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Take It or Leave It: (Non-)Take-Up Behavior of Social Assistance in Germany

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Abstract

Analyzing the under-consumption of benefits in the German means-tested Social Assistance program using data from the German Socio-Economic Panel Study we confirm recent high estimates of a non-take-up rate of more than 60 percent. In light of likely measurement errors in income and in our simulation of household needs, we provide a range of estimates yielding useful boundaries for the non-take-up rate. We show that the rate varies greatly depending on the determination of eligibility. Simulation results pertaining to the amount of unclaimed benefits are qualitatively similar to those for the non-take-up rate. In our multivariate analyses on determinants of (non-)take-up behavior we find distinct differences across population groups and significant impacts of proxies for stigma, application costs and social ties.

Zusammenfassung

Basierend auf den Mikro-Daten des Sozio-oekonomischen Panels untersuchen wir Ausmaß und Struktur der Nichtinanspruchnahme von Sozialhilfe (Hilfe zum Lebensunterhalt) in Deutschland. Die Schätzung einer Nichtinanspruchnahmequote ("Dunkelziffer") fällt mit über 60 Prozent erwartungsgemäß höher aus als für die Höhe der nicht in Anspruch genommenen Sozialhilfebeträge. Angesichts der hohen Wahrscheinlichkeit von Messfehlern sowohl in den faktisch erhobenen Einkommensdaten als auch bei der Simulation des Bedarfseinkommens, bieten wir eine Reihe von Schätzungswerten und somit nützliche Sensitivitätsanalysen für die Nichtinanspruchnahmequote an. Es wird deutlich, wie stark die Berechnung der Inanspruchnahmequote mit der Bestimmung der Inanspruchnahmeberechtigung variiert. Multivariate Analysen offenbaren deutliche Unterschiede für verschiedene Bevölkerungsgruppen und zudem signifikante Einflüße von Indikatoren zur Messung von Stigma, Kosten der Antragstellung und insbesondere sozialen Bindungen.

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1. Introduction

Industrialized countries share a common principle of providing a basic safety net within the social security system to protect the poorest from falling below a certain level of economic well-being. This safety net might consist of a multitude of single programs targeted at different life events or situations (like in the USA) or a single system of social assistance (like in the Federal Republic of Germany). Notwithstanding differences, a closer look at claiming behavior across countries reveals that non-take-up of such social benefits is high, particularly for means-tested social benefits. The predominant means-tested German welfare assistance program (the so-called *Sozialhilfe*) is no exception to the rule (Neumann and Hertz, 1998; Bird et al., 2000; Riphahn, 2000). It is the aim of this paper to provide a better understanding of the factors that contribute to the high rate of non-take-up of welfare benefits in Germany.

There are various reasons why the under-consumption of benefits must be considered a challenge that is equal in importance to the abuse of benefits. First, non-participation suggests a failure in the policy. Though at any one point in time full take-up is unrealistic because of lags and delays in claiming, the target of the policy is the full use of its benefits in order to fulfill the mandate of providing a safety net for those in need. Secondly, non-take-up by some eligible households implies a fundamental injustice when comparing non-claiming households to households in a similar economic situation who receive social benefits. Thirdly, the rejection of benefits implies that the costs of claiming exceed the anticipated benefits from the entitlement amount. To the extent that such costs result from complex schemes, poor transmission of information or similar factors they imply a failure in the design or implementation of the program. Non-take-up becomes a serious social problem if some households cannot reach the targeted income because they are – directly or indirectly – discouraged or prevented from claiming because of objective or subjective barriers.[1]

In this study we take another look at the non-take-up rate of the German Social Assistance program using micro-data at the household level from the Socio-Economic Panel (SOEP). Simulating the German welfare system we determine the proportion of households that does not receive benefits out of the entire population of households that are deemed eligible to receive assistance. We also extend the existing literature about the non-take-up of benefits in the German social assistance program by employing multiple regressions based on an economic participation model to estimate the deter-

[1] For a more detailed discussion of the social and economic implications of a low take-up of social benefits see van Oorschot (1998), Hartmann (1985), and Moffitt (1983).

minants of the high non-participation rate. Given the nature of the relatively small size of representative survey samples, we provide a wide range of estimates in order to show the sensitivity of our empirical results.

Understanding the magnitude of the entitlements that households are forgoing when not claiming benefits is of fiscal importance. In essence, these forgone benefits represent savings to the relevant government budget and as such policies aiming to increase participation in a particular program will increase government spending. Because entitlement levels differ between those who claim and those who do not claim, we provide a range of estimates of the fiscal savings rate from non-take-up based on our simulations.

Our simulation results suggest that the estimated non-take-up rate for social assistance in Germany is rather sensitive to changes in our simulated measure of eligibility, ranging from 41.3 percent to 82 percent depending on the stringency of our eligibility criterion. With respect to unclaimed entitlements our simulations suggest a rate of unclaimed benefits out of all outstanding entitlements of 45.3 percent, a rate that can vary from around 30 percent to around 67 percent depending on how stringent an eligibility criterion we use. Furthermore, household characteristics can be associated with significantly different welfare participation rates. While the base case scenario of our multivariate analysis suggests an estimated non-take-up rate of 62.9 percent, it can be as high as 72.2 percent for households without children and as low as 19.8 percent for households with more than two children. We also find that social controls can affect participation: households that are generally pessimistic or not actively involved in religious institutions have a higher participation rate.

The paper is organized as follows: After a review of the literature in section 2, we briefly describe our model of social assistance participation decision (section 3) and the German Social Assistance System (section 4). Section 5 provides information on data and methodological aspects; sections 6 and 7 show descriptive and multivariate results of our empirical work. Section 8 concludes.

2. Research Question and Literature

Knowledge about non-take-up of social benefits in Germany is rather limited. Existing studies show differences in benefit *receipt* and in the proportion of eligible, non-claiming individuals or families out of the relevant population across various population groups.[2] Somewhat less detailed is

[2] Data presented by the Federal Bureau of Statistics, for example, show that the receipt of social assistance was noticeably higher in 1997 among single parents, chil-

our knowledge of the *non-take-up rate* for various population groups. The non-take-up rate for social benefits refers to the proportion of eligible households who do not claim the benefits for which they are eligible.

Empirical estimates of the non-take-up rate of social assistance in Germany per se go back to the late seventies and vary from 36 percent to 79 percent depending on the method and data used (Geissler, 1976; Bujard and Lange, 1978; Klanberg, 1979; Hauser et al., 1981; Hartmann, 1985; Hauser and Hübinger, 1993; Neumann and Hertz, 1998; Bird et al., 2000; Hauser et al., 2000; Riphahn, 2000). Of the more recent studies, Neumann and Hertz (1998) calculate a non-take-up rate for individuals of about 52 percent for 1995. They estimate the number of eligible households on the basis of SOEP data and compare that number to the number of welfare recipients based on official statistics, a method that does not obviously lead to a consistent measure of the non-take-up rate. Riphahn (2000) takes advantage of data from the 1993 Income and Expenditure Survey (EVS) to estimate a non-take up rate of 63.1 percent. Though its main strength is its sample size, the EVS has the significant shortcoming of not being as representative a sample as the SOEP.[3] In their study about differences in the take up of social assistance between immigrants and native Germans, Bird et al. (2000) estimate a non-take-up rate for all households of about 60 percent for 1996.

Only Bird et al. (2000) and Riphahn (2000) employ regression analyses to explain the welfare take-up rate. The international literature on determinants of welfare take-up is rather extensive, particularly with respect to welfare take-up for various programs in the United States and the United Kingdom. Craig (1991) and van Oorschot (1991, 1998) provide detailed discussions of the determinants of welfare take-up and the threshold models in particular. Much of our current understanding of the reasons for not claiming benefits for which one is eligible comes from sociological studies based on surveys of eligible individuals. An obvious advantage of survey information from eligible households is that surveys can illicit reasons for why certain characteristics are associated with a higher probability of claiming benefits. Based on such surveys, threshold models view the claiming process as a process of crossing thresholds. Not passing a well-defined threshold leads to non-take up of the benefits. For example, if households do not per-

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dren, single adults, foreigners, and women than in the entire population (*Statistisches Bundesamt,* 1999). Neumann and Hertz (1998) show that in 1995 a relatively high proportion of children, women, foreigners, and larger families remain poor in the sense of not claiming benefits though having incomes below what the social assistance guidelines deem necessary.

[3] Particularly, the EVS under-represents the foreign population and may do so selectively because being a voluntary quota sample probably implies that more assimilated foreign households are more likely to participate. Foreign households tend to be larger and tend to have higher needs and lower income.

ceive a need for assistance, or if the benefits are not perceived as useful in meeting their needs, they will not claim. Likewise, households have to overcome a household-specific distaste for receiving public assistance before they will consider claiming benefits.[4]

In this paper, we extend the research by Bird et al. (2000) using 1996 data from the SOEP to simulate eligibility and obtain estimates of the non-take-up rate. Our empirical work is based on conventional utility maximizing consumer choice models according to which the refusal of benefits becomes utility maximizing if the claiming process involves costs that exceed the anticipated benefits (Moffitt, 1980, 1983; Ashenfelter, 1983; Cowell, 1986; Yaniv, 1997; Anderson and Meyer, 1997). Economic theory as well as empirical work predict that the probability of claiming increases with the level of entitlements and decreases with direct and indirect costs associated with claiming (Riphahn, 2000; Daponte et al., 1999; Blank and Ruggles, 1996; Fry and Stark, 1987; Moffitt, 1983).[5] Sociological threshold models suggest that the perception of benefits and costs from claiming determine individual claiming behavior (van Oorschot 1991, 1998).[6] Building upon this work, our regression model includes a variety of proxies for perceived costs and benefits as well as expectation about duration of eligibility.

