Gornick, Janet; Pavetti, LaDonna

Working Paper

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LIS Working Paper Series, No. 65

Provided in Cooperation with:
Luxembourg Income Study (LIS)

Suggested Citation: Gornick, Janet; Pavetti, LaDonna (1990) : A Demographic Model of Poverty among Families with Children: A Comparative Analysis of Five Industrialized Countries Based on Microdata from the Luxembourg Income Study, LIS Working Paper Series, No. 65, Luxembourg Income Study (LIS), Luxembourg

This Version is available at:
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Luxembourg Income Study (LIS), asbl

A Demographic Model of Poverty Among Families With Children:

A Comparative Analysis of Five Industrialized Countries Based on Microdata from the Luxembourg Income Study

Janet Gornick
Ph.D. program in
Political Economy and Government
Harvard University

LaDonna Pavetti
Ph.D. program in
Public Policy
Harvard University

December 6, 1990

Introduction

Poverty persists in every industrialized country despite the presence of numerous public programs to help the poor. Thus, issues concerning poverty and low-income, especially high rates of poverty among children, are central to policy analysis and debate in these countries. While there is no single factor that leads to high rates of poverty among a country's youngest citizens, the presence of a large number of single-parent families contributes significantly to this phenomenon. The number of single-parent families, especially those headed by women, has increased in every industrialized country since 1970 (Kammerman and Kahn, 1988). Therefore, understanding the factors which contribute to high rates of poverty among this group is an important step in developing strategies to reduce poverty among children.

Previous cross-national research on the poverty status of children shows that the poverty rates for children living in single-parent families are much higher than the poverty rates for children living in two-parent families, although the degree to which these poverty rates differ varies somewhat across countries. For example, the poverty rate for children living in two-parent families in the United States is 13.8 percent; the poverty rate for children living in single-parent families is 59.3 percent -- 4.3 times the poverty rate for children in two-parent families. In Australia, the gap is even wider. The poverty rate for children in married-couple families is 11.4 percent, while the poverty rate for children in single-parent families is 63.5

percent, 5.6 times the poverty rate for children in two-parent families (Smeeding, Torrey, and Rein, 1988.)[1]

Using data from the Luxembourg Income Study (LIS), this paper compares the probability of being poor for single-parent (meaning, exclusively, female-headed families) and two-parent families in five industrialized countries -- the United States, West Germany, Canada, Israel and Australia. Using a logit model, we predict the probability of being poor for these two groups and compare these probabilities across the five countries. We also examine in and across each of the five countries the degree to which differences in the probability of being poor for single-parent and two-parent families can be explained by the relative importance of several demographic variables. Throughout this analysis, we use the United States as our point of reference. Thus, the specification of the logit model which we use as the foundation for our analysis is based on what we know about poverty in the United States.

The first section of this paper describes the Luxembourg Income Study, the microdata archive which allows these comparisons to be made. The second section describes the analytical framework used for our analysis, including an explanation of our definition of poor and non-poor (our dependent variable) as well as a description of the independent variables included in our model. The third section compares the results of three different

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[1]These poverty rates are based on a relative poverty standard defined as less than 50% of the country's adjusted median "equivalenced" income.

logit models that we estimated (using U.S. data). In the fourth section we begin our comparative analysis. In this section we first compare the relative importance of the demographic coefficients in our model across the five countries. We make this comparison for an "average" family (using the mean values of our independent variables for the United States) and then for a hypothesized "disadvantaged" and "advantaged" family. We then compare the predicted probability of being poor in each country (using each country's own mean values) with the average poverty rate in each of the five country samples. In the fifth and final section of the paper, we present a discussion of the results and some recommendations for further analysis.

I. The Luxembourg Income Study (LIS)

Under the sponsorship of the government of Luxembourg, the LIS project began in 1983. The purpose of LIS was to gather microdatasets which contain comprehensive measures of income and economic well-being for a set of modern industrialized countries and to reconfigure the datasets based on a common plan to allow for cross-national comparisons. Currently, LIS includes data from fourteen countries -- from either the early 1980's, the middle 1980's, or both -- and is in the process of acquiring datasets from additional countries as well as from the included countries at other points in time.[2]

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[2]LIS currently has microdatasets from Australia, Canada, France, Germany, Israel, Italy, Luxembourg, the Netherlands, Norway, Poland, Sweden, Switzerland, the United Kingdom, and the United States.

