THE SHADOW PRICE OF TIME: AN EMPIRICAL MODEL INCORPORATING INVOLUNTARY UNEMPLOYMENT

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Based on Heckman's work, this study suggests a three equation model to incorporate involuntary unemployment into the estimation of shadow price of time. It finds that the estimated reservation wage rate is positively related to the number of hours worked, and it shows an inverse U shape over an individual's life cycle. Moreover, the price of time is higher for mothers with young children than for those without young children. The findings are insensitive to alternative measures of dependent variables.

It has long been recognized that individual decisions on whether to work, how many hours to work, and how much to consume are all affected by the shadow price of time. In the last three decades(1955-1984), female wage rates rose at the rate of 6.5 percent per year and from 1972-1986, female labor force participation rates increased markedly at the rate of 1.6 percent annually. Many studies have investigated the impacts of this phenomenon on household consumption and found a close relationship between the price of time and consumption.

A major question is how to measure the price of time empirically. Heckman (1974) suggested using a two equation system to estimate the shadow prices of time for the employed and for nonworkers. An important assumption underlying his approach is that hours of work can be freely adjusted; hence, everybody can achieve his/her equilibrium in the labor market. In reality, the hours of market work are not completely free to adjust, and the labor market does not clear due to downward stickiness of offered wages, market fluctuations, and other legal constraints.

Based on Heckman's model, therefore, the present study suggests an empirical model of estimating the price of time with involuntary unemployment and underemployment incorporated. The shadow prices of time, or reservation wage rates, are estimated separately for husbands, wives, and nonmarried males and females, using the 1983 wave of Survey of Consumer Finances. A two stage procedure is conducted to correct for sample selectivity. Section 1 introduces Heckman's two equation model and discusses a three equation empirical model incorporating involuntary unemployment. Section 2 examines the data and specifies the suggested three equation system. Section 3 deals with the sample selectivity problem. In Section 4, empirical estimates of the reservation wage rates are presented and discussed.

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THEORETICAL MODEL

Theoretically, the shadow price of time is defined as the marginal rate of substitution (MRS) between leisure and consumption (with the price of consumption goods as a numeraire). Intuitively, it is the wage rate one would ask as a compensation for giving up one more hour of leisure. Thus, the shadow price of time is the reservation wage rate, or asked wage (these terms will be used interchangeably hereafter). On the other hand, the offered wage, or market wage rate, is the amount a person could earn if he/she chooses to work.

A rational individual will work if and only if the offered wage is greater or equal to the reservation wage rate. If the hours of work can be freely adjusted, an individual's equilibrium can always be achieved by working until the reservation wage rate equals the offered wage. Using this framework, Heckman (1974) estimated the shadow price of time for the employed and nonworkers by a two equation system. This approach is problematic since, in reality, the hours of market work are not completely free to adjust and there are involuntary unemployment and underemployment in the labor market. Hence, the following three equation model is used to incorporate "overwork" and "underwork" into the empirical model of reservation wage rates.

Assuming that hours of work are not freely adjustable in the short run, disequilibrium in hours worked exists. Thus, we have:[2]

(1.1) $W^o = X\alpha + e_1$ Offered wage equation

(1.2) $W^r = Z\beta + H^d\delta + e_2$ Asked wage equation

(1.3) $H^d = H^o - H^u$ Desired hours of work

Where W^o = the market (offered) wage rate;
X = a vector of variables reflecting an individual's market productivity and labor market demand;
W^r = the reservation wage (asked wage);
Z = a vector of variable determining one's home productivity and tastes for market work;
H^d = desired hours of work;
H^o = observed hours of work and

[2] This section follows the notations given in Zick and Bryant (1983).

$H^u > 0$ unwanted hours of work if the person is overworked;

$H^u < 0$ unobtainable hours of work if the person is underworked or involuntarily unemployed.

"Overwork" and "underwork" are two disequilibrium cases. Overwork can be defined as the hours of work where the individual's MRS between leisure and consumption is greater than the offered real wage. Underwork (including involuntary unemployment) can be defined as the hours of work where the individual's MRS is less than the real wage. Intuitively, the probability of overwork and underwork depends on 1) factors reflecting one's taste for market work, 2) factors determining one's market productivity and 3) market demand factors affecting the probability of being employed if one chooses to work. These are equivalent to X and Z in the above equations with one exception: It is assumed here that the current unemployment rate in the local labor market is not immediately observable to individuals. Thus, define:

$$(1.4)\quad H^u = (X' + Z)\,\tau$$

where X' = X excluding current unemployment rate.

Substituting (1.4) into (1.3), (1.3) into (1.2), and rearranging, the new equation for reservation wage rate becomes:

$$(1.5)\quad W^r = Z\,(\beta - \tau\delta) + H^o\delta - X'\tau\delta + e_2$$

At desired hours of work H^d, W^o is equal to W^r. Equating (1.1) and (1.5), and solving for H^o, we get a reduced equation for H^o:

$$(1.6)\quad H^o = 1/\delta\,(\,X\alpha - Z(\beta - \tau\delta) + X'\tau\delta + e_1 - e_2)$$

Once (1.1) and (1.6) are estimated, it is possible to calculate all the coefficients in (1.5) and predict the reservation wage rate for everyone including the overworked and underworked.