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[4] Some of the studies also investigate the strength of the thresholds and allow for trade-offs, interconnections and the sudden impact of triggers. For example, a strong negative attitude toward benefits in general can keep a household from being aware of the existence of the benefits, but the break-up of the family may trigger changes in the attitudes toward benefits that can lead to more awareness and a higher likelihood of claiming. More recent work has added to the client-based threshold models features at the administrative level and at the scheme level that help explain non-claiming (van Oorschot, 1998). At the administrative level, giving insufficient information and advice, the use of complex forms, and handling of the claims in a way that is perceived as humiliating, for example, all contribute to higher rates of non-take up. At the scheme level, such features as vague entitlement criteria, means-testing, and whether or not the benefits supplement other income contribute to non-take up.

[5] For example, research on the food stamps program in the United States, shows that the participation rate is lowest (.4 or 40%) for households who can expect to get between zero and forty dollars worth of food stamps. Participation is highest (.93 or 93%) for households who stand to receive between $203 and $600 (Daponte et al., 1999). Fry and Stark (1987) find the level of entitlements to be statistically significant in explaining participation in the British Supplementary Benefit program in a multivariate regression, a conclusion that is confirmed by Riphahn (2000) for the case of social assistance in Germany.

[6] Households with a higher level of entitlement and consequently lower own income, *ceteris paribus,* are more likely to perceive the need for assistance, to perceive themselves as eligible for benefits, and to obtain more utility from receiving the benefits. Furthermore, because they perceive themselves more in need of assistance, they tend to be more informed about the available benefits and more likely to apply for support (van Oorschot, 1991,1998).

3. Modeling the Participation Decision

The economic model underlying the empirical work in this paper it the one presented by Blank and Ruggles (1996). The unobserved participation decision of a given household i at time t, P_{it}, can be modeled as a comparison between the relative benefits and the relative costs of participation:

$$(1) \qquad P_{it} = f(U(Y_{p,it}) - U(Y_{np,it}) - C_{it}(DC_{it}, S_{it}), \sum_{j=t+1}^{T} \delta_j E[Y_{np,ij}])$$

Participation at any time t occurs when $P_{it}>0$, hence when utility from participation, $U(Y_{p,it})$, exceeds utility from non-participation, $U(Y_{np,it})$, minus the costs of claiming benefits, $C_{it}(DC_{it}, S_{it})$, contingent on some expectations about future non-participation income, $\sum_{j=t+1}^{T} \delta_j E[Y_{np,ij}]$. Expectations about the future matter because the expectation that eligibility is only short-lived can lead to non-take-up and delayed claiming.[7] In the empirical work, we employ proxies to capture a household's likely expectation about the duration of its eligibility.

Dropping the subscript for period t for ease of notation, utility in either state depends on the respective incomes, income when participating, $Y_{p,i}$, and income when not participating, $Y_{np,i}$ in the social assistance program where:

$$(2) \qquad \begin{aligned} Y_{p,i} &= L_{p,i} + B_{p,i} + NL_{p,i} \\ Y_{np,i} &= L_{np,i} + NL_{np,i} \end{aligned}$$

Income when participating in the social assistance program consists of the household's labor market income, $L_{p,i}$, the level of the entitlement, $B_{p,i}$, and the household's non-labor income, $NL_{p,i}$. Income when not participating in the social assistance program consists of the household's labor market income, $L_{np,i}$, and non-labor income, $NL_{np,i}$. Additionally, we assume that $L_{p,i}$ and $NL_{p,i}$ are independent from $B_{p,i}$ since benefit receipt in essence requires that households have consumed other sources of income first.

A household's costs of participating in the social assistance program, C_i, consist of the direct costs of participation in terms of monetary expenses and time such as transportation costs, DC_i, as well as indirect costs such as stigma, difficulties in obtaining adequate information, uncertainty, and

[7] Looking at women's participation in food stamps and in Aid to Families with Dependent Children (AFDC), Blank and Ruggles (1996) find that eligibility spells end quickly while participation spells do not, and that there is little evidence of delays in claiming by those who choose to participate.

other non-pecuniary factors, S_i.[8] A detailed discussion of the operationalization of the variables for our empirical work follows in **section V.**

4. The German Social Assistance System

In order to determine the non-take-up rate of eligible households in the German Social Assistance program, we first need to simulate eligibility and thus the provisions of the social assistance program. As in most countries, Germany's welfare state has historically relied heavily on the principle of social insurance rather than means-tested assistance. Until 1961, social assistance was not very important and the responsibility of local governments. In 1961, *Sozialhilfe* (Social Assistance, or SA) was introduced as a national, means-tested assistance program that remains today as the most important means-tested part of the German social welfare system.[9]

Social Assistance is divided into two branches. In this paper we will look at the more important one for our population of non-institutionalized households, *Hilfe zum Lebensunterhalt* (HLU) which is the SA system's provision for ongoing monthly payments to households deemed eligible on the basis of their incomes.[10] For 1994, these support payments make up 82.5 percent of the system's expenditures for private households (not including expenditures on institutionalized clients – see Neuhäuser, 1996, p. 635).[11]

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[8] In the existing literature, stigma enters the utility function in a variety of ways. In some models it affects an individual's utility function by lowering the benefits of welfare transfers (Yaniv, 1997; Moffitt, 1983) while in other models stigma increases the costs of take-up (Blank and Ruggles, 1996; Blundell et al., 1988).

[9] There are some other means-tested programs. Certain forms of old-age pensions are available to people in circumstances of special need, and *Wohngeld* (housing subsidies) are based on family income, actual housing costs and the number of household members. Although less important now than in years past, the system of *Lastenausgleich* (equalizing the burdens of WWII) has an explicit means-testing aspect, and some of the special programs designed to help East Germans after unification have been means-tested as well. On the whole, however, these programs are not very large compared to the SA system.

[10] More precisely, eligibility for social assistance is based on a "needs community (*Bedarfsgemeinschaft*) rather than a household. In most instances the household will be identical to the needs community, however, there are instances in which that is not the case. For example, the assumption of pooling resources within a household context results in an underestimation of otherwise eligible persons. As we describe in the simulation section, there are very few cases in which households are deemed ineligible but report receiving assistance. In our simulations, we either make these household eligible for assistance or we delete them from our analysis. Based on a 25% sample of Social Assistance recipients in Germany as well as data taken from the EVS and the Mikrozensus, Hauser et al. (2000) analyze the degree of concordance of "household" and "needs community". More than 80% of all West German needs communities are basically identical to the definition of a household in survey data. Misspecifications are somewhat more likely in needs communities with female singles and female lone parents (Hauser et al. 2000, p. 31).

We will explain our simulation algorithm in detail below. In short, however, each *Bundesland* (federal state) sets an income threshold which represents the minimum income necessary for a single adult individual to maintain a reasonably dignified existence in contemporary society – a mandate laid down by the German constitution (the so-called *Eckregelsatz*). This basic needs income is adjusted for families according to an equivalence scale. Additional fractions are allocated to a household with members in ongoing special circumstances, such as old age or lone parenthood according to fairly firm rules (the so-called *Mehrbedarfszuschläge*).

For the most part, the HLU payments are made in cash, and they supplement the family's income up to the threshold, plus housing costs which again may be covered up to a certain threshold.[12] As we will discuss in more detail below, when determining eligibility, a family's income is subject to a number of adjustments. Certain expenditures can be deducted, and in principle the receipt of social assistance requires that all income sources above a certain minimum level are used before claiming social assistance (*"Nachrangigkeitsprinzip der Sozialhilfe"*).[13] Furthermore, legislation entails leaving a certain amount of labor income to the employee, which is not taken into account when calculating eligibility. In addition to these regular monthly benefits, one-time supplements are available to help pay for special needs, such as replacing a broken furnace (the so-called *einmalige Leistungen*). In principle, eligibility is determined, and payments are allocated by local governments.

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11 The 82.5 percent include one-time supplements (*einmalige Leistungen*). The remaining 17.5 percent of the SA system's expenditures for non-institutionalized clients are made up by *Hilfe in besonderen Lebenslagen* (HBL). Under HBL, income assistance is provided for people in certain circumstances where some expenditure is considered necessary, but the expenditure is too high for the household's current income (see Bundesministerium für Arbeit und Sozialordnung, 1990, pp. 452 ff.). Thus, pregnant mothers may receive HBL assistance to obtain pre-natal care; disabled citizens may receive one-time help that allows integration into a certain workplace; if the main bread-winner of a household dies, temporary assistance may be given to some other household member to keep the household intact until new sources of income are found; temporarily homeless persons may be assisted with cash until some housing arrangement can be found; and persons with addictions or severe mental illness may be given one-time help to access temporary crisis services.

12 Some HLU goes to people in institutions, where the payments are made directly to the institution and not to the individual. Since we explicitly exclude institutionalized people from our data, for our purposes HLU is basically a cash assistance system.

13 The German Social Assistance Program and provisions laid out in the German civil law make it mandatory for parents to help their adult children and for adult children to support their parents before claiming social assistance benefits. Parents may not be required to support their adult child in case of pregnancy or when raising an own child up to the age of 6 years. For the most part, these provisions are not incorporated in our simulation to its full extent for lack of detail in the data. Some of the support is part of our analysis if it comes in the form of private transfers from outside the household which are included in our income measure.

5. Data and Methods

We use data from the *German Socio-Economic Panel* study (SOEP Group 2001), a repeated sample of German households begun in 1984 in the former West Germany, and extended in 1990 to include the new Eastern federal states. We take a cross-section from the 1996 wave of the panel and construct a data set using the household as the unit of observation (6,567 cases unweighted). Applying appropriate population weights, which also control for potential attrition in previous waves, these cases form a representative sample of all non-institutionalized households living in Germany in early 1996.

