred a conservative definition by considering only full time work of the family (of 49 weeks in a year) in order to "test the validity of the common assertion that in any industrialized economy any household that puts in a full year of employment is unlikely to be poor." This certainly captures an important dimension of the failure of the working of the economic system. But it ignores the other equally important dimension of the failure of the system in not being able to provide gainful employment to the extent it is desired. A person who fails to get full time employment and who has to accept part-time work or remain unemployed may not be in a position to afford a decent living standard to his/her household. such cases should

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also be considered in our definition of working poor. Thus, we need a concept which equates work with labour supply rather than employment per se. Moreover, it should consider household rather than individual as unit.

There have been few studies dealing with temporal behaviour and empirical models on working poverty in Canada. On the other hand, it is possible to construct a fairly long time series estimates of working poverty from the low income statistics available from the annual publication of the Statistics Canada (Cat.# 13-207) entitled "Income Distribution By Size." These data are not intended to focus upon specific issues of working poverty or labour market related hardships. As a result, the reported data in the publication are not in complete confirmity with our requirements. For instance, the published data do not contain cross-classified statistics of low income 'working heads of households' by age, sex, level of education, number of earners, etc. This prevents us from excluding certain categories of people like the households heads above 65 years of age, students and others whose problems of poverty are not related directly with the labour market.

The major problem in using these low income statistics from the Statistics Canada is that the definition of low income keeps changing over time. Thus, the measuring rod of poverty itself changes as the base for the low income cut-offs (LICO) keeps changing every 8 to 9 years.[11] According to the 1961 definition, households spending more than 70 per cent of their income on

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basic necessities of food, clothing and shelter are defined to be poor (low income). The cut-off changed to 62 per cent in 1969, 58.5 per cent in 1978, and 56.2 per cent in 1986. For a given year, such changes in the base would result in substantial differences in the estimated number of the poor households in the economy. Although such periodic changes in the LICO might be justified on other considerations like increasing per capita income, declining average proportion of income spent on basic necessities, declining average size of the households in the country, etc., they create the problems of temporal comparability and consistency of the data on poverty. Estimates of poverty proportions based on the same set of LICO over a long period of time are very useful for examining the impact of various macro level variables on the phenomenon. Fortunately, a fairly long time series on poverty data from 1973 to 1989 is available for the same 1969 base. We adjusted the data for the years - 1971, 1972 and 1990 for the 1969 base with the help of appropriate assumptions.[12]

The estimates of low income by Statistics Canada are reported by employment status and length of work done by the head of the households. Moreover, it provides data separately for two groups viz., family and unattached individuals.[13] The incidence of working poverty can, therefore, be estimated from these Statistics Canada data according to the following six categories:

A. Poverty among families whose heads are in the labour force.[14]

B. Poverty among families whose heads are full time workers. [15]

C. Poverty among families whose heads are part-time workers. [16]

D. Poverty among unattached individuals who are in the labour force.

E. Poverty among unattached individuals who are full-time workers.

F. Poverty among unattached individuals who are part-time workers.

The estimates of working poverty by all these six categories in Canada over the period 1971-90 are presented in Tables 1 and 2. The incidence of poverty in different categories is obtained as percentage of total families or unattached individuals as the case may be in the respective categories.

[ Tables 1 and 2 around here ]

It can be seen from the tables that there were 511,000 working poor families in Canada in 1971. This number fell to its lowest at 339,000 in 1978 and again rose to 411,000 in the year 1990. The number of unattached persons who had at least some attachment with the labour market and were still living below the poverty line was 386,000 in 1971, which remained almost the same in absolute terms around 1990, with significant amount of fluctuations in between these two years. Thus the estimated number of working poor households in Canada has declined from 896,000 to 831,000 during the span of twenty years. Working

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poverty has also mitigated in percentage terms during the period. Incidence of working poverty among families and unattached individuals fell from 10% to 5.8% and 22.3% to 13.45% respectively during 1971-90. But it is important to note, however, that the observed decline in working poverty is neither substantial nor consistent. The year to year fluctuations are very large and do not provide any guide to a predictable trend.

Extent of involvement of the head in the labour market would naturally affect the chances of a family being poor. The data (Table-2) do confirm this. The probability of a family being working poor is three to four times higher if it is headed by the part time worker than it is headed by the full-year, full-time worker. The incidence of working poverty has declined among both kinds of households, irrespective of whether they were headed by the part-time or full-time workers. But the decline is sharper among the latter group. The highest incidence of poverty was observed among the group of unattached individuals working for the part-time. Around early seventies, every second person of this group was poor. After this, however, the situation appears to have improved, as around 1990, one out of every three persons of that group was found to be poor. In our opinion, poverty among unattached individuals need not cause great concern, since in majority of the cases the problem is either of a fairly temporary nature or related with the life-cycle. About 35-40% of unattached persons are either below 24 years of age or are above 70 years and usually do not have very strong attachment to the

labour market. (See, Statistics Canada, Income Distribution By Size). Infact a very high proportion of them, nearly 35-40%, work only between 1 to 9 weeks per year. Majority of them are either students or retired single persons and quite often work at the minimum wage or below the minimum wage. Remaining people in this group consist of never married or divorced individuals without children and their poverty should certainly cause some concern to the policy makers because, unlike families, such working unattached persons are not entitled to certain benefits of income supplementation. (See, NCW, 1991.)