The actual LIS datasets use common definitions of income sources (including several sources of taxes and transfers) and family and household characteristics. The datasets also include numerous demographic variables for each of the countries. However, due to considerable cross-national differences in the demographics, many of the demographic variables have not been standardized across the countries, making them somewhat more difficult to use.

II. Analytic Framework: Dependent and Independent Variables

The structure of the LIS database provides researchers with considerable latitude to select measures of income and demographic units of aggregation for comparison across and within countries. We use the family (rather than the individual or the household) as the primary unit of analysis.[3] Our analysis is based on two population sub-groups: two-parent and single-parent (female-headed) families with one or more children under 18 and no other household members over age 18. We have also included only those families in which the household head is under the age of 65. A family is defined by LIS as all persons living together and related by blood, marriage or adoption. We use data exclusively from the first wave of the LIS project (1979-1982) for the five countries listed above; two datasets (U.S. and

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[3]The Israeli data for the first LIS wave are available only at the household level. Thus, we use households here as a proxy for families.

Israel) are from 1979 and the other three (West Germany, Canada, and Australia) are from 1981.

We define a family as poor if its "adjusted income" is below 50 percent of its country's adjusted median income for that year. We define "adjusted income" as disposable income adjusted by the LIS equivalence scale. In general, equivalence scales adjust income to account for economies of scale in household consumption. The LIS equivalence scale which we use to adjust income, like most equivalence scales, states a simple rule of thumb: the first family member has a weight of .50 and each additional individual of .25 (standardizing the scale around a family of three.)

In comparison to the equivalence scale inherent in the official U.S. poverty line, the scale we use has a somewhat higher equivalence factor, i.e,. it considers additional family members to be relatively more "expensive". The choice of equivalence scale affects the composition of a country's counted poverty population. Relative to the range of scales in use, the scale we use and the U.S. poverty line scale produce results which are fairly similar. (For a more detailed discussion of equivalence scales in a cross-national context, see Buhmann, Rainwater, Schmaus and Smeeding, 1988).

The measure of disposable income that we use is the measure of income used most widely in cross-national comparisons. It includes all forms of cash and near cash income (food stamps in the United States), earnings, realized capital income, and government transfers, net of income and payroll taxes. This

measure differs from the income definition generally used to measure poverty in the United States in several important ways. First, we subtract income and payroll taxes and include food stamps as near cash income. The U.S. poverty standard is also an absolute standard -- it is adjusted annually only for changes in consumer prices. The poverty measure we use in this analysis is a relative measure -- it defines poverty relative to the standard of the median family in each country. The use of this relative poverty standard provides a lower poverty rate in Australia and Germany and a higher rate of poverty in Canada and the United States than the U.S. poverty line would have provided (Rainwater, Torrey, Smeeding, 1989).

Many of the demographic variables (our independent variables) which we chose to include in our analysis have not been standardized across countries. Thus, we recoded most of these variables to make them as comparable as possible. A listing and description of the variables we include in our analysis is presented in Table I (page 8) and a summary of the mean value of each variable for each of the countries is presented as Appendix A.

The two variables included in our analysis which were the most difficult to standardize were majority/non-majority status and the level of education (both referring to the household head). Race and ethnicity data are coded in a variety of ways across the LIS datasets. In order to create a standard variable, we created a simple dummy variable: majority vs. non-majority. While this allows some cross-national comparisons, there is no

question that this variable takes on a somewhat different meaning in different countries.

For example, in the United States, the majority/non-majority difference derives from racial and ethnic distinctions -- in our recoding, majority refers to "white", and non-majority to "black", "other races", and "Hispanic origin". However, in the other four countries, this variable reflects, essentially, place of birth. In the German data set, for example, household heads are coded as "German" versus "other nationality", and in Canada, as "Canadian born" versus "immigrant"; we maintain those distinctions. Israel and Australia provide data on the country of origin of the household head. We recoded Israeli and Australian families from European and Anglo-American countries as "majority" and all others (primarily Arab, East-Asian and African) as non-majority.

We define our education variable as completion vs. non-completion of the country's minimum standard of education to allow for differences in the educational standards in each of the countries included in our analysis. Again, unfortunately, data limitations prohibit a high level of cross-national comparability in the definition of educational levels. For the U.S., Canada, and Israel, we recoded 11 years or fewer as "non-completion" of the country standard and 12 or more years as "completion" of the country standard. In Germany, the cutoff is 13 years of education, and in Australia, 18 years of age (reflecting the form in which data are available).