5.1 Simulation of Eligibility

The indicator variable we explore is welfare receipt among the households that we determine to be eligible for assistance (HLU) in the month of interview. *Eligibility* for HLU is calculated within our data according to the rules of SA system and occurs when income falls short of needs. The formula for calculating a household's need is as follows:

$$HN_i = \sum_{j=1}^{n} (IW_{ij} + AW_{ij}) * NT + HC_i \tag{3}$$

where

HN_i = household i's total economic need
n = number of household members
IW_{ij} = Individual j's base weight
AW_{ij} = weights for additional need *(Mehrbedarfszuschläge)*
NT = state-specific need threshold *(Eckregelsatz)*
HC_i = housing costs

The simulation algorithm starts with a base weight for each individual, IW_{ij}, which assigns a value of 1.0 to the head and weights varying from 0.5 to 0.9 to additional household members according to age.[14] An individual's base weight may be increased due to needs caused by ongoing special circumstances, AW_{ij}, based upon age, disability status, household composition of lone parent families, and pregnancy.[15] The household weight is the sum

[14] In detail these weights for 1996 are set up as follows: 0.50 for children age 0 to 7; 0.65 for age 8 to 14; 0.90 for age 15 to 18; 0.80 for 19 and over.

[15] In detail, these circumstances and their corresponding additional weights are as follows: Aged 65 and over: 20%; Aged less than 65 but severely disabled: 20%; Pregnant women: 20%; Lone parent with 1 child aged less than 7 years: 40%; Lone parent with 2 or 3 children aged less than 16 years: 40%; lone parent with 4 or more children

of the individual weights of all household members (individual base weights plus weights for additional needs). The household weight is multiplied by the income threshold essential for a dignified life by a single adult in the household's federal state, NT.[16] To this household-equivalent income need are added the costs of housing, heating, and warm water, HC_i, with the total being the household's overall economic need.[17]

To determine eligibility, current household income is compared to household needs. The income measure used for this comparison is the actual current household income adjusted for certain deductible expenditures (*Absetzbeträge*) in case of employment[18] as well as for some government transfers.[19] If the household's adjusted income, HY_i, is below the overall household's needs, HN_i, the household is considered eligible for HLU, i.e.:

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aged less than 16 years: 60%; Aged 15 and over and eligible for integration assistance for the disabled: 40%. In order to define pregnancy we make use of the longitudinal features of the SOEP data by controlling for motherhood of a newborn child in the following year.

16 The needs thresholds are changed each year as of the first of July. Since interviews in the SOEP are almost exclusively conducted in the first half of the year, and since the 1995 needs thresholds remained valid until the end of June of 1996, we are using the 1995 needs threshold in our simulations. Variations across the states are small: In 1995, the standard one-person rate for HLU payments ranged from DM 522 in the western states of Hesse and Baden-Wurttemberg to DM 504 in the eastern states Mecklenburg-West-Pomerania, Saxony, and Thuringia.

17 To identify the housing needs of a given household we use the actual housing costs, observed in the SOEP separately for tenants and owner-occupiers. This covers the cost for heating and warm water, operating costs, as well as rent for tenants and mortgage interest and maintenance costs for owner occupiers. We apply a top-trimming to these costs given by the average housing costs of main tenants (rent plus costs for heating and warm water) broken down for East- and West-Germany (here also broken down by categories of community size). By this method we reduce the number of households which would otherwise be identified as eligible for HLU, just because they live in very expensive apartments or houses. In fact, a comparison of our (top-trimmed) housing costs with the official statistics on housing costs for households receiving housing assistance (*Wohngeld*) (Breuer and Engels, 1998, pp. 15 f.) shows a high degree of accordance with the actual figures. E.g., for single adult households in West Germany we simulate housing needs of DM 542 compared to DM 532 in official statistics, for couples with two children in East Germany we simulate housing needs of DM 664 compared to DM 693 in official statistics (more details are available from the authors upon request).

18 In general, the idea is to leave a certain amount of labor income to the employee which is not taken into account when calculating eligibility. Our algorithm considers DM 10 as a lump sum allowance for workers (*Arbeitsmittelpauschale),* DM 50 for commuting to work, and a deductible amount that varies with the health status of the employed person (*Absetzbetrag):* For regular workers it is a minimum of 25% of the *Eckregelsatz* and increases with labor income to as much as 50%, for physically impaired persons it ranges from 30% to two thirds, and for blind and severely disabled persons from 35% to 80% of the *Eckregelsatz.* Exact information about deductible expenditures can be obtained from the original statutes of law (BSHG, *Bundes-Sozialhilfe-Gesetz*); more details of our algorithm are available upon request.

19 Public transfers to be deducted include benefits received from the Social Assistance program, child-rearing benefits (*Erziehungsgeld*), and those paid to families of war veterans (*Kriegsopferversorgung*).

$$(4) \qquad \begin{array}{lll} HLU_i = 1 & \text{if} & HN_i > HY_i \\ HLU_i = 0 & \text{if} & HN_i \leq HY_i \ . \end{array}$$

As income measurements in our data can contain errors and in light of the possibility of variations in the eligibility criterion, any one estimate for the non-take-up rate of eligible households will be unsatisfactory.[20] In order to provide some sensitivity information for our estimates we also assign eligibility to households whose incomes exceed or fall short of their needs by x percent (x being 5, 10, and 20 percent, respectively):

$$(4a) \qquad \begin{array}{lll} HLU_i = 1 & \text{if} & HN_i > (1 \pm x) * HY_i \\ HLU_i = 0 & \text{if} & HN_i(1 \pm x) * HY_i. \end{array}$$

The level of entitlements for each household, HB_i, is determined as:

$$(5) \qquad HB_i = HN_i - HY_i$$

As with the eligibility decision, in order to provide sensitivity information for our estimates we also determine the entitlement level using household income that exceeds or falls short of the simulated household income by x percent (x being 5, 10, and 20 percent, respectively):

$$(5a) \qquad HB_i = HN_i - (1 \pm x)HY_i$$

In our empirical work we use $x = 0$ as our base case scenario, both for eligibility, HLU_i, and for the entitlement level, HB_i.

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20 In the simulations we make a number of adjustments to better reflect eligibility and take up. Especially, one needs to consider that in principle the receipt of social assistance requires that all income sources above a certain minimum level are used first (*"Nachrangigkeitsprinzip der Sozialhilfe"*). Riphahn (2000) highlights the importance of including this provision by showing the impact that ignoring it has on eligibility and non-take up. For each of the eligibility cut-offs, we rule households ineligible if they have income from interest or dividends that exceeded DM 500 (which is the upper bound of the lowest bracket used in the SOEP questionnaire), or that indicate that someone in the family has income from the rent or lease of real estate. This adjustment is made unless the household reports actual receipt of social assistance. In each scenario, we accept a household that reports actual receipt of assistance as eligible if the household would be eligible with 2/3 of their income (33 households). If they do not become eligible using 2/3 of their income but report receipt of assistance we delete the household from the sample since we must assume wrong information on either income or receipt of social assistance (12 households). We can not rule out that these problems are caused by a mismatch of our household definition and the "real" needs community.

5.2 Independent Variables

Our theoretical model makes welfare participation of eligible households dependent on direct and indirect costs from the claiming process, and expectations about the future. The sociological research in this field suggests that the perception of benefits and costs matters for the participation decision. In our empirical work we use a variety of proxies to operationalize the model because we are constrained by the unavailability of direct information about many of these factors. Information at the individual level comes from the head of household, defined here as the main breadwinner, i.e. the household member with the highest individual income.

We approximate *direct costs* of participation by using proxies for application costs, namely family composition, immigrant status and citizenship. Foreign-born households on average face more language barriers, in addition to which those without German citizenship may face legal repercussions from claiming welfare. We therefore expect foreign-born households to have higher application costs and lower participation, particularly foreign-born households with a foreign head. For the family composition variables we expect that children in the household raise application cost and hence lower participation while more-adult households have lower application costs because of the pooling of resources.[21]

Non-pecuniary or *indirect costs* depend on such factors as the household's distaste for welfare as well as the distaste for welfare by friends and neighbors, the latter being the major cause of (perceived) stigmatization of the participating household. We operationalize the indirect costs of participation with a variety of proxies for stigma that include the age of the household head, the presence and number of children, geographic regions, community size, strength of ties to the community, and non-attendance of religious meetings. Social norms that make take-up unacceptable may be stricter for younger households and differ across age cohorts as well as across regions and family types. Age also enters as a quadratic term because evidence suggests that older households have a stronger distaste for social assistance (Hartmann, 1985). Prior to unification, households in East Germany had an obligation to work that entailed criminal punishments in the case of continued assistance despite being able to work (Neumann and Hertz, 1998). We therefore expect a remaining strong sentiment against households who claim benefits in the East. Other hypotheses include on the

[21] Also of importance to capture the direct costs are variables that characterize the operating process and the application process such as the availability and efficiency of staff and the complexity of the application forms. These costs should be higher for first-time users than for continuing recipients. However, data about these costs are unavailable in the SOEP.

one hand that children lead parents to disregard their own distaste for social assistance in the attempt to meet their children's needs, and that larger communities provide more anonymity and hence more of a shelter from stigmatization.[22] On the other hand, attendance of religious meetings and strong ties to the community can be expected to lower anonymity and thus increase the fear of being stigmatized. It is also possible that stigmatization is stronger in more closely-knit communities, religious or secular, for those who use welfare assistance despite the fact that a helping hand is more easily extended by other members of the community.