### III. Determinants of Working Poverty in Canada

A fairly long time series of consistent and comparable data set on working poverty in Canada can help provide useful insights into the likely impact of certain policy variables. With 20 observations, it is possible to hold several critical factors constant in order to examine the direction and magnitude of the relationship between the phenominon of working poverty and the government policy on transfer incomes. Our methodology consists in first identifying those influential factors which can be separated directly by considering the disaggregated data on poverty from the same source of information, i.e. Stat.Can. Cat.# 13-207. In the next step, we consider working poverty within such categories separately and try to identify most important determinants in each category. We use the multiple regression technique for the purpose. It also enables us to hold other

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determinants constant while examining the relationship between two given variables.

As we have already discussed in the previous section, working poverty rates are separately obtained for family heads and unattached persons. Within each of these categories, length of employment is an important factor determining the phenomenon of working poverty. Since it is possible to obtain poverty rates separately among those who are full time full year workers and those who are part time workers, we can consider determinants of the working poverty within each of these categories. It is intersting to note that incidence of poverty among families whose heads are in the labour force (Variable A) is determined at the first level by the incidence of poverty among families whose heads are full time workers (Variable B), and by the incidence of poverty among families whose heads are part time workers (Variable C). The same type of relationship holds for the unattached individuals, i.e. Variable D being determined at the first level by Variables E and F as defined above in section II. The two regressions corrected for first order autocorrelation by Cochrane-Orcutt method are obtained as:

1)  A  =  1.53 + 0.3060 B + 0.2307 C
   t-values:  (1.66)  (1.99)[**]  (3.18)[*]

   $R^2$ between observed and predicted values = 0.8572
   Runs Test : 12 runs, 10 positive, 10 negative;
   N Stat. = 0.4595

2)   D   =   4.51 + 0.5118 E + 0.2490 F
   t-values:   (1.52)  (2.50)[*]      (2.42)[*]

   $R^2$ between observed and predicted values = 0.7534
   Runs Test: 11 runs, 10 positive, 10 negative;
   N Stat. = 0.00

(Note: * Significant at 5% level; ** Significant at 10% level)

It can be seen from our first step in the methodology that rates of working poverty among full time and part time workers individually as well as jointly provide a very significant explanation for the variation in the rates of working poverty among those in the labour force. In terms of magnitude, it may be observed that a one percentage point increase in the poverty rate among full time workers leads to a larger increase in variables A and D than in the poverty rate among part time workers. It implies that incidence of poverty among those connected with labour market in Canada is more affected by the incidence of poverty among the full time workers than among the part time workers.

In our second step, we need to first identify possible determinants of the incidence of poverty among the family heads and unattached individuals who are full time or part time workers. Since our primary objective is to examine the impact of government policy regarding transfer incomes, we consider it as an important determinant. Transfer payments in Canada include various types of welfare payments to different groups.[7] It is necessary to disaggregate it into unemployment insurance benefits (UIB) and other transfer payments (OTP) because the government

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policy trends of late in Canada seem to move towards complete withdrawl of the Federal government from UIB while some restructuring and reduction in OTP. Both these policy variables are likely to have directionally similar impact on the work effort of the beneficiaries. As discussed in the beginning of the present paper, if the UIB and OTP have net adverse effects on the work effort of the beneficiaries, they should be positively related with the incidence of working poverty, other things remaining the same. We now turn to identify these other factors.

The incidence of poverty among families and unattached persons is closely linked with the overall macroeconomic environment in the country as well as some specific socio-cultural factors relevant for the concerned category. The most appropriate indicators for the macroeconomic environment relevant for the incidence of poverty in our opinion are the overall unemployment rate (UR) in the system, the growth rate of real GDP (GGDP) and share of the tertiary sector in total employment in the economy (TSE). When the relationship between incidence of working poverty and UIB and OTR is investigated, it is necessary to hold the overall unemployment rate (UR) in the system constant because if UR changes, UIB is likely to change in practice. The government policy intervention in terms of UIB would, therefore, acquire meaning only when UIB changes at a given level of UR in the economy. As far as the effect of UR on the incidence of working poverty is concerned, it is possible to think about both types of relationship. High UR implies downward pressure on the

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the wage rate and is likely to depress incomes of the people either by making them completely jobless or by converting full time workers into part time workers. In both these cases, high UR is likely to be positively associated with the incidence of working poverty. On the other hand, it is possible that creation of low-paying jobs resulting in the reduction of UR may lead to an increase in the number of working poor by shifting some non-working poor to the working poor category.