Table I

Demographic Variables

Variable Name	Variable Description
Earners	Number of earners in the family (Continuous)
Location*	Urban/non-urban (Urban = 0; Non-Urban = 1)
Numch	Number of children (Continuous)
Agehh	Age of the household head (Continuous)
Education	Completion of the country's minimum standard of education (Non-Completion = 0; Completion = 1)
Maj/Non-Maj	Majority/non-majority (Majority = 0; Non-Majority = 1)
Yngch	Presence of children under 6 (None = 0; One or More = 1)
Famtype	Type of family (Two-Parent Families = 0; Single-Parent Families = 1)

* There was a significant amount of missing data for this variable in the U.S. To account for possible non-randomness and to avoid eliminating all of these observations, we included a dummy variable in our model, locd (only in the U.S.). This variable is equal to 1 if the data are missing and 0 otherwise.)

III. Model Specification and Analysis

Next, using data from the United States, we compare the results from three different logit models which we estimated. In the first model (Model I), we estimate the probability of being poor for all families in the U.S. sample. We include all of the demographic variables listed in Table I except the family type variable in this model. In the second model (Model II), we add the family type variable to allow the probability of being poor to differ between two-parent and single-parent families.

In the last model, Model III, we include the family type variable, and also add a set of interaction terms to allow each of the demographic variables included in Models I and II to differ between the two family types. (The interaction terms were created by multiplying the family type variable by each of the independent variables included in Model I. Thus, the interaction terms represent the additional positive or negative effect of each of the independent variables on the probability of being poor for single-parent families.)

In Table II, we present the results of these models using the calculation of the derivative of the logistic probability function when all of the independent variables included in the model are set at their mean values. These reported values can be interpreted as the change in the probability of being poor for a change in the independent variable when all variables are set at their mean. We also include the t-statistics for each of the independent variables in this table.

All of the independent variables we included in Model I were

Table II

Three Logit Models, Using U.S. Data
Partial Derivatives: p(1-p)B

(T-Statistics in parentheses)

Variable	Model I	Model II	Model III
Constant	.228	-.033	-.055
	(42.5)	(30.55)	(25.08)
Agehh	-.006	-.003	-.003
	(7.52)	(4.02)	(2.89)
Maj/Non-Maj	.101	.075	.064
	(8.10)	(5.87)	(3.85)
Location	.049	.062	.055
	(3.76)	(4.64)	(3.42)
Locd	.063	.067	.073
	(4.41)	(4.69)	(4.15)
Education	-.182	-.181	-.197
	(14.56)	(14.26)	(12.93)
Numch	.072	.079	.079
	(14.11)	(15.22)	(13.27)
Yngch	-.035	.024	.021
	(2.81)	(1.81)	(1.31)
Earners	-.180	-.121	-.106
	(20.46)	(13.01)	(10.07)
Famtype	--	.204	.252
		(14.22)	(3.11)
Spagehh	--	--	-.001
			(.450)
SpMaj/Non-Maj	--	--	.037
			(1.27)
Splocation	--	--	.044
			(1.33)
Splocd	--	--	.001
			(.017)
Speducation	--	--	.040
			(1.30)
Spnumch	--	--	.017
			(1.21)
Spyngch	--	--	.019
			(.630)
Spearners	--	--	-.100
			(3.80)

significant at least at the .05 level; most were significant at a much higher levels of significance. With one exception, Model I produced the results we expected: the probability of being poor increases as the age of the household head decreases, as the number of earners decreases, and as the number of children increases. The probability of being poor also increases if the household head is a non-majority group member, has completed fewer than twelve years of school, or if the family lives in a non-urban area.

We expected that the presence of young children would increase the probability of being poor. However, in our model, it produces the opposite result: for the average family, it decreases the predicted probability of being poor by almost 4 percent. The coefficient is significant at the .05 level; however, this level of significance is much lower than the other independent variables included in the model. We excluded the number of earners in the household from the model and this variable produced the expected sign. Thus, it appears that the presence of young children does increase a family's probability of being poor --but only because the presence of young children is associated with having fewer earners in a household. When the number of earners is controlled for, the expected "young children" effect reverses direction. In addition, when we add the family type variable in Model II, the coefficient on the young children variable is the only coefficient that is no longer significant at the .05 level; the t-statistic drops from 2.81 to 1.81.