Finally, we operationalize *expectations* by looking at proxies that influence the expected duration of benefits as well as at subjective indicators that reveal a household's attitude toward the future. On the one hand, those with less education, those who rent rather than own their home, and single parents are more likely to participate because they are more likely in need of assistance for longer periods of time. The same holds for households whose heads are generally pessimistic about the future or whose heads feel unable to influence their own fate.[23] On the other hand, households with a drop in income of at least 20 percent between the previous year's average monthly income and the income during the month of the interview may expect that their recent eligibility is only temporary and as such are less likely to participate.

5.3 Selection Issues

In our empirical work we will estimate a reduced form equation of participation conditional on being eligible for social assistance. In restricting the sample by eligibility status, we may generate bias in the coefficients. To see this, suppose the regression of interest is:

$$P_i = \alpha + \beta_1 X_i + \beta_2 Y_i + \varepsilon_i \tag{6}$$

where P_i is household i's participation decision, Y_i is income, X_i is a vector of other household characteristics, and ε_i is an error term. Because we only include households that are eligible for social assistance in the sample, we

22 Because larger communities also have a higher concentration of households receiving social assistance (Hauser et al., 2000, pp. 33 f.), participation is affected in two more ways. First, because welfare assistance is more common in larger cities, social norms toward social assistance receipt may be less stigmatizing. Second, dissemination of information and access to social assistance is facilitated with more social assistance recipients in close proximity, which reduces transaction costs.

23 We define as *pessimist* persons who strongly disagree with the statement that looking into the future they are essentially optimistic, and as *powerless* those who strongly disagree with the statement that their own actions affect their course of life.

are effectively selecting on income. This has two implications.[24] First, failure to include Y_i in the regression generates correlation between X_i and ε_i, creating bias in β_1. Therefore, we should include Y_i in our take-up regressions. Second, measurement error in Y_i will affect not only the coefficient on Y, β_2, but also all the other coefficients because the error affects selection into the sample. Moreover, if decisions regarding income and take-up are made simultaneously, Y is endogenous and would require a separate equation. All these problems suggest using an instrumental variable approach replacing each household's income with its predicted household income in the take-up regression, or a simultaneous estimation model for eligibility and take-up (Greene 1997: Ch. 21). In our empirical work we instrument for income using indicators of industry and occupation, and parents' education as the identifying variables (Table A1).[25]

6. Descriptive Statistics

As outlined above, decisions about whom to consider eligible will greatly influence eligibility and non-take-up rates.[26] Table 1a presents weighted estimates of the number of households by eligibility status using more and less stringent eligibility criteria. In the first column, a household is classified as eligible (i.e. $HLU_i = 1$), if 120 percent of its income, HY_i, falls short of the

[24] The following implications are only of relevance if it is our goal to make prediction about the take-up or lack thereof for all households, eligible or not. As long as our focus is only on the take-up behavior of those who are – by choice or coincidence – eligible for assistance, any selection issue is irrelevant. However, if some households choose to become eligible through refusal to work and earn sufficient income, or by other means with the goal of living off social assistance, then take-up as contingent on eligibility poses a selection problem.

[25] The two other approaches for dealing with the correlation and the biases from selecting on income are estimating eligibility and take-up simultaneously in a bivariate probit estimation or in a Heckman style selection model. When doing so in our empirical work, we find that both of these models produce qualitatively the same results in terms of sign and significance in the take-up regression as our instrumenting approach. We favor using an instrument for income because it controls more directly for the selection process. Estimation results from these other models are given in the Appendix, Table A2.

[26] We talk interchangeably about *non-participation, non-take-up,* and *non-claiming* when we observe no reported receipt of welfare benefits among those that we identify as eligible. This group thus includes eligible households who decide not to claim benefits, involuntary non-recipients in the form of rejected claimers, and households that do not report receiving benefits. Calling rejected claimers non-claimers is incorrect only if the household that filed for social assistance and was rejected is eligible according to our simulations. With respect to unreported social assistance benefits in the SOEP data, we cannot rule out that this happens. However, SOEP data are mostly collected through face-to-face interviews and evidence suggests that an increasing familiarity between interviewer and respondent facilitate the sharing of intimate information (Schräpler, 2000).

Table 1a

Social Assistance (HLU) Eligibility and Take-Up in Germany 1996

(in 1,000 Households; percent in parenthesis)

	Criteria for Eligibility: *Household Need* $HN_i > (1 \pm x) * Adjusted\ Household\ Income\ HY_i$						
	$x = .20$	$x = .10$	$x = .05$	$x = .00$	$x = -.05$	$x = -.10$	$x = -.20$
Total Number of Households (*1000)	37,287	37,287	37,287	37,287	37,287	37,287	37,287
• Not eligible for HLU	35,783 (96.0)	35,428 (95.0)	35,195 (94.4)	34,868 (93.5)	34,463 (92.4)	33,870 (90.8)	32,343 (86.7)
• Eligible for HLU	1,504 (4.0)	1,859 (5.0)	2,092 (5.6)	2,420 (6.5)	2,824 (7.6)	3,417 (9.2)	4,944 (13.3)
Of those:							
• HLU receipt	892 (2.4)	892 (2.4)	892 (2.4)	892 (2.4)	892 (2.4)	892 (2.4)	892 (2.4)
• No HLU receipt	612 (1.6)	967 (2.6)	1,200 (3.2)	1,528 (4.1)	1,932 (5.2)	2,525 (6.8)	4,052 (10.9)
Non-take-up rate of HLU [a]	*41.3*	*52.4*	*57.7*	*63.1*	*68.4*	*73.9*	*82.0*

[a] Number of households not receiving HLU (non-claimers) out of all eligible households (the so-called *Dunkelziffer*).

Source: SOEP 1996, Authors' calculations, weighted.

need threshold, HN_i. This represents the most stringent eligibility rule. In the last column a household is classified as eligible if 80 percent of its income falls short of the need threshold, representing our least stringent measure. The first two rows indicate the number and respective population share of households that are or are not eligible for social assistance. Eligible households are further divided into those actually receiving HLU and those not. The ratio of the households not receiving HLU out of the total number of eligible households gives rise to the non-take-up rate (the so-called *Dunkelziffer*).

It is possible that incomes in our sample are measured with error. On the one hand, if incomes are underreported, or if we incorrectly assign additional needs to some households during the month of the interview, then the results from columns toward the left will present a more accurate picture.[27] On the other hand, there are factors that suggest using a less stringent criterion for determining eligibility from the columns toward the right. For ex-

[27] For example, we do not know precisely the stage of an expecting mother's pregnancy so that we may incorrectly assign additional needs to an expecting mother who does not qualify at that point in time.

ample, households may receive one-time supplements (*einmalige Leistungen*) for which they are eligible even if they are not eligible for social assistance.[28] In that case, our simulations underestimate the number of eligible households. Furthermore, we may fail to incorporate all the components that enter the household's needs to their full extent, and administrators may be more generous in granting social assistance than our simulations predict.[29]

According to our simulation results in table 1a, between 4.0 and 13.3 percent of the 37.3 million households in Germany in 1996 are eligible for HLU, depending on the eligibility rule. The non-take-up rate among the eligible households is 41.3 percent if the most stringent rule for eligibility is used and increases to as much as 82.0 percent of the eligible population as more households become eligible with a less stringent eligibility rule. Assuming that our simulations are essentially accurate and households are eligible if their needs exceed their income in our base case scenario (i.e. $x = 0$), then the non-take-up rate of social assistance is 63.1 percent.

Neumann and Hertz (1998) and Riphahn (2000) refer to the proportion of those who do not receive social assistance though they are eligible – and hence are considered needy – as the shadow rate of poverty (*Dunkelziffer der Armut*).[30] Neumann and Hertz estimate this shadow rate of poverty for 1995 to be 3.4 percent of the population of all individuals. Riphahn estimates a shadow poverty rate of 2.04 percent of all households. According to our base case scenario, we predict a slightly higher shadow poverty rate among households in Germany of 4.1 percent (the proportion of those who are eligible and have no HLU receipt in table 1a), but the results range from 1.6 percent to 10.9 percent if eligibility rules are changed.[31]

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28 These one-time supplements are designed to help a household purchase expensive durable items such as a replacement for a defunct refrigerator, or winter coats for the family.

29 Hartmann (1985) points out that eligibility does not only depend on the economic situation of the household but also on the eligibility criteria determined by the law, by procedural regulations accompanying the law, and by legislation and administrative practices at the local level. Small differences in the threshold through differences in administrative practices that even the best simulation cannot be expected to pick up will therefore have a rather large impact on the estimated size of the eligible population. Hartmann (1985, pp. 174–75) also discusses various reasons for granting HLU even if the household's income exceeds the needs threshold, such as housing costs that are over-reported to the administrators.

30 Calling this number the shadow rate of poverty is not unambiguous. It assumes that households are poor if their income makes them eligible for social assistance benefits and they do not receive benefits. Particularly in light of Hartmann's (1985) finding of a great density of households right around the needs threshold the distinction between *non-poor* for households with incomes slightly above the needs threshold and *poor* for those slightly below appears at best arbitrary.

31 Riphahn's (2000) somewhat lower proportion can at least in part be explained by the differences in the data used and in the simulations. Riphahn includes fewer of the

Table 1b displays the results of a similar analysis for the entitlement level. We present the simulated entitlement level for all eligible households, and separately for households who do and do not actually receive HLU. Multiplying the average entitlement levels by the corresponding number of households gives rise to the aggregate claimed and unclaimed benefits in the month of the interview. The last row then presents the proportion of the total HLU entitlements for which households are eligible that are not claimed by eligible households.