The other macroeconomic environment factor relevant for our study is the growth rate of real GDP (GGDP). Again, there are hypotheses for both types of relationship with the incidence of working poverty. The trickle down theory would suggest that higher GGDP would lead to increased real earnings and upward pressure on the wages ultimately reducing the poverty rate among those connected with labour market. However, some empirical evidences suggest that the contrary might happen too. If with the overall growth wage dispersion in the system increases, it may not lead to reduction in working poverty (See, Sawhill, 1988). As Levy and Michael (1986) argue, growth in industrialized nations is usually accompanied by 'wage polarization' problem. Bluestone and Bennett (1988) find a U-shaped relationship between economic growth and growth of low paying jobs. Thus, the nature of the relationship between GGDP and working povery depends on what types of forces - trickling down or polarizing - are dominant in the system.

A very related macroeconomic phenomenon to the overall growth and unemployment in the system is the employment structure which is also likely to have considerable effect on the working poverty in the economy. Over the years the employment structure in Canada has moved in favour of the tertiary sector. The modern tertiary sector jobs require high degree of skills and hence have high wages. Whereas, the traditional tertiary sector jobs offer lower wages since their skill requirements are also not very high. The latter category includes uncontracted and informal jobs. Even in the modern sector, growth of part-time jobs can lead to lower earnings per worker. Faster growth of the tertiary sector might have led to the relative growth of part-time and uncontracted jobs in Canada. We hypothesize, therefore, that proportion of employment in this sector is positively associated with the problem of working poverty.

From the socio-cultural factors which are likely to affect the incidence of working poverty, education and work participation in our opinion are more important. The proportion of multi-earner families (MEF) is clearly a relevant factor determining the incidence of working poverty among families. Studies have found that the probability of being working poor is less, the higher the number of earners in a family (See NCW, 1981; Ross and Shillington, 1989). This, however, is not a factor for the case of unattached individuals.

Education as a factor can be considered through the enrollment rate in the post-secondary education (PSE). We may

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measure it as a ratio of total enrollment in post secondary education to people in the age group 15-24 years. This variable is likely to be positively related to the incidence of working poverty among all the categories considered here. Students constitute a large fraction of the unattached individuals and majority of them are doing one or the other kind of part time work to support their education. Some of them, however, may be part-time students and full time workers. Some may be staying in the family and studying. Those who are working may be getting low wages due to their lack of experience or desired qualifications. They may have to continue to work in the same way until they obtain necessary qualification and experience. Since post secondary education is an expensive proposition, they may have to live in poverty at least temporarily. A complementary measure of the importance of education in the society is to consider per capita real expenditure on education (PEE).[18] The higher PEE are expected to contribute positively to the productivity and income of the people in future. It is thus an investment. However, since they are considered a part of the current consumption expenditure for the accounting purpose, PEE is likely to be positively related with the incidence of working poor. Time series data on all these variables are presented in Appendix Table below.

## IV. **Empirical Results:**

We are considering simple multivariate single equation regression models for the different categories of working poor mentioned above. (Section II). The basic models for the poverty rates among the three categories of family heads would include the same set of explanatory variables. Similarly, the set of explanatory variables for the poverty rates among three categories of unattached individuals remains the same as shown below:

### The Basic Model of Determinants of Working Povery in Canada

| Dependent Variables | Independent Variables Considered |
|---|---|
| (i)   A,B,C | UIB, OTP, UR, GGDP, TSE, PSE, PEE, MEF |
| (ii)  D,E,F | UIB, OTP, UR, GGDP, TSE, PSE, PEE. |

where A,B and C are poverty rates among family heads who are respectively in the labour force, full-time workers and part-time workers;

D,E and F are poverty rates among unattached individuals who are respectively in the labour force, full-time workers and part-time workers.

UIB is unemployment insurance benefits;

OTP is other transfer payments;

UR is unemployment rate;

GGDP is growth rate of gross domestic product

TSE is share of tertiary sector in total employment;

PSE is rate of post secondary enrollment

PEE is per capita real expenditure on education;

MEF is proportion of multi-earner families.

These regressions are based on time series of annual data from 1971 to 1990 for the Canadian economy. Therefore, they usually suffer from the problem of serial correlation. We have taken care of this problem by estimating the regressions correcting for first order autocorrelation through Cochrane-Orcutt method. The reported R-Square is, therefore, between the observed and predicted values of the dependent variable. We need to consider the fact that our sample observations are limited only to 20. The cost of considering more number of explanatory variables in terms of reduced degrees of freedom is, therefore, substantial. In order to enhance confidence and reliability of our estimates without sacrificing the overall explanatory power significantly, we have dropped statistically most insignificant variables from the equation. Table 3 presents the most acceptable estimates of regression equations considered for the abovementioned six categories of working poverty in Canada.