The coefficient on the family type variable in Model II indicates that the probability of being poor increases by over 20 percent if a family is headed by a single-parent rather than by two parents; the variable is significant at the .01 level. As we can see from Table II, the addition of the family type variable to the model affects the magnitude of a number of the coefficients included in the model, although very few show substantial changes.

The largest changes (magnitude of .01 or greater) appear in the coefficients of the majority/non-majority, the location, and earners variables. The largest change occurs in the effect of the number of earners on the probability of being poor. An additional earner decreases the probability of being poor by 18 percent in Model I; in the second model, the probability of being poor is decreased by only 12.1 percent. The effect of majority/non-majority group status on the probability of being poor decreases from 10.1 percent to 7.5 percent with the family type variable included in the model; the effect of living in a non-urban area increases from 4.9 percent to 6.2 percent.

The reasons for the differences between the two sets of coefficients are fairly self-explanatory; clearly, when family type is not controlled for, the other demographic effects "pick up" some of the family type effect. For example, in Model I, we can imagine that the difference in the probability of being poor between one and two-earner families is due to a combination of factors -- the presence of a second income as well as the greater likelihood that the two-earner family is headed by an adult

couple rather than by a single (female) parent. In addition, the two incomes in the two-parent family are likely to come from two working adults, one male and one female, whereas in the single-parent family, one income is from an adult and one from a working minor. Thus, when we control for differences in family composition, the "earner" effect --deriving purely from the number of earners-- decreases substantially.

The addition of the interaction terms in Model III produces very few changes in the results we obtained in Model II. The only interaction term which is significant at the .05 level is the family type/number of earners term ("Spearners" in Table II).[4] The coefficients on the majority/non-majority, earners, and education variables are the only variables included in both Models II and III which register a change in magnitude greater than .01 (or a one percent change in the probability of being poor).

In summary, the pattern of results obtained in the estimation of these three models suggests that family structure per se matters a great deal in determining poverty status, even after controlling for differences in educational attainment, number of

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[4]However, a joint test of the overall effect of the interaction terms was significant at the .01 level. To complete a joint test of the interaction terms, we computed a test statistic, C where $C=bS^{-1}b'$ where S represents the 8x8 matrix containing the estimated variances and covariances of the coefficients of the interaction terms and b represents the vector of the coefficient estimates of the interaction terms. (For additional information on this test, see Aldrich, John H. and Forest O. Nelson. Linear Probability, Logit and Probit Models. Beverly Hills: Sage Publications, 1984, pp.59-60.)

earners, majority/non-majority status, location, the number of children, the presence of young children, the age of the household head and location. In Model III, we estimate that living in a single-parent household increases the probability of being poor by over 25 percent. By including the interaction terms in this model, we rule out the possibility that this difference can be attributed to differences in the relative importance of the other independent variables in determining the poverty status of the two groups.

Only one variable, the number of earners, appears to matter more for single-parent families than it does for two-parent families. The probability of being poor is reduced by more than twice as much for each additional earner in a single-parent family as for an additional earner in a two-parent family: the probability of being poor is reduced by nearly 11 percent for each additional earner in a two-parent family compared to over 21 percent for each additional earner in a single-parent family.

Our analysis indicates that there is little difference between the results we obtained from Model II and Model III. However, since Model III allows us to compare the relative importance of each of our independent variables in determining the probability of being poor for two-parent and single-parent families, we rely on this model exclusively in the cross-country analysis which follows.

IV. Cross-National Comparison

The partial derivatives of the logit coefficients vary with the values of the independent variables, thus, to compare the relative importance of these variables across the five countries we initially set all of the independent variables at the means for the United States. These values which are presented in Table III should be interpreted as the predicted change in the probability of being poor for a change in the independent variable for the average U.S. family given the demographics and structure of the specified country.[5]

These results reveal a fairly high level of similarity across the estimations in the five countries. We first consider each of our eight demographic coefficients (excluding the interaction terms) in all countries to see which are statistically significant (at the .05 level or higher.) First, we note that four of these variables -- level of education, number of earners, household location, and number of children -- show a statistically significant coefficient in nearly every country (at least four of the five). Conversely, with two others -- age of head and presence of young children -- nearly every country (again, at least four) produces a coefficient which is NOT significant.