Table 1b

Monthly Entitlement Levels by Take-Up Status in Germany 1996
(in DM / Month; Standard Deviation in parenthesis)

	Criteria for Eligibility: *Household Need* $HN_i > (1 \pm x) * $ *Adjusted Household Income* HY_i						
	$x = .20$	$x = .10$	$x = .05$	$x = .00$	$x = -.05$	$x = -.10$	$x = -.20$
Eligible for HLU	619 (1084)	595 (1084)	585 (1073)	560 (1084)	551 (1078)	529 (1055)	518 (1008)
Of those:							
• HLU receipt	732 (1085)	792 (1075)	819 (1071)	830 (1126)	880 (1121)	902 (1152)	959 (1236)
• No HLU receipt	459 (960)	416 (894)	413 (861)	401 (842)	399 (823)	398 (795)	421 (771)
Total Claimed Benefits (*1000 DM)	652,944	706,464	730,548	740,360	784,960	804,584	855,428
Total Unclaimed Benefits (*1,000 DM)	280,908	402,272	495,600	614,256	770,868	1,004,950	1,705,892
Unclaimed Benefits Rate [a]	*30.2*	*36.4*	*40.5*	*45.3*	*49.5*	*55.6*	*66.6*

[a] Estimated total benefits for non-claimers out of estimated total benefits for all eligible households.

Source: SOEP 1996, Authors' calculations, weighted.

additions to needs income than we do. To the best of our knowledge, Riphahn does not control for additional needs of pregnant women and the deductible receipt of benefits paid to families of war veterans. Furthermore, social assistance receipt is measured as receipt during at least one month in the previous year while the eligibility restrictions apply to the household's situation at the end of the year. This could lead to erroneous assignments since households whose economic situation has improved over the year may not be considered eligible even if they were in the month(s) during which they received assistance. It is thus likely that Riphahn's base case scenario underestimates both the proportion of eligible households and the proportion of hidden poor households *out of all* households. However, we would like to emphasize that as a proportion *of all eligible* households, our estimated non-take-up rate is almost identical to that found by Riphahn (63.1 percent versus 62.7 percent).

These descriptive results clearly confirm the hypothesis that benefits for non-claimers are drastically lower when compared to benefits for households who actually receive HLU. In our base case scenario monthly entitlements of successful claimers are about DM 830, while non-claimers forgo on average DM 401, yielding an unclaimed benefits rate of 45.3 percent. This estimate of "savings" by the authorities ranges from about 30 percent to 66 percent for the scenario with the least stringent eligibility rule. Our results confirm that claiming behavior is closely related to the relative size of the benefits to which a household is entitled, regardless of the stringency of the eligibility criterion.

Table 2 summarizes the information presented in the previous table for various demographic groups, using the base case scenario. Our results suggest that older households are less likely to be eligible for HLU than households with heads that are less than fifty years of age (5.2 or 5.3 percent compared to 7.6 percent), supporting recent evidence that older households are faring rather well (Krause and Habich, 2000: 325 f.). At the same time the non-take-up rate among older households is higher than average, indicating that of the relatively low proportion of elderly households in need of assistance, a disproportionately large number chooses to leave their entitlements unclaimed.[32] Voluntary poverty among elderly who renounce aid from the government is thus a concern unless this result is driven by unobserved support from outside the household such as free meals or free transportation.

Other results in Table 2 indicate on the one hand that a number of demographics can be associated with a below-average non-take-up rate: more likely to claim benefits are households with a female head, single-parent households, households with children, renters, households whose head is foreign-born, and households whose head is unemployed or not employed.[33] On the other hand, we find various household characteristics that can be associated with an above-average non-take-up rate: less likely to claim are single-adult households, households with several adults with or without children, households living in metropolitan areas or living in the East, as well as households whose head is employed, full-time or part-time, or whose head is retired. The unclaimed benefits rate varies in the same direction as

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[32] Hartmann (1985) presents survey results that illicit reasons for non-claiming by younger and older eligible individuals. Both groups cite fear of stigmatization and lack of knowledge about eligibility rules, but elder households also more predominantly cite voluntary refusal behavior or pride (*Verzichthaltung*) as a reason for not claiming benefits.

[33] Claiming behavior in case of unemployment is likely to be influenced by characteristics of the local labor market as well. Frick (1985) supports this hypothesis by showing an increase in the positive correlation of unemployment and HLU take-up over the period 1979 to 1982. Additionally, he finds that HLU-density is significantly higher in areas with high unemployment and poor chances of re-integration in the labor market.

Table 2

Social Assistance Take-Up Rates and Average Monthly Entitlement Levels by Take-Up Status for Eligible Households by Household Characteristics (1996)

Characteristic	Eligible House-hold[a]	Non-Take-Up Rate[b]	Claimed Benefits (DM / Month)	Un-claimed Benefits (DM / Month)	Un-claimed Benefits Rate[c]
All Households	6.5	63.1	830	401	45.3
Household Head[d] with age $\geq$ 70	5.3	77.5	731	408	65.7
Household Head with age $\geq$ 60	5.3	77.5	705	335	62.1
Household Head with age $\geq$ 50	5.2	65.6	711	369	49.8
Household Head with age $<$ 50	7.6	61.6	893	422	43.1
Female Head of Household	9.3	58.0	831	396	39.7
One Child	11.8	55.0	892	488	40.1
Two Children	7.0	45.5	1106	580	30.4
More Than Two Children	16.5	35.5	1093	786	28.5
Single Parent Household	38.8	28.1	929	517	17.8
Several Adults with Child(ren)	6.5	66.8	1122	588	51.4
Several Adults without Children	2.8	73.9	912	481	59.8
Living in a Metropolitan Area	6.7	66.4	974	309	38.5
Living in a Rural Area	6.7	64.8	789	453	51.4
Living in a Rented Apartment / House	8.9	59.4	851	383	39.7
Living in the Eastern States	7.3	66.9	669	309	48.2
Foreign Born Ethnic German Head	10.4	54.5	887	317	29.9
Foreign Born Foreign Head	14.5	52.1	1099	360	26.2
Head Works Full Time	2.2	80.7	670	441	62.8
Head Works Part Time	10.6	84.1	827	508	76.6
Head is Unemployed	25.5	38.6	781	362	22.6
Head is not Employed	26.3	42.9	1024	502	26.9
Head is Retired	6.1	80.2	528	305	70.1

[a] In percent of population.

[b] Number of households not receiving HLU (non-claimers) out of all eligible households.

[c] Estimated total benefits for non-claimers out of estimated total benefits for all eligible households.

[d] The head of the household is defined as the member of the household that is the main income earner. If no main income earner can be found, we maintain the designation as head from the SOEP.

Source: SOEP 1996, Authors' calculations, weighted.

the non-take-up rate, e.g. the proportion of outstanding benefits that are saved because of non-claiming by some of the eligible households is higher among elderly households than it is among households with a younger head.

Results from the cross tabulations above largely coincide qualitatively with results presented in recent studies for German welfare take-up by Neumann and Hertz (1998) and Riphahn (2000). However, cross-tabulations may provide a very inaccurate picture of what contributes to higher non-take-up rates by failing to account for interactions between the various characteristics of a household. In the next section we will estimate probit regressions to understand which household characteristics can be associated with low program participation rates when controlling for related household characteristics.

7. Non-Take up behavior: Results from Probit Regressions[34]

Sample means and standard deviations for the household characteristics that are included in the regressions are presented in Table 3 for households according to their eligibility status and their claiming behavior. The regression results are all based on the eligibility criterion that defines a household as eligible if the household's simulated needs exceed their adjusted income.[35] In Table 4 we present results from several probit regressions for the 429 HLU-eligible households in our sample. Column one, the short list of covariates, estimates the probability of HLU take-up as a function of demographic factors such as age, education, location and family composition. In the following columns we add first social control variables, then employment status variables, and finally – as our full model – both subsets.

The short regression (Column 1) provides evidence that households with higher predicted incomes have a significantly and substantially lower probability of participating in the program. *Ceteris paribus,* lower incomes correspond to higher benefits, so our results support the hypothesis that higher entitlements or benefits have a significant positive effect on non-take-up. Also, *ceteris paribus,* households with higher incomes may fail to claim benefits because they have a lower perception of need (van Oorschot, 1998), and they are more likely to be part of a social group where eligibility for social

[34] Despite our interest in *non-take-up,* in our regression we estimate the *take-up* of social assistance which provides more intuitive coefficients. With *non*-take-up as our dependent variable a positive sign would have to be interpreted as *increasing* the probability of *not* taking up benefits – a somewhat confusing statement. Higher non-take-up in our regression reveals itself through significant negative coefficients.

[35] Other eligibility criteria generate qualitatively similar results.