[ Table 3 around here ]


Table 3 shows that, for each category of the working poverty, we have been able to identify the determinants achieving a very high degree of explanatory power. The explanatory power of our models has been considerably higher in the case of working poverty among the families than the unattached individuals and among full time

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workers than the part time workers. It can also be seen from our results that the coefficients of different independent variables show remarkable stability when the statistically insignificant variables are dropped from the regression on the same dependent variable. In fact, the first regression with the given dependent variables like A,B.....F (i.e. the odd numbered regressions in the table) incorporates all possible determinants so as to provide an estimate of the maximum explanatory power of our model for the dependent variable. The second regression on the same dependent variables (i.e. the even numbered regressions) contains only the most relevant set of determinants for the category of working poverty in question so as to ensure that the goodness of fit (F-Statistics), adjusted r-square and t-values of slope coefficients are optimized. The stability of the slope coefficients is, therefore, reassuring of the lack of major econometric problems in our results. In our most acceptable regression equations for each category of working poor (i.e. the even numbered regressions reported in the Table 3), most of the slope coefficients are statistically significant as can be seen from their t-values. We may, therefore, use this set of regressions for drawing implications and conclusions.

## V.    Implications of Our Results:

Our exercise has clearly shown that the set of most relevant determinants varies for different categories of working poor. Disaggregated set of data would, therefore, provide very valuable

insights into the phenomenon. Other transfer payments (OTP) is the only variable appearing in all our chosen regressions. Its slope coefficient is consistently negative and statistically significant in all cases except the case of working poverty among family heads in the labour force (Variable A). Its magnitude is numerically much higher in the case of unattached individuals than the family heads; and for the part-timers than the full-time workers. We can see that, other things remaining the same, an increase of $ 100 p.a. per capita on OTR would lead to a reduction of poverty rate by 0.7 and 2.4 percentage points respectively among the family heads who are full-time workers and the ones who are part-time workers; and by 2.6 and 7.3 percentage points respectively among the unattached individuals who are full-time workers and the ones who are part-time workers. Similarly, the slope coefficient of the unemployment insurance benefits (UIB) in all the regressions except the last one (Variable D) turns out to be negative and statistically significant. In terms of magnitude of the coefficient, the UIB appears to be much more important to the family heads who are full-time workers as compared to the unattached individuals who are full-time workers. However, among the part-timers, UIB seems to be more important to the unattached individuals than to the families for reducing their poverty.

In any case, our results categorically reject the hypothesis of a positive relationship between the transfer payments (UIB & OTP) and incidence of working poverty. This implies that there

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is not sufficient evidence at macro level to support the hypothesis of strong preference of the poor in favour of leisure. Any policy changes based on the arguments that 'hours worked by the beneficiaries would significantly increase if transfer incomes are reduced' needs re-examination. When one is examining the impact of the policy of transfer payments on work effort or poverty, other factors like overall unemployment rate, growth rate or education, etc. should be held constant as we have done in our exercise. If this is not done, the conclusions are likely to be misleading because the estimates would not reflect the true magnitude or sometimes even the sign of the partial rate of change in the concerned variables.

Our results in Table 3 also reveal that overall unemployment rate (UR) is a relevant factor for the poverty among families and not among the unattached individuals. Moreover, UR is positively related to the working poverty in Canada. A one percentage point increase in UR, other things remaining the same, would lead to 0.55 and 1.16 percentage points increase in the poverty rates among respectively the full time working head of the families and the part-time working head of the families. Thus, the impact of increased unemployment on the poverty among part-timers is more than double the one among the full-time workers. This is expected because increased unemployment rate exerts downward pressure on the wages and depress people's income by rendering them jobless or part-time workers from full-time workers.

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The role of the growth of real GDP (GGDP) and the share of tertiary sector in total employment (TSE) in determining working poverty in Canada also comes out clearly from Table 3. The slope coefficients for both are positive in all cases and turn out to be higher for the poverty rate among the part-timers than among the full-time workers. Thus, we can say that Canada experienced immiserizing growth during 1971-90. Our findings corroborate the arguments of Sawhill (1988) and Levy and Michael (1986). Canada, like other industrialized countries, seems to have experienced the problem of 'wage polarization' and growth of tertiary employment in low paid jobs during the seventies and the eighties. The 'trickling down effects' do not seem to be operating efficiently in Canada. This per se calls forth interventionist approach at least to alleviate the poverty and correct mal-distribution of income in the country. One effective way to intervene is by providing education and training opportunities to the labour. However, as our findings in Table 3 suggests, this could at best be a long run solution. In the short run, increased enrollment in post-secondary education (PSE) or an increased per capita real expenditure on education (PEE) would lead to an increase in the poverty rate among both families and unattached individuals who are full-time or part-time workers. However, the poverty rates among family heads and unattached individuals who are in the labour force are negatively and statistically significantly related to the per capita real expenditure on education. This could be on account of the

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unemployed leaving the labour market to join studies if some financial assistance is available. In the short run, therefore, an increase in public expenditure on education can provide some relief to the poor.