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[5]A table of the partial derivatives for each country evaluated at the country's own mean values of the independent variables is included as Appendix B. The mean values for each country can be found in Appendix A. However, since the mean values differ across the countries, these values cannot be used to compare the relative importance of the demographic variables across the five countries. They can, however, be used to evaluate the importance of the demographic variables for each of the countries individually.

Table III

Comparative Table: Five Countries
Partial Derivatives: p(1-p)B
T-statistics in parentheses
X-values for all countries = U.S. mean values

	U.S.	Germany	Canada	Israel	Australia
Intercept	-0.055	-0.040	-0.093	0.001	-0.066
	(25.084)	(3.349)	(26.436)	(9.859)	(23.218)
Agehh	-0.003	0.000	-0.001	-0.000	-0.000
	(2.888)	(0.919)	(0.909)	(1.522)	(1.072)
Maj/Non-Maj	0.064	-0.054	0.014	0.001	0.023
	(3.847)	(0.061)	(1.048)	(1.074)	(3.807)
Location	0.055	0.001	0.070	0.001	0.015
	(3.421)	(0.215)	(7.88)	(2.189)	(2.972)
Education	-0.197	-0.009	-0.099	-0.002	-0.022
	(12.933)	(2.041)	(10.525)	(3.534)	(4.673)
Numch	0.079	0.008	0.054	0.001	0.023
	(13.274)	(4.226)	(12.816)	(5.297)	(10.245)
Yngch	0.021	-0.001	0.013	0.000	0.009
	(1.309)	(0.208)	(1.172)	(0.447)	(1.589)
Earners	-0.106	-0.012	-0.109	-0.004	-0.072
	(10.075)	(3.082)	(14.889)	(5.613)	(10.985)
Famtype	0.252	0.023	0.225	-0.010	0.133
	(3.106)	(0.484)	(3.275)	(1.147)	(4.451)
Spagehh	-0.001	0.001	-0.001	0.000	-0.001
	(0.45)	(0.975)	(0.543)	(1.076)	(1.723)
SpMaj/Non-Maj	0.037	0.170	-0.071	-0.010	-0.011
	(1.274)	(0.135)	(1.783)	(1.418)	(0.587)
Splocation	0.044	-0.010	-0.086	-0.022	0.002
	(1.334)	(0.761)	(3.208)	(0.129)	(0.155)
Speducation	0.040	-0.007	-0.023	-0.011	0.006
	(1.299)	(0.467)	(1.028)	(0.254)	(0.574)
Spnumch	0.017	-0.025	0.020	0.003	0.011
	(1.209)	(2.839)	(1.424)	(1.106)	(1.676)
Spyngch	0.019	0.018	0.000	-0.017	0.012
	(0.63)	(0.871)	(0.011)	(0.266)	(0.977)
Spearners	-0.100	-0.027	-0.038	0.002	-0.033
	(3.801)	(1.965)	(1.872)	(0.846)	(3.241)
Locd	0.073				
	(4.148)				
Dlocd	0.001				
	(0.017)				
predicted probability (1/1+e^-XB)	0.148	0.009	0.103	0.002	0.046

Only two variables -- majority/non-majority status and family type -- reveal a more mixed picture.

Second, we note that when we consider only these statistically significant coefficients, in every case, without exception, the direction of the coefficients across all countries is the same. For example, in every country, a higher probability of poverty is associated with less education, fewer earners, more children, and a non-urban location.

However, while the direction of the coefficients highlights the inter-country similarities, it is also apparent that the magnitude of these effects differs considerably across countries. Again, we consider the four variables that are significant in nearly every country. A lower level of education is associated with an increased probability of poverty of 2 percent or less in Germany, Israel, and Australia, whereas in Canada, it rises to 10 percent, and in the U.S. to nearly 20 percent. The greater probability of poverty associated with an additional earner varies, likewise, from less than one percent or less in Germany and Israel, to over 7 percent in Australia, to over 10 percent in the U.S. and Canada.

Similarly, the effect of an additional child on the probability of being poor varies from 2 percent or less in Germany, Israel, and Australia to over 5 percent in Canada and nearly 8 percent in the U.S. Finally, the effect of living in a non-urban area increases the likelihood of poverty by one percent or less in Israel and Australia compared to nearly 6 percent in the U.S. and 7 percent in Canada.

