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LIVING ARRANGEMENTS OF YOUNG ADULTS LIVING INDEPENDENTLY: EVIDENCE FROM THE LUXEMBOURG INCOME STUDY

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LIVING ARRANGEMENTS OF YOUNG ADULTS LIVING INDEPENDENTLY: EVIDENCE FROM THE LUXEMBOURG INCOME STUDY

Kathleen S. Short, U.S. Bureau of the Census and Thesia I. Garner, Bureau of Labor Statistics[1]

Age and household distributions affect income packaging and income packaging may affect the age distributions of households. Larger public transfers may make it possible for individuals with lower labor force activity rates, such as the very young and the very old, to set up their own households. If household formation is sensitive to changes in income and changes in income are sensitive to household formation, then the measurements of poverty and income distribution suffer from a bias due to this simultaneous relationship. This paper is the result of developmental research to study one side of the relationship. We conducted a logit analysis to identify the relationship between living alone among individuals in the 15-24 year age group and sources and levels of income. Data from the Luxembourg Income Study were analyzed to determine whether differences exist across countries. The results show that different types of income affected the propensity to live alone differently and that the relationships themselves differed among the countries under study.

INTRODUCTION

One of the important applications of the Luxembourg Income Study (LIS) data base has been the comparison of poverty rates and distributions of income across nations. This is an important as well as highly intriguing issue. Unfortunately, these are not easy to measure, since it is difficult to standardize any national measures across countries for comparisons.

One difficulty is the difference in the age composition of the populations in the countries under comparison. Different age structures result in different household structures and people of different ages have different propensities to reside in "poor" households. A country with a large proportion of

[1]Economists. The views expressed are those of the authors and do not reflect the policies of the U.S. Bureau of the Census or the Bureau of Labor Statistics.

elderly living on small pensions would look poorer than a country with a large cohort of middle-age earners, even though elderly individuals in the second country had typically smaller pensions than those in the first.

This problem of comparability is exacerbated by the possibility that household structure is itself a function of household or family income. For example, we may describe an elderly woman as poor if she prefers to live on her own with a small pension, with barely enough resources to meet her minimum needs, rather than *live with* her more affluent daughter. Her poverty can be alleviated by her moving in with her daughter, but as long as the daughter does not contribute to her support, her poverty is real. If one is interested in measuring changes over time, the prevalence of poverty, or predicting the success of a program to eliminate it, one cannot ignore the impact of changes in household living arrangements and one's preference for living alone. As noted by Beresford and Rivlin (1966), failure to consider this

> ... phenomenon may lead to *the* conclusion that programs to increase the incomes of needy groups are unsuccessful because the number of poor units has not declined or has even increased. ... moderate increases in the incomes of the poor will enable them to live apart from relatives and hence, will actually lead to increases in the number of people counted as poor. Their situation may be improving, in the sense that they have more income and are better able to afford the privacy and other commodities they desire, but the statistician engaged in the counting poor households may not detect this improvement at all.

In an attempt to deal with the size of household issue cross-nationally, a range of equivalence scales has been developed, using the LIS data. However, the scales need to be applied with care since they can produce different results. (For a thorough discussion of these see Smeeding, Torrey, and Rein [1988], Smeeding, Schmaus, and Allegreze [1985], or Buhmann, Rainwater, Schmaus, and Smeeding [1987]).

It is our suggestion that further development of appropriate equivalence scales cannot proceed without a fully specified understanding of the relationship between income and the household formation behavior of all groups. Furthermore, this behavioral process is of interest in and of itself to social

scientists for all age groups. In this paper, we chose a small group and began an investigation of this relationship.

We began our investigtion with the belief that the age distribution of households affects income packaging, and that income packaging may affect the age distribution of households. This latter relationship *implies*, for example, that larger public transfers make it possible for individuals with lower labor force activity rates, such as the very young or the very old, to set up their own households. If household formation is sensitive to increases in income, then the measurements of poverty and income distribution may suffer from a bias due to this simultaneous relationship, if we do not control for the concomitant effect on household structures. We limited our analysis to one side of the relationship, identifying variables related to whether an individual lives alone or with others. The sample included families or households in which the head or reference person was in the 15-24 age group. Individuals in this age group were selected since the young are expected to be more sensitive to economic variables when deciding which living arrangements they will pursue. We focused on the following question: Of those young people living independently (not in their parental homes), how do incomes from various sources affect their decision to live alone? The sample did not include all persons in the 15-24 age group, only those living independently. A logit analysis of the living alone question was conducted using data from five countries (Canada, the Federal Republic of Germany, the United Kingdom, Australia, and the United States) included in the LIS data base to determine whether differences across countries exist. In the next section of this paper, background on the relationship between income and household formation is presented. The following sections include a description of the analysis, data, results, and conclusions.