We conclude by summarizing our main argument that transfer payments are not necessarily a wasteful expenditure. It has been argued and has somehow found favour with the Canadian government in the recent past that transfer payments need to be cut drastically in order to encourage people to put in more work so as to be self-reliant and independent. In the process, the impact of such a policy on poverty, particularly working poverty, was considerably underplayed. It is high time that the policy makers in Canada recognize the adverse impact of such policies on the poor. The policy of reducing transfer payments may have its own benefits, but it also has significant costs. It is for the government to consider whether the benefits of such policies outweigh the costs they impose on the society.

**FOOT-NOTES**

1.  The Statistics Canada has been conducting the Survey of
    Consumer Finances (SCF) on a periodical basis between 1951
    and 1971 and annually since 1971. A sample representing
    virtually all private households in Canada is taken and the
    results are published in the yearly publication "Income
    Distribution by Size." It devotes separate section on the
    low income statistics. The procedure for determining the low
    income cut-offs can be outlined as follows: (a) The overall
    proportion of income spent on food, clothing and shelter (A)
    from the most recent 'Family Expenditure' data is
    determined. (b) add 20% to this proportion (i.e. A+20%). (c)
    Estimate income levels (according to family size and size of
    area of residence) from family expenditure data, where
    expenditure on food, shelter and clothing is (A + 20%) of
    income. There are 35 cut-off lines produced to suit the
    varied size of the family and extent of urbanisation. These
    cut-offs change periodically and create the problem of
    comparability.

2.  For the years 1971 and 1972, Statistics Canada data on
    poverty rates are available only at 1961 base. Similarly,
    for the year 1990 the data are available with 1978 and 1986
    base only. Since data with 1961 base are available for 1973
    for which alternative set of estimates are also available at
    1969 base, we have derived the 'comparable estimate' for the
    year 1971 and 1972 at 1969 base, assuming the same annual
    rates of change in the poverty rates implied by the
    alternative sets of data. Similarly for the year 1989
    estimates of poverty rates were available both at 1969 base
    and at 1986 base. Hence we made the same assumption of
    proportionality to derive the estimates for 1990.

3.  Statistics Canada defines family as a group of individuals
    sharing a common dwelling unit and related by blood,
    marriage or adoption. Thus all relatives living together at
    the time of survey are considered to comprise one family,
    whatever the degree of family relationship. This definition
    of family is referred to as the "economic family". It
    defines unattached individual as a person living alone or in
    a household where he/she is not related to other household
    members. e.g. hostels.

4.  Labour Force includes employed as well as unemployed
    persons. Head of the family is husband in case of married
    couples, parent in case of lone parent family with unmarried
    children, eldest in the family where the relationships are
    other than husband-wife or parent-child.

5.  Full time worker here is a full year full-time worker who worked mostly 30 or more hours per week for 49 to 52 weeks in the reference year.

6.  Part time worker is a person who worked mostly 29 or less hours per week for 49 to 52 weeks or worked less than 49 weeks in the reference year.

7.  Transfer payments in Canada can be classified into five major groups: (a) age related - old age security, guaranteed income supplement and spouse's allowance; (b) employment related - Canada and Quebec Pension plans, Unemployment Insurance, Manpower training, allowances and workers' compensation; (c) family related - Family Allowance and refundable Child Tax Credit; (d) means tested - refundable federal sales tax and provincial tax credits, social assistance and (e) other - pensions to the blind, disabled and veterans.

8.  Expenditure on education includes both public and private expenditures. The real expenditures are obtained by deflating the current per capita expenditures by price index of education with base of 1986. This price index is a component of the consumer price index.

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## Table 1 : Estimates of Poor And Working Poor in Canada - 1971-90
### (As Per 1969 LICO Base)

| Year | NFHLF (in '000) | PFHLF (in %) (A) | NUPLF (in '000) | PUPLF (in %) (D) | NFHLF as % of TPF | NUPLF as% of TPUP | TPWPH (in '000) |
|------|------|------|------|------|------|------|------|
| 1971 | 511 | 10.0 | 386 | 22.30 | 55.40 | 39.30 | 2209 |
| 1972 | 408 | 7.9 | 374 | 20.20 | 50.40 | 38.50 | 1837 |
| 1973 | 455 | 8.7 | 414 | 21.70 | 53.40 | 33.00 | 1996 |
| 1974 | 356 | 6.5 | 391 | 18.90 | 47.60 | 30.80 | 1543 |
| 1975 | 381 | 6.8 | 382 | 17.90 | 46.80 | 26.80 | 1702 |
| 1976 | 370 | 6.4 | 371 | 16.70 | 46.40 | 28.60 | 1626 |
| 1977 | 364 | 6.2 | 370 | 16.10 | 44.50 | 25.90 | 1596 |
| 1978 | 339 | 5.7 | 434 | 17.80 | 44.20 | 29.90 | 1537 |
| 1979 | 397 | 6.6 | 359 | 14.30 | 50.50 | 26.70 | 1689 |
| 1980 | 390 | 6.4 | 437 | 16.60 | 53.10 | 34.40 | 1797 |
| 1981 | 379 | 5.9 | 366 | 14.40 | 50.00 | 32.30 | 1635 |
| 1982 | 453 | 6.9 | 432 | 16.20 | 53.30 | 36.60 | 2026 |
| 1983 | 508 | 7.7 | 466 | 18.40 | 55.60 | 37.50 | 2259 |
| 1984 | 518 | 7.7 | 510 | 18.80 | 52.90 | 41.30 | 2290 |
| 1985 | 484 | 7.2 | 470 | 16.90 | 54.00 | 40.80 | 2134 |
| 1986 | 454 | 6.7 | 491 | 16.90 | 54.40 | 44.80 | 2008 |
| 1987 | 405 | 5.9 | 512 | 16.90 | 51.10 | 45.40 | 1884 |
| 1988 | 343 | 4.9 | 535 | 17.20 | 45.30 | 45.40 | 1657 |
| 1989 | 347 | 4.9 | 387 | 12.40 | 50.60 | 36.90 | 1547 |
| 1990 | 411 | 5.8 | 420 | 13.45 | 53.13 | 35.49 | 1830 |