To evaluate the variation in the strength of the various demographic effects, we must consider, critically, that the rates of poverty among families with children in these five countries differ markedly (see Appendix B) -- from 4 percent in Germany to nearly 10 percent in Israel to approximately 20 percent in the U.S., Canada, and Australia. However, if we rank the strength of the four frequently significant variables (above) within each country, we find that the earner and education effects are always stronger than the number of children and location effects.

Next, we focus on the demographic variable that is the central focus of this analysis -- family type. It is interesting that this variable produced a statistically significant coefficient in only three countries, the U.S., Canada, and Australia. In each of these countries, however, the family type effect was the strongest of all of the demographic effects, varying from 8 percent in Australia to 23 percent in Canada to over 25 percent in the U.S. In Germany and Israel, this effect was not significant due, possibly, to the small percent of single-parent families in those two samples (2 percent in Israel and 7 percent in Germany, compared with over 10 percent in the other countries.)

Finally, we look at the effect of the interaction terms in each of the countries. The family type/earners variable is significant in all of the countries except Israel. However, the magnitude of this effect is much smaller in Germany, Australia and Canada than it is in the U.S. In the U.S., this "single-parent earner effect" decreases the likelihood of poverty by 10 percent; in Germany, Australia, and Canada, this effect decreases

the likelihood by between just 3 and 4 percent.

There are two additional interaction terms that are significant in at least one of the countries. The family type/number of children variable (spnumch in the table) is significant in Germany while the family type/location variable (splocation) is significant in Canada.

We also compared the coefficients (i.e., their partial derivatives) produced when the demographic variables are set at the mean of the U.S. data (Table III) with the coefficients associated with a hypothesized "disadvantaged" family (Table IV) and with a hypothesized "advantaged" family (Table V), to see if the above findings hold up at extreme values of the independent variables.

Our disadvantaged family is headed by a 20 year-old single mother with four children who, nevertheless, works outside the home; she has less than her country's standard level of education, she is not a member of her country's "majority" group, and the family lives in a non-urban area. Our advantaged family is headed by a 52 year-old who, with a second parent, has one child; the family has two earners, a head with more than the standard level of education, is a member of the "majority" group, and lives in an urban area.

It is first interesting to note the obvious: when compared with the predicted poverty rates for the U.S. "mean family", the probability of being poor for these disadvantaged families increased dramatically -- ranging from 88 percent in Canada to nearly 99 percent in the U.S. Likewise, the poverty rates, in

Table IV

Comparative Table: Five Countries
Partial Derivatives: p(1-p)B
X-values = Hypothesized disadvantaged family

	U.S.	Germany	Canada	Israel	Australia	x-values	
Intercept	-0.006	-0.451	-0.886	0.000	-0.114	1	
Agehh	-0.000	0.003	-0.006	-0.000	-0.001	20	
Maj/Non-Maj	0.007	-0.615	0.136	0.000	0.040	1	(non-majority)
Location	0.006	0.010	0.669	0.000	0.025	1	(non-urban)
Education	-0.021	-0.105	-0.940	-0.000	-0.038	0	(less than standard)
Numch	0.009	0.095	0.514	0.000	0.040	4	
Yngch	0.002	-0.011	0.127	0.000	0.015	0.474	(set at mean)
Earners	-0.012	-0.135	-1.044	-0.000	-0.125	1	
Famtype	0.027	0.257	2.144	-0.000	0.230	1	(single)
Spagehh	-0.000	0.012	-0.008	0.000	-0.002	20	
SpMaj/Non-Maj	0.004	1.928	-0.678	-0.000	-0.019	1	
Splocation	0.005	-0.116	-0.823	-0.000	0.003	1	
Speducation	0.004	-0.079	-0.219	-0.000	0.011	0	
Spnumch	0.002	-0.285	0.186	0.000	0.019	4	
Spyngch	0.002	0.203	0.003	-0.000	0.021	0.474	
Spearners	-0.011	-0.307	-0.362	0.000	-0.057	1	
Locd	0.008						
Dlocd	0.000						
predicted probability (1/1+e^-XB)	0.986	0.886	0.879	0.000	0.917		

Table V

Comparative Table: Five Countries
Partial Derivatives: p(1-p)B
X-values = Hypothesized advantaged family