BACKGROUND

When we compare household incomes across countries we are comparing a whole set of different kinds of income packages; consequently, we are comparing income packages which are reflective of different

household compositions. Different income transfer policies are very likely to affect the way that individuals gather together into households or families, and household distributions are likely to affect income packaging. In addition, individuals in different countries may differ in their preferences for privacy or living alone.

Hedstrom and Ringen (1985) examined the standard of living of young and old families cross-nationally as determined by varying income transfer policies. Using LIS they examined the relative economic position of families of various ages in seven industrial nations around 1980. The countries they examined were Canada, Germany, Israel, Norway, Sweden, the United Kingdom, and the United States. Hedstrom and Ringen noted that the seven countries for which they conducted their analysis differed both in the availability of various forms of income and in family composition. They reported further that the age composition of a population is likely to affect the packaging of income in serveral different ways. "An increase in the proportion of elderly people, for example, will reduce the role of earnings, and by affecting the relative numbers of 'supporters' and 'supported', increase the size of the public redistributive system and the relative role of public transfer."

Household composition is also expected to be related to one's preference for privacy or for living independently. If space and privacy or living independently are normal goods, then we would assume that people demand more of them as incomes rise and as their relative prices fall. Michael, Fuchs and Scott (1980) examined the propsensity to live alone in the U.S. over the period from 1950 to 1976 for men and women aged 25 to 34 and for elderly widows. Their study showed that income levels were a major determinant of the propensity to live alone. They reported that among young single men and women, rising income was the principal explanation for this trend. The authors, however, sounded a cautionary statement in the summary of their findings noting that "...while we conclude that growth in income raises the propensity to live alone, there is another body of literature which indicates that income is positively related to the propensity to marry..." They cited work by Becker (1974), Cutright

(1970), and others and stated that reconciliation of these opposing influences of income on living arrangements deserve a high priority in subsequent research.

Trends in household formation provide important information concerning the issue of income packaging. Trends in household formation in Europe from the 1960s are described in "Economic and Social Features of Households in the Member States of the European Community", a 1983 Eurostat publication. One of the most significant trends noted in European countries has been that households, as observed through the general population censuses in the 1960s and 1970s, have increased in number and decreased in size. This change included a trend toward more households with no earners, made up of widows and students primarily. Data from the 1977 Labour Force Sample Survey, as described in this study, showed evidence of a tendency for individuals to become heads of households at earlier ages. This trend of an increasing proportion of younger households was most notable in Germany and France.

Kiernan (1986) conducted a study of the living arrangements of young adults in six west European countries. She noted that, "The proportion of young people living in non-family households (i.e., living alone or with friends) might be regarded as a guide to the preference or opportunities for independent living." Kiernan finds, in her examination of the 1982 European Economic Community Labour Force Survey, that this proportion is lowest in the United Kingdom and Ireland, and highest in West Germany and Denmark. The study also included the Netherlands and France. Kiernan noted that Danish youth leave home at younger ages and at a faster pace than young people in other countries, and suggested this may result from the fact that Denmark has a housing policy that recognizes the need to provide affordable housing to young people. In the United Kingdom public sector housing is generally reserved for families with children.

Smith, Rosen, Markandya, and Ullmo (1984) examined the demand for housing, headship rates, and

household formation in Canada, France, Great Britain, and the United States. They discussed the rapid increase in non-family household formation that occurred in the 1960s and 1970s. In Canada, France, and the United States, the rate of growth of non-family headship rates increased most for the youngest age group, those aged 15-24 years. They theorized that headship rates for household types and age groups are a function of disposable income, housing cost, availability of public housing, and such socio-economic variables as divorce rates and female labor force participation rates. They reported that income was important in the determination of headship rates for all ages except the 65 and over category in France and the United States. The income elasticity was highest in the youngest age group. On the other hand, the price of housing variable was significant for all groups except for the 15-25 age groups in France. The availability of public housing was only important in the determination of headship rates of the elderly.