Note: NFHLF = No. of working poor Families whose Head is in the Labour Force

PFHLF = Incidence of working Poverty among Families whose Head is in the Labour Force, i.e. Variable A

NUPLF = No.of working poor Unattached individuals in the Labour Force

PUPLF = Incidence of working Poverty among Unattached Persons who are in the Labour Force, i.e. Variable D

TPF = Total Poor Families

TPUP = Total Poor Unattached Persons

TPWPH = Total Persons staying in Working Poor Households

Source: 1. "Income Distribution By Size" (Annual), Statistics Canada, Ottawa, Cat No.13-207.

2. Canadian Observer, 1991.

## Table 2: Incidence of Poverty by Work Status in Canada, 1971-90

| Year | Poverty rate when head is full time, full year worker, among | | Poverty rate when head is part time worker, among | | Percentage distribution of poor families by work status of head | | | Percentage distribution of unattached poor by work status | | |
|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | Families (B) | Unatta-ched Persons (E) | Families (C) | Unatta-ched persons (F) | Full Time Worker | Part Time Worker | Not Work-ing | Full Time Worker | Part Time Worker | Not Work-ing |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| 1971 | 8.9 | 11.18 | 26.01 | 49.16 | 29.4 | 24.4 | 46.1 | 10.4 | 24.0 | 65.6 |
| 1972 | 7.0 | 11.67 | 21.80 | 46.30 | 26.8 | 23.3 | 49.9 | 11.5 | 27.7 | 60.8 |
| 1973 | 5.7 | 11.30 | 21.80 | 41.10 | 29.0 | 26.8 | 44.2 | 11.3 | 24.5 | 64.2 |
| 1974 | 4.3 | 6.00 | 16.10 | 38.50 | 25.6 | 25.9 | 48.5 | 6.1 | 27.8 | 66.1 |
| 1975 | 4.0 | 8.00 | 16.50 | 35.00 | 21.9 | 27.9 | 50.5 | 7.8 | 23.7 | 68.4 |
| 1976 | 3.7 | 6.20 | 16.30 | 32.90 | 21.1 | 28.4 | 50.5 | 6.5 | 25.1 | 68.4 |
| 1977 | 3.7 | 7.10 | 17.40 | 37.70 | 22.4 | 25.6 | 52.0 | 7.9 | 24.7 | 67.5 |
| 1978 | 3.1 | 7.0 | 14.40 | 34.10 | 19.9 | 23.5 | 56.5 | 7.6 | 23.2 | 69.2 |
| 1979 | 3.5 | 5.70 | 17.50 | 35.50 | 22.4 | 29.2 | 48.4 | 7.3 | 26.3 | 66.4 |
| 1980 | 3.6 | 6.10 | 17.50 | 35.30 | 24.4 | 29.9 | 45.7 | 8.4 | 29.2 | 62.5 |
| 1981 | 3.0 | 5.30 | 16.20 | 32.80 | 21.1 | 32.3 | 46.6 | 8.2 | 27.5 | 64.3 |
| 1982 | 3.3 | 5.70 | 15.90 | 36.20 | 20.0 | 32.0 | 48.0 | 8.4 | 32.4 | 59.2 |
| 1983 | 3.2 | 5.20 | 18.30 | 36.50 | 17.4 | 34.9 | 47.7 | 6.8 | 28.8 | 64.3 |
| 1984 | 3.6 | 5.70 | 17.50 | 37.40 | 19.2 | 31.3 | 49.5 | 7.8 | 35.0 | 57.2 |
| 1985 | 3.2 | 5.10 | 19.10 | 38.80 | 19.1 | 33.1 | 47.8 | 8.1 | 36.9 | 55.0 |
| 1986 | 3.3 | 5.70 | 16.20 | 39.00 | 21.8 | 30.6 | 47.5 | 10.1 | 41.1 | 48.8 |
| 1987 | 2.6 | 5.40 | 17.10 | 40.40 | 18.6 | 34.0 | 47.4 | 9.8 | 41.2 | 49.0 |
| 1988 | 2.0 | 5.70 | 16.00 | 38.60 | 15.4 | 31.5 | 53.1 | 10.2 | 38.3 | 51.5 |
| 1989 | 2.6 | 3.70 | 13.00 | 30.80 | 21.8 | 29.1 | 49.0 | 7.9 | 34.1 | 58.0 |
| 1990 | 2.7 | 3.70 | 14.60 | 31.36 | 20.8 | 36.7 | 42.5 | 9.6 | 34.1 | 56.3 |