Table 3

Summary Statistic by Eligibility and Claiming Status

Characteristic	Not Eligible	Eligible		
		Total	Non-Claimers	Claimers
Needs Income HN_i (DM)	1734 (1717)	1682 (1791)	1619 (1755)	1790 (1824)
Adjusted Household Income (DM)	3794 (5465)	1278 (1919)	1315 (1661)	1213 (2242)
Foreign-Born Ethnic German Head (%)	0.041 (0.473)	0.069 (0.602)	0.060 (0.580)	0.085 (0.634)
Foreign-Born Foreign Head (%)	0.072 (0.618)	0.177 (0.908)	0.146 (0.867)	0.230 (0.956)
Total Number of Kids Age < 17	0.382 (1.852)	0.683 (2.536)	0.492 (2.267)	1.009 (2.737)
Single Parent (%)	0.018 (0.319)	0.167 (0.886)	0.074 (0.643)	0.325 (1.063)
Several Adults without Children (%)	0.413 (1.174)	0.174 (0.900)	0.203 (0.986)	0.123 (0.746)
Several Adults with Child(ren) (%)	0.205 (0.963)	0.207 (0.963)	0.219 (1.014)	0.186 (0.884)
Age of Household Head (Years)	49.6 (41.5)	44.8 (45.6)	45.7 (50.1)	43.2 (37.8)
No secondary education (%)	0.167 (0.888)	0.436 (1.179)	0.452 (1.220)	0.409 (1.116)
Post secondary education (%)	0.294 (1.086)	0.093 (0.691)	0.096 (0.723)	0.088 (0.643)
Northern States of West Germany (%)	0.202 (0.957)	0.194 (0.940)	0.196 (0.974)	0.190 (0.890)
East Germany (%)	0.181 (0.918)	0.206 (0.961)	0.218 (1.013)	0.185 (0.881)
Western States of West Germany (%)	0.349 (1.137)	0.331 (1.119)	0.337 (1.159)	0.320 (1.059)
Metropolitan area (%)	0.190 (0.936)	0.198 (0.948)	0.208 (0.996)	0.181 (0.874)
Rural area (%)	0.384 (1.160)	0.396 (1.163)	0.406 (1.204)	0.377 (1.101)
Renting housing unit (%)	0.610 (1.163)	0.856 (0.835)	0.805 (0.971)	0.943 (0.528)
Income loss since last year > = 20% (%)	0.183 (0.923)	0.128 (0.794)	0.176 (0.935)	0.044 (0.468)
Pessimist (%)	0.060 (0.568)	0.112 (0.750)	0.049 (0.531)	0.220 (0.941)
Believes own behavior does not affect course of own life (%)	0.016 (0.301)	0.115 (0.759)	0.027 (0.394)	0.267 (1.004)
Has strong ties to location (%)	0.786 (0.978)	0.668 (1.120)	0.725 (1.095)	0.570 (1.124)
Does never attend church or religious meetings (%)	0.522 (1.191)	0.561 (1.180)	0.510 (1.226)	0.647 (1.085)
Head works Part Time (%)	0.056 (0.547)	0.095 (0.696)	0.126 (0.815)	0.041 (0.448)
Head is Unemployed (%)	0.044 (0.490)	0.218 (0.982)	0.134 (0.834)	0.363 (1.092)
Head is Not Employed (%)	0.046 (0.501)	0.238 (1.012)	0.162 (0.903)	0.369 (1.095)
Head is Retired (%)	0.282 (1.073)	0.264 (1.049)	0.336 (1.158)	0.142 (0.793)

Source: SOEP 1996, Authors' calculations.

Table 4

Determinants of Social Assistance Take-up in Germany, 1996
Coefficients from Probit Regressions (standard error in parenthesis)

Characteristic	Short List (1)	Added Social Controls (2)	Added Employment (3)	Full Model (4)
Intercept	-0.121	0.022	1.226*	-1.097
	(.625)	(.656)	(.727)	(.763)
Predicted Income (*1000)	-0.614**	-0.584**	-0.236	-0.239
	(.164)	(.164)	(.208)	(.209)
Foreign-Born Ethnic German Head	0.083	0.091	0.075	0.106
	(.232)	(.240)	(.236)	(.244)
Foreign-Born Foreign Head	-0.226	-0.157	-0.161	-0.086
	(.184)	(.188)	(.194)	(.199)
Total Number of Kids Age < 17	0.541**	0.521**	0.381**	0.378**
	(.099)	(.100)	(.110)	(.110)
Single Parent	-0.026	0.019	0.195	0.223
	(.244)	(.249)	(.267)	(.272)
Several Adults without Child(ren)	1.099**	1.077**	0.611*	0.627*
	(.312)	(.320)	(.364)	(.367)
Several Adults with Child(ren)	-0.034	0.042	0.281	-0.193
	(.265)	(.268)	(.281)	(.285)
Age of head (*10)	0.521**	0.386	0.356	0.263
	(.265)	(.274)	(.287)	(.294)
[Age of head (*10)]^2	-0.053*	-0.039	-0.031	-0.023
	(.027)	(.028)	(.029)	(.030)
No secondary education	-0.058	-0.052	0.084	0.073
	(.166)	(.169)	(.175)	(.178)
Post secondary education	0.401	0.353	0.154	0.124
	(.280)	(.283)	(.298)	(.301)
North	-0.295	-0.346	-0.232	-0.277
	(.214)	(.221)	(.219)	(.224)
East	-0.734**	-0.837**	-0.510**	-0.623**
	(.241)	(.249)	(.254)	(.261)
West	-0.078	0.122	0.007	-0.049
	(.173)	(.179)	(.177)	(.182)
Metropolitan area	0.386*	0.411**	0.266	0.298
	(.198)	(.201)	(.205)	(.208)
Rural area	-0.217	-0.197	-0.190	-0.166
	(.162)	(.165)	(.165)	(.168)
Renting housing unit	0.028	-0.080	0.211	0.117
	(.314)	(.323)	(.333)	(.342)
Income loss since last year > = 20%	-0.302	-0.327	-0.356	-0.364
	(.256)	(.262)	(.260)	(.265)
Pessimist	–	0.473**	–	0.383
	–	(.234)	–	(.240)
Powerless	–	0.431	–	0.436
	–	(.282)	–	(.285)
Has strong ties to location	–	-0.164	–	-0.104
	–	(.141)	–	(.144)
Does never attend church	–	0.335**	–	0.323**
or religious meetings	–	(.149)	–	(.151)
Head works Part Time	–	–	0.037	-0.049
	–	–	(.263)	(.265)
Head is Unemployed	–	–	0.627**	0.545**
	–	–	(.228)	(.234)
Head is Not Employed	–	–	0.727**	0.681**
	–	–	(.232)	(.235)
Head is Retired	–	–	-0.012	0.051
	–	–	(.303)	(.311)
Log likelihood (n = 429)	253.9	243.4	243.7	236.0

*: $p < 0.10$; **: $p < 0.05$

Dependent variable is coded with 1 if household receives Social Assistance, and 0 otherwise. The omitted categories point to a single-adult, native household with secondary education, living in a smaller town in the South of Germany in an apartment or house that he/she owns. He/she also works full time, has little attachment to the community, does attend church or other religious gatherings, is generally optimistic and believes that his/her actions to a certain degree affect the course of his/her life.

Source: SOEP 1996, Authors' calculations.

assistance is low, such that the distaste for assistance and the stigma attached to claiming assistance may be higher (Cowell, 1986).

The regression results do not show any significant effect of the immigrant status variables on participation in social assistance. Both the negative sign and the failure to be significant for foreign-born foreign heads support results found by Bird et al. (2000) who suggest that there is no empirical evidence that immigrant households enter Germany in order to abuse the social welfare system. Immigrants may face higher application costs from possible language barriers and unfamiliarity with the system, and they may not claim for fear of being asked to leave Germany. In Germany, dependency on social assistance can be used as a reason to discontinue the residency permit, though that is not the case for foreign-born ethnic Germans. None of these influences can be supported empirically.

A number of variables regarding the composition of the household are included for a variety of reasons. With respect to the number of adults in the household we would expect a positive impact on program participation given that resources can be pooled to facilitate the claiming process. Looking at the regression results, we find that households with several adults without children are significantly more likely to claim benefits than the reference group of single-adult households. This supports the hypothesis that application costs may be lower for a household with several adults, though it is also possible that single-adult households consist to a larger extent of older individuals with the more pronounced attitude of pride and refusal of benefits. This latter claim is supported by our finding that the age of the household head affects social assistance take-up: take-up increases with age but at a decreasing rate. Up to age 49, *ceteris paribus,* older heads are associated with a higher take-up rate, but for heads age 50 or older, the likelihood of claiming social assistance decreases.

The regression results also show that the number of children positively impacts on a household's participation, regardless of family composition. Thus, while children may make it more time consuming and costly to apply (Blank and Ruggles, 1996), these costs are apparently outweighed by an increased perception of need (van Oorschot, 1998), possibly a higher acceptance probability on the part of program administrators that may be less disdainful of claiming households with children, or by a higher participation among households who expect to be eligible for a longer period of time. After controlling for the number of children in the household, single-parent households are no more likely to take-up benefits than single-adult households.

With respect to education our results do not support the claim that households with lower educational attainment – and therefore lower earnings po-

tential – experience longer eligibility spells and as such are more likely to participate. If anything, our results suggest a positive relationship between education and take-up. Possibly, a higher level of education lowers the time costs of applying and completing the application form and increases the level of awareness of the program parameters.

The model suggests a lower participation rate for households with a recent income loss because households may expect their eligibility to be only temporary. This group is also more likely to contain households that are eligible for the first time which may lead them to delay the claiming decision.[36] Though the negative sign for the coefficient on income loss confirms our expectation, it fails to be statistically significant. Likewise, our results cannot support the hypothesis that households in rented accommodation are more likely to participate because they expect their eligibility to be more permanent.

Our empirical results strongly support participation differences across regions. East German households are significantly less likely to claim benefits than the reference group of South German households. This is in line with the argument by Neumann and Hertz (1998), that a certain distaste for receipt of social assistance has remained from the old GDR system. Moreover, take-up of means-tested housing assistance (*Wohngeld*) in 1996 was significantly higher among East Germans.[37] With lower entitlement levels and perhaps less of a need for assistance above and beyond housing benefits, participation is less likely.[38]

The dummy variable for living in a metropolitan area shows the expected significant and positive impact on take-up behavior.[39] This supports the hypotheses that information is more easily distributed formally and informally in more densely populated areas, and that the anonymity of living in a larger city reduces stigma. The coefficient on rural is negative though it fails to be significant.