Other researchers (Wolf, 1984; Danziger et al., 1982) have examined the influence of specific types of transfer payments on household formation. Generally these studies showed some influence on household structure. However, findings from these studies are not consistent. (For a good discussion of these studies see Goodman, 1986.)

The issue of household and family formation is an imporotant one, and as these studies indicate, much of the change that has occurred has been concentrated in the behavior of young adults. Studies using micordata to examine the behavioral process of household or family formation find, in general, that the younger age groups are more sensitive to economic varibles as are unmarried individuals (see Hill and Hill, 1976; Heer et al., 1985).

ANALYSIS

In this study we examined the determinants of living indedpendently among young adults, i.e., individuals aged 15 to 24 years, in several European countries and the United States. We chose this

particular group because earlier work has shown that this group is more rsponsive to economic factors in their decision to form households, as noted in the literature. Ideally we would have examined the household formation activity of all young people. For this we would have needed observations on a representative sample of all young adults, whether they resided with their parents or lived independently. Unfortunately the Luxembourg data did not include information on these individuals. We only had observations on those young people who were themselves maintaining households; therefore, our results refer to this truncated sample.

Given that our sample was composed of young people who had made the decision to live independently, we were concerned with the question about how they subsequently chose to live in the different countries for which we had data. For young people living independently, we were interested in determining how income from various sources affected their decision to live alone.

We assumed that the propensity to live alone among young people who had left the parental home was a function of incomes from various sources, level of education, labor force participaton, age, sex, marital status, and country;

Prob (living alone) = F (Y(i), Ed, LFP, Sex, Age, MS, Country)

where;
- Y = income
- i = source of income
- ED = education of household head
- LFP = labor force attachment
- Sex = sex of household head
- Age = age of household head
- MS = marital status
- Country= dummy variable per country

A logit model was specified using SPSS-X (1986), the only statistical package available to us for use with the LIS data. All computer programs were electronically mailed to Luxembourg via BITNET. This was necessary since the LIS data are not directly accessible to researchers.

DATA

The data used in this analysis were from the Luxembourg Income Study. The countries included were the United Kingdom, the Federal Republic of Germany, Australia, Canada, and the United States. Currently, there are ten country data sets in LIS, our choice of these five was based on similarity of available variables and reference units.

The independent variables and their definitions are listed in Table 1. The income measures were made comparable by conversion to 1979 United States dollars using the Organization for Economic Cooperation and Development (OECD) Purchasing Power Parities and the U.S. Consumer Price Index.

Three income variables were included for each country: EARN79$, which included wages, salaries, and self-employment income; TRAN79$, which included means-tested, social security, and private transfer income; and OTHIN79$, which included cash property income, pension incomes, and other cash income. Measures of labor market opportunities in the respective countries as well as housing costs were expected to be captured by country dummy variables included in the equation both separately and as interaction terms with the various income variables. Education was recoded roughly for each country to represent at least a high school education. The omitted category was not a high school or equivalent education. An interaction term of age and education was included to incorporate differing effects of age as education varied. Labor force participation represented the presence of any earners in the household. The earner could have been the household head or any other member in the household. The omitted category was no earners in the household. The sex dummy variable represented whether the household head was male. Age was included as a continuous variable. Marital status was represented by including a dummy variable for married or living together. For some of the countries included in the sample, living together was a marital status category. The omitted category included single, divorced, separated and widowed, where distinguishable, for each country.