	U.S.	Germany	Canada	Israel	Australia	x-values	
Intercept	-0.015	-0.051	-0.048	0.003	-0.044	1	
Agehh	-0.001	0.000	-0.000	-0.000	-0.000	52	
Maj/Non-Maj	0.017	-0.069	0.007	0.004	0.015	0	(majority)
Location	0.015	0.001	0.036	0.009	0.010	0	(urban)
Education	-0.053	-0.012	-0.051	-0.012	-0.015	1	(more than standard)
Numch	0.021	0.011	0.028	0.005	0.015	1	
Yngch	0.006	-0.001	0.007	0.002	0.006	0.474	(set at mean)
Earners	-0.029	-0.015	-0.056	-0.027	-0.048	2	
Famtype	0.068	0.029	0.115	-0.064	0.088	0	(two parents)
Spagehh	-0.000	0.001	-0.000	0.001	-0.001	0	
SpMaj/Non-Maj	0.010	0.216	-0.036	-0.063	-0.007	0	
Splocation	0.012	-0.013	-0.044	-0.136	0.001	0	
Speducation	0.011	-0.009	-0.012	-0.066	0.004	0	
Spnumch	0.005	-0.032	0.010	0.020	0.007	0	
Spyngch	0.005	0.023	0.000	-0.108	0.008	0	
Spearners	-0.027	-0.034	-0.019	0.015	-0.022	0	
Locd	0.020						
Dlocd	0.000						
predicted probability (1/1+e^-XB)	0.035	0.011	0.050	0.011	0.030		

general, fall considerably for the advantaged families -- by a factor of four in the U.S, a factor of 2 in Canada, and by a third in Australia.

Remarkably, in Germany, the predicted probability of poverty for this advantaged family is actually higher than for the mean U.S. family. This is apparently due to the fact that the majority/non-majority coefficient estimated from the German data, which is not significant, is actually negative -- i.e., being in the non-majority group is associated with a lower chance of being poor. Hence, the hypothesized "advantaged" family is advantaged in the other countries, but not in Germany. It has been suggested that this majority/non-majority result, although not significant, may in fact be "real", since the non-majority population in Germany, unlike in the other countries, is dominated by guest workers who are by definition employed and, thus, are very unlikely to be poor.[6] Similarly, we exclude Israel from this analysis; its statistically insignificant coefficient on family type is in the opposite direction of all of the others, thus its already small poverty rate at the U.S. mean drops (to zero) for this hypothesized disadvantaged family and actually rises for the advantaged family.

In looking again at the patterns in the demographic effects across the countries (excluding Israel), we find that the relative magnitudes of the effects, within each country, has nearly the identical pattern as the results for the U.S. mean family.

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[6]Personal Communication with Lee Rainwater

For both the advantaged and disadvantaged families, family type, overall, has the strongest impact on a family's chance of being poor, followed by level of education and number of household earners, followed by the number of children and the family's location. Thus, the findings described earlier seem to hold up, i.e., they are stable with respect to the level of the independent variables.

In general, when a logit model is evaluated at the mean of the data, it produces a predicted probability very close to the mean of the dependent variable. (In our case, the mean of the dependent variable is the poverty rate.) However, as Table VI below shows, our model produces a predicted probability of being poor for the average family that is much less than the reported poverty rate in every country --approximately one quarter of the reported rate in Israel, half of the reported rate in Germany and two-thirds in the U.S., Canada, and Australia. Unfortunately, there is no simple explanation for this pattern and we can only speculate on what may be driving this result.

Table VI

Comparison of Predicted Probabilities vs. Poverty Rate

	U.S.	Germany	Canada	Israel	Australia
Predicted Probability	.148	.023	.126	.026	.100
Poverty Rate	.218	.040	.195	.095	.172

The logistic distribution is nonlinear and assumes symmetry

around the mean. It is possible that we obtain the result that we do because the distribution is not actually symmetric, but instead has values far out in the tail for non-poor families and only values closer in to the mean for poor families. (The opposite could also be true, but we find the former argument more plausible.) We plan to explore this possibility further. However, presently, we are unable to explain this result with any greater level of specificity.

V. Conclusion

In summary, the above findings suggest several interesting conclusions. First, there is a relatively high degree of similarity in the demographic effects across countries -- in the significance, direction, and magnitude of these effects. In general, family type has the strongest impact on a family's chance of being poor. Even when we allow the effect of our independent variables to vary between two-parent and single-parent families, we are unable to explain the higher rates of poverty among single-parent families in the countries we studied. Except for an independent and significant effect of an additional earner in single-parent families, the variables we include in our model do not affect the probability of being poor any more for single-parent families than they do for two-parent families.