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36 Blank and Ruggles (1996) find no evidence for delayed claiming. For Aid to Families with Dependent Children (AFDC) and food stamps they find that for claiming households, participation spells start almost immediately upon becoming eligible.

37 Based on GSOEP data, Frick and Lahmann (1997) determine 6.5% of all main tenants in West Germany to receive housing assistance, whereas this rate is twice as high in East Germany (13.1%).

38 We also find that adjusted incomes in the East are on average similar to those in the rest of Germany while they deviate less. Because of the higher density of incomes in the East, we may have more households that are close to the eligibility cut-off but do not qualify. However, regressions using a less stringent eligibility criterion that should define more of those households as eligible, also generate a statistically significant coefficient on East.

39 We define as *rural* households those that live in towns with fewer than 20,000 inhabitants and as *metropolitan* those households that live in cities with more than 500,000 inhabitants.

In the next columns of table 4 we add social controls and labor market attachment variables to the analysis. Comparing coefficients across these models provides information about the robustness of our estimates. In column 2, we include two variables as proxies for a household's expectations about its long-term prospects. For respondents that we define as *Pessimist,* i.e. those who strongly disagree with the statement that looking into the future he / she is essentially optimistic, we find support for the hypothesis that low expectations about the future can be associated with higher welfare take-up probabilities. The same is true for respondents that we define as *powerless,* i.e. those who believe that their own behavior does not affect the course of their own lives, though this effect fails to be significant.

We also include a dummy variable for never attending church or other religious meetings, and another variable indicating strong ties to the location as proxies for the impact of stigma. Our empirical results suggest that households who do not attend church or other religious meetings are significantly more likely to claim benefits than those with religious ties. This suggests reduced fear of stigmatization among households without affiliation to church-like institutions[40], and leaves open the possibility that churches find other venues for aiding its members in times of need. The coefficient for the variable indicating strong ties to the local community is far from being significant, but negative in sign as can be expected given our hypothesis concerning higher stigma costs.

In column 3 we include variables that capture the employment status of the main breadwinner as proxies for the major source of income, namely labor income and non-labor income. Eligible and hence low-income households who work part-time and those with a retired head cannot be distinguished from similar eligible households who work full time, the excluded category. Not surprisingly, those who are voluntarily or involuntarily excluded from employment income or old age pension benefits are significantly more likely to take up the benefits to which they are entitled. Considering the employment status information leads to the expected result that a household's predicted income loses significance. The positive effect of living in a metropolitan area is also reduced when employment status variables are included, suggesting that at least part of the impact previously attributed to reduced stigma in more densely populated areas in fact captures labor market differences. The coefficients on age become insignificant in both extensions of the base model (Column 1) as age is closely related to church attendance and ties to the location as well as to retirement status. The fact

40 We have no direct information about the process of stigmatization in our data set, so our claims about the possible effects of stigma on welfare participation in Germany are suggestive in nature rather than definitive.

that coefficients change when employment status variables are included may also suggest that these measures are endogenous.

In our full model that includes both social controls and employment information (Column 4) we find essentially the same significant effects as in the shorter models, indicating a high degree of robustness. The coefficient on *Pessimist* loses significance, which suggests that individuals' optimism or pessimism about the future is closely linked to their labor market prospects. However, not attending religious meetings remains a positive and significant determinant of take-up, as do the indicators for unemployed or not employed heads.

Finally, we use the coefficients from the full model in Table 4 (column 4) that indicates differences in *take-up* to calculate predicted *non-take-up* rates for selected population groups. Using the coefficients and the mean values of the explanatory variables, we calculate an overall non-take-up rate of 62.9 percent, slightly lower than the 63.1 percent in Table 1. These predicted probabilities allow us to determine whether controlling for demographics, social factors and employment status alters the non-take-up rates that are available for various population groups from simple descriptive cross-tabulations.

Looking at the predicted non-participation rate we find that the decreasing non-take-up rate for increasing numbers of children in the household that we saw in table 2 becomes more pronounced when we use the regression coefficients to determine the non-take-up rate at the average values of our explanatory variables. Without controls, the non-take-up rate of households with two children is 45.5 percent and with three or more children 35.5 percent. With controls, the corresponding percentages become 43.3 and 19.8 percent. Having more children very much increases the probability of claiming benefits, *ceteris paribus,* particularly so for more than two children.

Also more pronounced are the effects of location. While descriptive statistics in table 2 suggest very similar non-take-up rates for urban and rural households, we now find that households living in metropolitan areas have a much lower predicted non-take-up rate of 53.5 percent while households in a rural setting have a higher predicted non-take-up rate of 66.6 percent.

On the other hand, we find that the lower non-take-up rate of single-parent households and unemployed households becomes less pronounced. After controlling for the impact of children and other factors, the non-take-up rate of single parents still remains lower than average at 55.7 percent, however, this is much closer to the average than the 28.1 percent found using cross-tabulations. Higher welfare participation of single parents thus appears to be explained largely by the fact that there are children in the

household and probably by differences in the employment status of the household head.

Table 5

Estimated Probability of *Non-Take-Up* of Social Assistance

Situation (always all else average)	Predicted Probability of Non-take-up (%)
All Households With Average Characteristics	62.9
Foreign-Born Ethnic German Head	63.1
Foreign-Born Foreign Head	62.3
No Children in the Household	72.2
One Child in the Household	58.3
Two Children in the Household	43.3
Several Children in the Household	19.8
Single-Parent Household	55.7
Living in Metropolitan Area	53.6
Living in Rural Area	66.6
Head is Unemployed	46.1
Head Believes Own Behavior Does Not Affect Course of Own Life	47.7
Pessimist	49.6

The percentages in the table represent fitted values from the probit regression in column 4 of table 4. Population weights are applied.

Source: SOEP 1996, Authors' calculations.

8. Concluding comments

In this paper we estimate the predictors of welfare take-up to shed more light on the substantial under-consumption of benefits in the German means-tested Social Assistance program. Basically, our empirical results based on data from the German Socio-Economic Panel Study (SOEP) confirm findings from the international literature on take-up of means-tested benefits, and they extend the existing work.

Our simulations confirm a high estimate of the non-take-up rate of around 63 percent for Germany, which is also found by Riphahn (2000) and Neumann and Hertz (1998). We add to the initial estimate sensitivity tests to account for possible errors in the income variable and in the simulation of household needs. Adjusting income up and down by 5 percent results in a

non-take-up rate of between 58 and 68 percent, while an adjustment of 10 percent results in a non-take-up rate of between 52 and 74 percent. Thus our simulations suggest that at least half of the eligible German households do not claim benefits for which they are eligible.

We also present results of regression analyses designed to simultaneously estimate the impact of a variety of socio-demographic indicators on the take-up behavior of households. The theoretical model of welfare take-up by Blank and Ruggles (1996) provides as reasons for participation the direct and indirect costs of applying for benefits, the level of benefits to which a household is entitled, as well as expectations about future incomes when not participating. We enrich the list of indicators used in this economic model by including subjective variables as proxies for indirect costs (e.g. *Never attending church or religious meetings*) and expectations (e.g. *Pessimist*). Even after controlling for household composition through variables such as number of children, age, education, immigration status, income, and employment status, our social control variables explain variation in welfare take-up with statistically significant coefficients. Particularly, we find that, *ceteris paribus,* those never attending church or religious meetings are significantly more likely to take-up social assistance contingent on being eligible.

Further research in this area should exploit the longitudinal features of panel data sets like the SOEP. Especially the differentiation of *first-time* versus *continued* or *repeated* eligibility with respect to (non-) take-up of social assistance would greatly enhance the predictive power of models like ours. Also of value would be analyses on the individual stability of (non-) take-up behavior over time as well as research targeted at the reaction of individuals towards institutional changes, which would require controlling for the impact of individual fixed effects.

References

Anderson, P. M. / *Meyer,* B. D. (1997): Unemployment Insurance Takeup Rates and the After-Tax Value of Benefits, Quarterly Journal of Economics 112(3): 913 – 937.

Ashenfelter, O. (1983): Determining participation in Income-Tested Social Programmes, Journal of the American Statistical Association 78: 517 – 525.

Bird, E. J. / *Kayser,* H. / *Frick,* J. R. / *Wagner,* G. G. (2000): The Immigrant Welfare Effect: Take-Up or Eligibility?, International Migration Review, (forthcoming).

Blank, R. M. / *Ruggles,* P. (1996): When do Women Use Aid to Families with Dependent Children and Food Stamps? The Dynamics of Eligibility versus Participation, Journal of Human Resources 31(1): 57 – 89.

Blundell, R. / *Fry,* V. / *Walker,* I. (1988): Modelling the Take-Up of Means-Tested Benefits: The Case of Housing Benefits in the United Kingdom, The Economic Journal 98 (390, Supplement): 58 – 74.

Bujard, O. / *Lange,* U. (1978): Theorie und Praxis der Sozialhilfe. Zur Situation der Einkommensschwachen alten Menschen, Institut für Sozialforschung und Gesellschaftspolitik: Stuttgart.

Bundesministerium für Arbeit und Sozialordnung (1990): Übersicht über die Soziale Sicherheit, Bonn.

Breuer, W. / *Engels,* D. (1998): Grundinformationen und Daten zur Sozialhilfe. Im Auftrage des Bundesministeriums für Gesundheit. Köln: ISG Sozialforschung und Gesellschaftspolitik GmbH.

Cowell, F. A. (1986): Welfare Benefits and the Economics of Take-Up, ESRC Programme on Taxation, Incentives and the Distribution of Income Discussion Paper 89, London School of Economics.

Craig, P. (1991): Costs and Benefits: A Review of Research on Take-up of Income-Related Benefits, Journal of Social Policy 20(4): 537 – 565.