Note : Estimates are as per 1969 LICO Base

Source: Same as Table 1.

**Table 3: Regression Results for Working Poverty by Different Categories in Canada**

| Regression Number and Dependent Variable | Independent Variables | | | | | | | | Intercept | R² with F-Stat. | Adjusted R² with Degrees of Freedom |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | UIB | OTP | UR | GGDP | TSE | PSE | PEE | NEF | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| 1. B | -0.016 | -0.007 | 0.529 | -0.014 | 0.020 | 0.781 | 0.003 | -0.233 | 12.01 | 0.9819 | 0.969 |
| | (-8.47) | (-2.69) | (4.11) | (-0.38) | (0.06) | (6.53) | (1.50) | (-2.70) | (0.70) | (74.59) | (8,11) |
| 2. B | -0.016 | -0.007 | 0.551 | - | - | 0.796 | 0.003 | -0.209 | 11.88 | 0.9816 | 0.973 |
| | (-9.27) | (-3.88) | (7.95) | | | (9.06) | (1.74) | (-3.37) | (3.16) | (115.59) | (6,13) |
| 3. C | -0.040 | -0.026 | 1.115 | 0.522 | 2.276 | 0.994 | 0.004 | -0.068 | -106.63 | 0.9348 | 0.8874 |
| | (-6.31) | (-3.02) | (2.56) | (4.11) | (2.20) | (2.50) | (0.64) | (-0.24) | (-1.91) | (19.71) | (8,11) |
| 4. C | -0.039 | -0.024 | 1.158 | 0.537 | 2.06 | 0.935 | - | - | -95.24 | 0.9304 | 0.8983 |
| | (-6.63) | (-4.94) | (3.41) | (5.11) | (2.19) | (3.68) | | | (-1.87) | (28.96) | (6,13) |
| 5. A | -0.008 | 0.001 | 0.320 | 0.026 | 0.409 | 0.093 | -0.008 | -0.355 | 7.84 | 0.9515 | 0.9265 |
| | (-3.66) | (0.30) | (2.20) | (0.63) | (1.22) | (0.72) | (-3.81) | (-3.72) | (0.43) | (26.98) | (8,11) |
| 6. A | -0.007 | 0.003 | 0.232 | - | 0.466 | - | -0.010 | -0.431 | 9.40 | 0.9447 | 0.9329 |
| | (-3.73) | (1.32) | (3.12) | | (2.04) | | (-6.17) | (-8.62) | (0.70) | (37.01) | (6,13) |
| 7. E | -0.006 | -0.028 | -0.218 | 0.350 | 2.310 | 0.578 | 0.011 | - | -125.00 | 0.9490 | 0.9194 |
| | (-1.50) | (-6.38) | (-0.91) | (4.71) | (3.41) | (2.85) | (2.78) | | (-3.32) | (31.90) | (7,12) |
| 8. E | -0.008 | -0.026 | - | 0.319 | 1.806 | 0.715 | 0.012 | - | -98.14 | 0.9447 | 0.9205 |
| | (-2.35) | (-7.14) | | (4.88) | (4.67) | (5.30) | (2.88) | | (-4.22) | (37.01) | (6,13) |
| 9. F | -0.052 | -0.067 | 0.552 | 1.228 | 7.007 | 1.595 | 0.019 | - | -367.54 | 0.8149 | 0.7024 |
| | (-3.20) | (-3.94) | (0.60) | (4.23) | (2.66) | (2.02) | (1.19) | | (-2.51) | (7.55) | (7,12) |
| 10. F | -0.047 | -0.073 | - | 1.314 | 8.310 | 1.246 | 0.018 | - | -437.23 | 0.8070 | 0.7172 |
| | (-3.48) | (-5.32) | | (5.28) | (5.62) | (2.41) | (1.21) | | (-4.93) | (9.06) | (6,13) |
| 11. D | 0.0000 | -0.014 | 0.259 | 0.551 | 1.226 | 0.359 | -0.010 | - | -38.37 | 0.8689 | 0.8000 |
| | (0.02) | (-1.85) | (0.63) | (4.33) | (1.06) | (1.03) | (-1.49) | | (-0.59) | (11.36) | (7,12) |
| 12. D | - | -0.014 | - | 0.625 | 1.923 | - | -0.014 | - | -72.44 | 0.8521 | 0.8244 |
| | | (-3.51) | | (6.60) | (4.32) | | (-2.91) | | (-2.66) | (21.60) | (4,15) |

Note:
(i)   For notations used, see the text (Section III).