The other variables which have strong effects are those associated with level of education and number of household earners -- perhaps the two variables which probably best predict total family market income -- followed by those associated with

the number of children and a family's location. Cross-nationally, the age of the household head and the majority/non-majority status produced relatively small and/or insignificant effects (with the U.S. a noticeable exception).

Finally, we can generalize our findings, although somewhat speculatively, to argue for the existence of an Anglo-American clustering in the patterns across countries -- i.e., the U.S., Canada, and Australia tend to look fairly similar overall. (Even more narrowly, we see a North American cluster -- i.e., the U.S. and Canada produce even more similar results.) It is interesting, but beyond the scope of this paper, to consider that this finding coincides with much recent work among scholars of the welfare state (especially Scandinavian researchers).[7] They find that welfare states and their associated economic outcome patterns, tend to cluster -- with Anglo-American countries (e.g., the U.S., Canada, Australia) revealing different patterns than those of Continental European countries (e.g., Germany). Israel, not surprisingly, "looks" quite different from the Anglo-American axis; while considered industrialized, its welfare state combines features from the European model with those of a developing country.

The question as to how much of the inter-country similarities and differences in demographic factors noted above derive from welfare state differences (i.e., differences in redistri-

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[7]An example in this line of research is: Esping-Andersen, Gosta, The Three Worlds of Welfare Capitalism. Princeton: Princeton University Press, 1990.

butive taxes and transfers) rather than from underlying population and market differences remains an open question. Clearly any poverty analysis which is based on disposable income (post- -tax-and-transfer), as ours is, will capture the effects of several kinds of social and institutional factors. Thus, additional information could be obtained about the effects of welfare state differences by redoing this analysis -- looking separately at pre-tax-and-transfer income and at disposable income.

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Appendix A

Comparative Table: Five Countries
Each country's own means -- independent variables

	U.S.	Germany	Canada	Israel	Australia
Agehh	35.026	38.898	35.864	35.91	36.165
Maj/Non-Maj	0.213	0.002	0.132	0.39	0.136
Location	0.29	0.548	0.355	0.053	0.355
Education	0.797	0.105	0.511	0.523	0.441
Numch	2.018	1.726	2.022	2.498	2.085
Yngch	0.474	0.343	0.591	0.725	0.5
Earners	1.569	1.423	1.605	1.409	1.176
Famtype	0.185	0.07	0.109	0.023	0.12
Spagehh	6.082	2.656	3.696	0.94	0.008
SpMaj/Non-Maj	0.073	0.001	0.009	0.011	0.008
Splocation	0.042	0.042	0.02	0.001	0.037
Speducation	0.126	0.022	0.049	0.008	0.034
Spnumch	0.361	0.11	0.196	0.042	0.207
Spyngch	0.068	0.014	0.051	0.002	0.052
Spearners	0.155	0.067	0.087	0.016	0.053
Locd	0.217				
Dlocd	0.034				

Appendix B

Comparative Table: Five Countries
Partial Derivatives: p(1-p)B
X-values = each country's own means

	U.S.	Germany	Canada	Israel	Australia
Intercept	-0.055	-0.099	-0.111	0.008	-0.135
Agehh	-0.003	0.001	-0.001	-0.001	-0.001
Maj/Non-Maj	0.064	-0.135	0.017	0.009	0.048
Location	0.055	0.002	0.084	0.021	0.030
Education	-0.197	-0.023	-0.118	-0.029	-0.045
Numch	0.079	0.021	0.064	0.012	0.047
Yngch	0.021	-0.002	0.016	0.005	0.018
Earners	-0.106	-0.030	-0.131	-0.065	-0.149
Famtype	0.252	0.056	0.269	-0.155	0.274
Spagehh	-0.001	0.003	-0.001	0.003	-0.002
SpMaj/Non-Maj	0.037	0.422	-0.085	-0.154	-0.023
Splocation	0.044	-0.025	-0.103	-0.330	0.004
Speducation	0.040	-0.017	-0.027	-0.161	0.013
Spnumch	0.017	-0.062	0.023	0.048	0.023
Spyngch	0.019	0.044	0.000	-0.263	0.025
Spearners	-0.100	-0.067	-0.045	0.035	-0.068
Locd	0.073				
Dlocd	0.001				
predicted probability (1/1+e^-XB)	0.148	0.023	0.126	0.026	0.100
actual poverty rate (mean of pov)	0.218	0.040	0.195	0.095	0.172