Daponte, B. O. / *Sanders,* S. / *Taylor,* L. (1999): Why do Low-Income Households *Not* Use Food Stamps? Journal of Human Resources 34(3): 612 – 628.

Frick, B. (1985): Armut und Arbeitsmarkt: Eine empirische Analyse des Zusammenhangs von Arbeitslosigkeit und Sozialhilfebedürftigkeit in der Bundesrepublik Deutschland, Diplomarbeit, Universität Trier – Fachbereich IV – VWL, Trier.

Frick, J. R. / *Lahmann,* H. (1997): Wohnungsmieten in Deutschland im Jahr 1996: Bericht auf Basis des Sozio-oekonomischen Panels (SOEP), DIW-Wochenbericht, 64(21): 377 – 385.

Fry, V. / *Stark,* G. (1987): The Take-Up of Supplementary Benefit: Gaps in the Safety Net, Fiscal Studies 8: 1 – 14.

Geissler, H. (1976): Die neue soziale Frage, Freiburg i. Breisgau: Herder Verlag.

Greene, W. (1997): Econometric Analysis, 3rd Edition, Upper Saddle River, NJ: Prentice Hall.

Hartmann, H. (1985): Armut trotz Sozialhilfe: Zur Nichtinanspruchnahme von Sozialhilfe in der Bundesrepublik, in: Leibfried, S., and F. Tennstedt (eds.), Politik der Armut und Die Spaltung des Sozialstaats, Frankfurt a. M.: Suhrkamp, pp. 169 – 189.

Hauser, R. / *Burmester,* M. / *Stein,* H. / *Strengmann-Kuhn,* W. (2000): Gefährdete soziale Lagen in Rheinland-Pfalz, Bericht im Auftrag des Ministeriums für Arbeit, Soziales und Gesundheit von Rheinland-Pfalz, Frankfurt a.M.

Hauser, R. / *Hübinger,* W. (1993): Arme unter uns, Teil 1: Ergebnisse und Konsequenzen der Caritas-Armutsuntersuchung, Freiburg: Deutscher Caritasverband.

Hauser, R. / *Cremer-Schäfer,* H. / *Nouvertné,* U. (1981): Armut, Niedrigeinkommen und Unterversorgung in der Bundesrepublik Deutschland – Bestandsaufnahme und sozialpolitische Perspektiven, Frankfurt a.M.: Campus Verlag.

Klanberg, F. (1979): Einkommensarmut 1969 und 1973 bei Anlegung verschiedener Standards, Sozialer Fortschritt 6: 127 – 131.

Krause, P. / *Habich,* R. (2000): Einkommen und Lebensqualität im vereinigten Deutschland, Vierteljahrshefte zur Wirtschaftsforschung 69(2): 317 – 340.

Moffitt, R. (1980): Participation in the AFDC programme and the stigma of welfare receipt, Southern Economics Journal 47: 753 – 62.

– (1983): An Economic Model of Welfare Stigma, The American Economic Review 73(5):1023 – 1035.

Neuhäuser, J. (1996): Sozialhilfe und Leistungen an Asylbewerber 1994, Wirtschaft und Statistik 10: 633 – 641.

Neumann, U. / *Hertz,* M. (1998): Verdeckte Armut in Deutschland, Forschungsbericht im Auftrag der Friedrich-Ebert-Stiftung, Frankfurt a. M.: Institut für Sozialberichterstattung und Lebenslagenforschung.

Oorschot, W. van (1991): Non-Take-Up of Social Security Benefits in Europe, The Journal of European Social Policy 1(1): 15 – 30.

– (1998): Failing Selectivity: On the extent and causes of non-take-up of social security benefits, in Hans-Jürgen Andreß (ed.) Empirical Poverty Research in a Comparative Perspective, Aldershot, England: Ashgate Publishing Ltd.

Riphahn, R. T. (2000): Rational Poverty or Poor Rationality? The Take-up of Social Assistance Benefits, IZA-Discussion Paper No. 124, Institute for the Study of Labor: Bonn.

Schräpler, J. P. (2000): Respondent Behavior in Panel Studies. A Case Study of the German Socio-Economic Panel, Paper presented at The Fifth International Conference on Logic and Methodology, October 3 – 6, 2000, Cologne.

SOEP Group (2001): The German Socio-economic Panel (GSOEP) After More Than 15 Years – An Overview, in: Holst, E., D. R. Lillard, and T. A. DiPrete (Eds.): GSOEP2000 – Proceedings of the Fourth International Conference of German Socio Economic Panel Users. Vierteljahrshefte zur Wirtschaftsforschung 71(1).

Statistisches Bundesamt (1999): Pressematerialien Sozialleistungen: Sozialhilfe in Deutschland: Entwicklung und Strukturen. Wiesbaden.

Strengmann-Kuhn, W. (1994): Sozialhilfe-Simulation mit Daten des Sozio-ökonomischen Panels, Arbeitspapier Nr. 22 des DFG-Projektes Versorgungsstrategien privater Haushalte im unteren Einkommensbereich, Fakultät für Soziologie, Universität Bielefeld: Bielefeld

Yaniv, Gideon (1997): Welfare Fraud and Welfare Stigma, Journal of Economic Psychology 18(4): 435 – 451.

Appendix

Table A1

Instrumenting Regression for Adjusted Family Income

Variable		β	Std. Err.
Intercept		785.99	226.55
Foreign-Born Ethnic German Head		-43.27	107.64
Foreign-Born Foreign Head		-144.47	79.04
Total Number of Kids Age <17		390.99	43.20
Single Parent		-516.97	154.09
Several Adults without Children		1499.76	62.33
Several Adults with Child(ren)		818.23	94.17
Age of Head		873.57	92.32
Age of Head ^{2}		-77.82	9.29
No secondary education		-302.62	66.21
Post secondary education		557.57	61.70
Living in North		-138.45	76.80
Living in East		-676.16	68.68
Living in West		-139.11	62.85
Living in metropolitan area		-785.53	54.82
Living in rural area		148.95	72.16
Renting housing unit		-158.74	52.82
Father without secondary education		-167.24	62.27
Father with post secondary education		136.32	66.13
Mother without secondary education		-113.99	55.74
Mother with post secondary education		50.13	116.93
ISCO:	Science	1203.20	124.53
	Management	2148.51	172.78
	Office	629.00	121.56
	Trade	987.07	170.31
	Service	297.05	146.11
	Agriculture	182.73	332.21
	Manufacturing	434.12	108.73
Industry:	Agriculture	-135.07	332.17
	Energy	284.94	216.99
	Chemistry	679.46	166.26
	Plastics	452.96	328.68
	Stone	-53.17	364.52
	Metal	531.87	113.69
	Wood	404.33	200.84
	Textile	284.82	283.71
	Food	-100.28	212.04
	Construction	382.23	127.09
	Trade	54.19	145.45
	Transportation	145.67	144.83
	Banking	556.49	182.00
	Other service	158.48	122.28
	Non-profit	-315.64	218.98
	Public Sector	274.61	131.98
Adjusted R^2 (N=6,567)		0.374	

Source: SOEP 1996, Authors' calculations.

Table A2

Results from the Full Model in Table 4 for Alternative Specifications

Characteristic	Selection Model		Bivariate Probit Model		Eligible if $1.05HY_i > HN_i$	
	β	pr	β	pr	β	pr
Intercept	**0.714**	0.005	-0.524	0.546	-1.263	0.122
Predicted Income	–	–	–	–	-0.243	0.253
Foreign-Born Ethnic German Head	0.0001	0.999	-0.001	0.996	0.151	0.563
Foreign-Born Foreign Head	0.055	0.402	-0.163	0.435	0.017	0.938
Total Number of Kids Age < 17	**0.074**	0.008	**0.199**	0.038	**0.406**	0.001
Single Parent	0.035	0.693	0.062	0.840	0.227	0.439
Several Adults without Child(ren)	**0.136**	0.053	**0.390**	0.076	**0.713**	0.073
Several Adults with Child(ren)	-0.092	0.229	-0.290	0.233	-0.257	0.392
Age of head (*10)	0.066	0.415	0.208	0.423	0.327	0.308
[Age of head (*10)]^2	-0.004	0.598	-0.014	0.590	-0.030	0.367
No secondary education	0.008	0.883	-0.012	0.951	0.160	0.401
Post secondary education	0.044	0.601	0.095	0.729	0.396	0.231
North	-0.094	0.182	-0.294	0.197	-0.238	0.324
East	**-0.142**	0.049	**-0.458**	0.048	**-0.662**	0.016
West	-0.001	0.982	-0.032	0.859	-0.031	0.872
Metropolitan area	0.093	0.160	0.267	0.204	0.245	0.273
Rural area	-0.051	0.322	-0.134	0.405	-0.165	0.355
Renting housing unit	0.007	0.941	0.111	0.736	0.211	0.557
Income loss since last year > = 20%	-0.121	0.120	-0.313	0.243	-0.390	0.164
Pessimist	0.123	0.109	0.355	0.127	**0.482**	0.064
Powerless	**0.149**	0.091	0.414	0.151	0.408	0.182
Has strong ties to location	-0.028	0.536	-0.090	0.528	-0.032	0.838
Does never attend church or religious meetings	**0.096**	0.042	**0.284**	0.065	**0.389**	0.016
Head works Part Time	-0.029	0.717	-0.144	0.611	-0.169	0.552
Head is Unemployed	**0.149**	0.055	0.344	0.229	**0.427**	0.089
Head is Not Employed	**0.200**	0.010	**0.483**	0.100	**0.510**	0.040
Head is Retired	-0.028	0.776	-0.093	0.780	0.037	0.912
lambda	**-0.148**	0.076	–	–	–	–

Source: SOEP 1996, Authors' calculations.