(ii)  All these are corrected for first order autocorrelation. The R̄ reported in column 11 is, therefore, between the observed and predicted values of the dependent variables.

(iii) Figures in parentheses in Cols.2 to 10 are t-values, in Col.11 are F-Statistics and in Col.12 are the degrees of freedom respectively of the numerator and denominator of the F-Statistics.

(iv)  The table t-values with 11,12,13 and 15 degrees of freedom at 5% level of significance are respectively 2.20, 2.18, 2.16 and 2.13 and at 1% level of significance are 3.11, 3.06, 3.01 and 2.95.

(v)   All F-Statistics reported here are significant at 1% level of significance.

Data on Explanatory Variables - 1971 to 1990

| Year | Transfer Income per capita in $ at 1986 Prices (TRI) | UI Benefits Per Capita at 1986 Prices in $ (UIB) | Other Transfer Income Per Capita at 1986 Prices in $ (OTRI) | Expenditure on Education Per Capita at 1986 Prices in $ (EEDP) | Unemploy-ment Rate in % (UR) | % of Employment in Tertiary Sector (ETER) | Growth of GDP in % (GGDP) | Enrollment Rate in Post Secondary Education in % (PSCE) | % of Families with Two or more earners out of all earning families (MERF) |
|------|------|------|------|------|------|------|------|------|------|
| (1) | (2) | (3) | (4) = 2-3 | (5) | (6) | (7) | (8) | (9) | (10) |
| 1971 | 1205 | 132 | 1073 | 1210 | 6.2 | 63.10 | 5.8 | 12.65 | 49.4 |
| 1972 | 1371 | 258 | 1113 | 1189 | 6.2 | 63.85 | 5.7 | 12.85 | 49.9 |
| 1973 | 1420 | 255 | 1165 | 1211 | 5.5 | 63.95 | 7.7 | 13.08 | 51.60 |
| 1974 | 1561 | 239 | 1322 | 1236 | 5.3 | 64.30 | 4.4 | 13.32 | 54.45 |
| 1975 | 1720 | 316 | 1404 | 1296 | 6.9 | 65.79 | 2.6 | 13.78 | 55.80 |
| 1976 | 1800 | 309 | 1491 | 1379 | 7.1 | 65.58 | 6.2 | 13.73 | 54.78 |
| 1977 | 1873 | 328 | 1545 | 1454 | 8.1 | 66.55 | 3.6 | 13.82 | 56.30 |
| 1978 | 1916 | 345 | 1571 | 1383 | 8.3 | 66.70 | 4.6 | 13.71 | 56.60 |
| 1979 | 1843 | 277 | 1566 | 1380 | 7.4 | 66.57 | 3.9 | 13.75 | 57.70 |
| 1980 | 1910 | 272 | 1638 | 1374 | 7.5 | 67.18 | 1.5 | 14.13 | 58.90 |
| 1981 | 1921 | 263 | 1658 | 1380 | 7.5 | 67.43 | 3.7 | 14.88 | 58.90 |
| 1982 | 2160 | 416 | 1744 | 1375 | 11.0 | 69.35 | -3.2 | 16.09 | 60.30 |
| 1983 | 2336 | 465 | 1871 | 1375 | 11.8 | 70.05 | 3.2 | 17.37 | 59.40 |
| 1984 | 2348 | 433 | 1915 | 1391 | 11.2 | 69.98 | 6.3 | 18.35 | 59.10 |
| 1985 | 2422 | 423 | 1999 | 1430 | 10.5 | 70.56 | 4.8 | 18.95 | 60.40 |
| 1986 | 2439 | 415 | 2024 | 1462 | 9.5 | 70.88 | 3.3 | 19.56 | 61.00 |
| 1987 | 2484 | 389 | 2095 | 1457 | 8.8 | 71.03 | 4.2 | 20.19 | 63.60 |
| 1988 | 2538 | 384 | 2154 | 1485 | 7.8 | 70.86 | 5.0 | 20.96 | 65.10 |
| 1989 | 2577 | 385 | 2192 | 1476 | 7.5 | 71.12 | 2.3 | 21.85 | 65.60 |
| 1990 | 2681 | 414 | 2267 | 1500 | 8.1 | 72.25 | -0.5 | 22.85 | 63.90 |

Note:    Data in (1), (2) and (3) are at constant (1986) prices, deflated by consumer price index.
Data in (4) are at constant (1986) prices, deflated by using consumer price index for education.

Source:  (1) For Column (2), (3), (4), (6), (8) See Canadian Observer, 1991.
(2) For (5), (7) Education in Canada, Annual
(3) For (10) See Income Distribution By Size, Annual.