TABLE 1. Definition of Variables

EARN79$	wages, salaries, and self employed income of the household head
TRAN79$	per capita transfer income; includes social retirement income, child allowances, unemployment payments, sick pay, accident pay, disability pay, maternity allowance, military or war related benefits, other social insurance, cash and near cash means-tested benefits, private transfers such as child support.
OTHIN79$	per capita property and pension income plus other miscellaneous income
CAN	equal 1 for Canada
GER	equal 1 for the Federal Republic of Germany
UK	equal 1 for the United Kingdom
AUS	equal 1 for Australia
	omitted category is the United States
CANEAR	interaction term CAN * EARN79$
CANTRA	interaction term CAN * TRAN79$
CANOTH	interaction term CAN * OTHIN79$
GEREAR	interaction term GER * EARN79$
GERTRA	interaction term GER * TRAN79$
GEROTH	interaction term GER * OTHIN79$
UKEAR	interaction term UK * EARN79$
UKTRA	interaction term UK * TRAN79$
UKOTH	interaction term UK * OTHIN79$
AUSEAR	interaction term AUS * EARN79$
AUSTRA	interaction term AUS * TRAN79$
AUSOTH	interaction term AUS * OTHIN79$
ED	equals 1 if more than a high school education or equivalent is attained (Canada: some post-secondary or above; Germany: at least 13 years; United Kingdom: university or other higher education; United States: more than 12 years; Australia: still at school, Bachelor degree or similar); equals 0 otherwise
LFP	equal 1 if at least one earner in household; equals 0 otherwise
SEX	equal 1 if male; equals 0 otherwise
AGE	age of household head
MS	equal 1 if married or living together; equals 0 otherwise
EDAGE	interaction term ED * AGE

RESULTS

The sample included 5664 households; of these 2894 were one person households. The distribution of the sample by country is presented in Table 2. The greatest percentage of individuals aged 15-24 who lived independently and alone resided in Germany (65 percent), while the smallest percentage of individuals with these characteristics resided in the United Kingdom (35 percent).

TABLE 2. Sample Frequencies by Country

Country	Total Sample	Number Living Alone
Canada	1449	795
Federal Republic of Germany	117	72
United Kingdom	406	142
United States	1721	798
Australia	1971	1087
Number Living Alone	5664	2894

Means and standard deviations of the variables included in the logit estimation are listed in Table 3 for the 5664 cases of young households in the combined countries sample. These are unweighted statistics. Earnings represented earnings of the household head only, while transfer and other income were divided by household size to be per capita measures. The means of the country dummy variables represent their proportion of the sample. German youth represented the smallest proportion of the sample, while Australian youth represented the largest proportion. About 23 percent of the combined sample of young people living independently had more than a high school or equivalent education, while nearly 95 percent were in the labor force. Almost 64 percent were male. The mean age of those in the sample was 21.6. Only 32 percent were married or living with someone.

TABLE 3. Means and Standard Deviations of Variables

VARIABLES	MEAN	STD DEV
LA	.512	.500
EARN79$[a]	7130.681	5762.956
TRAN79$[b]	378.700	858.502
OTHIN79$[b]	197.202	934.365
CA	.256	.436
GER	.021	.142
UK	.072	.258
US	.304	.460
AUS	.348	.476
ED	.234	.423
LFP	.946	.225
SEX	.638	.481
AGE	21.576	1.948
MS	.317	.466
EDAGE	1.166	9.386
CANEAR	1995.581	4735.045
CANTRA	103.167	447.904
CANOTH	47.283	4371.219
GEREAR	134.550	1292.688
GERTRA	7.718	126.036
GEROTH	.000	.000
UKEAR	458.822	2157.456
UKTRA	79.022	454.756
UKOTH	2.118	21.983
USEAR	2365.187	4939.241
USTRA	92.482	531.068
USOTH	78.382	581.436
AUSEAR	2176.542	4047.205
AUSTRA	96.310	374.623
AUSOTH	69.419	544.138

[a]Earnings of household head
[b]Income variable divided by number of persons in household

Table 4 includes the results of the logit regression for which the dependent variable equaled 1 if an individual lived alone; these results represent the log of the odds of the probabilities that a young adult, living outside the parental home, lived alone. Our major finding is that different types of income affected the propensity to live alone differently and that the effects themselves differed among the countries under study. (The Chi-Square goodness-of-fit measure is not presented since it is considered to be invalid when individual observations are used for logit analysis [SPSS-X 1986]).

TABLE 4. Estimated Model Parameters and Standard Errors[a]

Independent Variables	Estimated Parameter	Asymptotic Standard Error
EARN79$[b]	0.003**	0.001
TRAN79$[b]	-0.006*	0.003
OTHIN79$[b]	0.007*	0.004
CAN	0.722**	0.104
GER	3.383**	0.388
UK	-0.022	0.156
AUS	0.406**	0.083
CANEAR[b]	0.003**	0.001
CANTRA[b]	-0.005	0.006
CANOTH[b]	-0.004	0.008
GEREAR[b]	-0.006	0.004
GERTRA[b]	-0.064**	0.030
GEROTH[b]	0.000	0.000
UKEAR[b]	0.005**	0.002
UKTRA[b]	0.012*	0.006
UKOTH[b]	-0.050	0.084
AUSEAR[b]	-0.003**	0.001
AUSTRA[b]	-0.026**	0.006
AUSOTH[b]	0.000	0.006
ED	-0.259	0.587
LFP	0.201**	0.083
SEX	0.194**	0.040
AGE	-0.063**	0.011
MS	-3.575**	0.167
EDAGE	0.028	0.027
Constant	6.140**	0.238

[a]Parameter estimates based on the following logit model:
$$\log (p/(1-p)/2 + 5 = \text{constant} + X\beta.$$
[b]Regression parameters and standard errors are divided by 100.
*Statistically significant at the 0.10 level.
**Statistically significant at the 0.01 level.

For the omitted country, the United States, earnings were positively related to the probability to live alone. In addition, transfer and other types of income were significantly related to living alone among the young people in the United States, at the 10 percent level of significance. Transfer incomes were negatively associated with the propensity of young people to be in a single person household. This result was not surprising for the United States since the receipt of transfer income from Aid to Families with Dependent Children is contingent upon having a child.

Canada had an additionally positive effect from earnings on living alone over and above that of the United States as revealed by the parameter for CANEAR, while the effect from other income sources was essentially the same as for the United States. Also, the propensity to live alone, for reasons not accounted for in the equation, was higher in Canada than in the United States, as suggested by the positive and significant parameter on the CAN variable.

German youth had a much higher propensity to live separately than did young people in the United States, indeed than in all countries, for reasons not attributable to our measures of income. The country dummy variable parameter for Germany is large and significant, indicating a strong preference for living alone by young Germans who were not living in their parental home. Transfer income had a significantly negative correlation with living alone for the German youth. We expect that this represents the pro-family social transfer income policies in this country.

The parameter for the dummy variable representing the United Kingdom is not statistically significant in the equation, however; earnings had a greater positive effect on living alone in the United Kingdom than they did for youth living in the United States. Transfer incomes in the United Kingdom, unlike in Germany, were positively correlated with living alone. For the United Kingdom, this could be related to special transfer programs designed to assist the youth. Other types of income have no additional effect in the United Kingdom.

Australian youth, like those in Canada and Germany, had a higher propensity to live alone than did young people in the United States and in the United Kingdom. The effect of earnings was less in Australia than in the United States. Transfer incomes in Australia, as in the German sample, were significantly negatively related to the probability of living alone for young people.

For the sample as a whole, those with an earner were more likely to live alone than were those without an earner. Males, who were not married, were more likely to live alone than were unmarried females. For this sample, increases in age were negatively related to living alone, which means individuals were more likely to marry or to live with someone with age increases. However, if our sample had included all individuals in the 15-24 age group, including those living in their parent's home, we might have found that age and living alone were positively related. Not surprisingly, being married was highly negatively correlated with living alone.

CONCLUSIONS

Economic theory, previous empirical studies, and results from this study suggest that income and household formation are very closely related to one another. Of particular interest are the different effects estimated for the incomes from different sources, as well as the country differences in income effects. These results, and those of earlier work, suggest that inter-country comparisons of household based measures should be preceded by a more definitive study of the differences in the household formation behavior of individuals of all ages and socioeconomic categories.

Comparisons of household income distributions among countries depend upon the packaging of incomes in the various countries, which itself affects the household formation process that, in its turn, affects income distribution measures. This study shows the differential response to incomes from different sources by individuals under the age of 25. A more thorough study of this important process needs to be conducted to understand the impact that this process has on comparisons of income distributions and inequality. Since data are not available in the LIS data files for individuals living in their parental homes, future analyses need to be designed to account for the presence of sample truncation. Specific information concerning institutional differences among countries also needs to be included in future investigations.

The importance of international data sets for this type of study cannot be overstated. The value of having available such a wide variety of income packages in a household based micordata set, such as the Luxembourg Income Study, is invaluable, particularly for policy analysis.

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