DATA AND SPECIFICATION ISSUES

Data Set

The data set used in this study is the cleaned version of the 1983 Survey of Consumer Finances prepared by Robert B. Avery and Arthur B. Kennickell. It contains detailed information on household assets and liabilities, income and wage rates, employment status, and household demographics from 4,103 households. In the estimation, 3,387 households from the area-probability cleaned sample were used.[3] The cleaned-sample 1983 weight constructed by Avery and Kennickell was used throughout the estimation.[4]

Specification of the Three Equation System

Previous studies found that, first, the reservation wage rate is positively related to the number of hours worked, which is consistent with the diminishing MRS. Second, the reservation wage rate is affected by a person's household productivity and taste for working, which is, in turn, influenced by his/her education, experience in household work, and demographic characteristics. In addition, the presence of young children affects their mothers' tastes and raises the reservation wage rate substantially. Third, the offered wage is positively related to the number of years of schooling and labor market experience. Fourth, offered wage is also affected by environmental factors reflecting labor market demand, such as the unemployment rate.

Based on previous studies, the three equation system in this study is specified as follows. First, the offered wage is determined not only by an individual's market productivity but also by the labor demand in the local market. Assuming that labor demand can be roughly reflected by the average wage rates offered to manufacturing and retailing workers in the county, unemployment rate for the county and regional dummies, then the net offered wage equation (1.1) is expressed as:

$$\begin{aligned}(2.1)\quad \ln(\text{NETWG}) = {} & a_0 + a_1\,\text{SCHOOL} + a_2\,\text{HIGHSCHL} \\ & + a_3\text{COLLEGE} + a_4\,\text{AGE} + a_5\,\text{AGESQ} + a_6\text{HEALTH} \\ & + a_7\text{YREXP} + a_8\text{NJOBS} + a_9\text{INSMSA} + a_{10}\text{MANUWG} \\ & + a_{11}\text{RETAILWG} + a_{12}\text{NEAST} + a_{13}\text{NCENTR} + a_{14}\text{SOUTH} \\ & + a_{15}\text{UNEMP}\end{aligned}$$

Here, the dependent variable is the natural logarithm of the hourly wage rate net of income tax. Information from 1982 Individual Income Tax Returns (USDT,1984) is used in the adjustment.[5]

Second, the reservation wage rate of an individual depends on his/her home productivity, tastes for work, and hours worked. Home productivity is assumed to be determined by

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[3] The supplemental high-income sample was not used. To prevent biased estimates by influential observations, 278 high income outliers were deleted from the area-probability sample.

[4] For details on the imputation and construction of the sample weights, see Avery and Kennickell (1988, p.9-10).

[5] First, average excess itemized deductions for each income bracket are calculated. Taxable income of each household is computed using the Adjusted Gross Income minus personal allowances and average itemized deductions. Second, 1982 income tax for each household is calculated according to the household's filing status and 1982 Tax Rate Schedules (p.142). Third, the gross hourly wage rates for an individual, calculated by dividing the labor income by total hours worked in 1982, are adjusted by (1 - MTAXR), with MTAXR as the marginal tax rate given in the above Schedules.

one's human capital stocks and household characteristics. One's taste for work can be roughly reflected by variables such as number of children, presence of young children under six, exogenous income of the household, spouse's wage rate (if married), race, and etc.[6] Variables reflecting labor demand in the local market also enter this equation (through H^U), except for current unemployment rate (by assumption). Thus, the net reservation wage rate equation can be empirically formulated as:

(2.2) $\ln(HNTWG) = b_0 + b_1$ SCHOOL $+ b_2$ HIGHSCHL
$+ b_3$COLLEGE $+ b_4$ AGE $+ b_5$AGESQ $+ b_6$HEALTH
$+ b_7$NEXOGINC $+ b_8$NTWGSP $+ b_9$NKIDS $+ b_{10}$YKID<6
$+ b_{11}$WHITE $+ b_{12}$YREXP $+ b_{13}$ NJOBS $+ b_{14}$INSMSA
$+ b_{15}$MANUWG $+ b_{16}$RETAILWG $+ b_{17}$NEAST $+ b_{18}$NCENTR
$+ b_{19}$SOUTH $+ b_{20}$ HRWK

Equating (2.1) and (2.2) and solving for observed hours of market work, HRWK, yields:

(2.3) HRWK $= c_0 + c_1$ SCHOOL $+ c_2$ HIGHSCHL
$+ c_3$COLLEGE $+ c_4$ AGE $+ c_5$ AGESQ $+ c_6$HEALTH
$+ c_7$NEXOGINC $+ c_8$NTWGSP $+ c_9$NKIDS $+ c_{10}$ YKID<6
$+ c_{11}$WHITE $+ c_{12}$YREXP $+ c_{13}$ NJOBS $+ c_{14}$INSMSA
$+ c_{15}$MANUWG $+ c_{16}$RETAILWG $+ c_{17}$NEAST $+ c_{18}$NCENTR
$+ c_{19}$SOUTH $+ c_{20}$ UNEMP

The equation for the net reservation wage rate (2.2) can be identified so long as at least one variable in X is not in (2.2). The current unemployment rate is chosen as the only identifying variable by assumption. Thus, after the estimation of equation (2.1) and (2.3), one can use the estimated coefficients to calculate the coefficients of (2.2) and predict the reservation wage rates for everybody in the sample.[7]

CORRECTIONS FOR SAMPLE SELECTIVITY

Using the logarithm of the market wage rates as the dependent variable in estimating the reservation wage rate creates a potential sample selection problem, since the observed distribution of wage rates is a truncated distribution, conditioned on the choice of working or not working. The estimated coefficients may be biased if one estimates the reservation wage rate equation by OLS, using only the observations for which the market wage rate exists.

To correct for the sample selectivity, Heckman's two stage procedure is conducted. In the first stage, probit equations on the choice of working or not working are estimated separately for husbands, wives, and nonmarried males and females. Due to the space limit, only equations for husbands and wives are presented in Table 1 and 2, respectively.

Findings show that schooling is positively related to the probability of work, and is significant for three out of four equations. Age, age squared, and health status are highly significant, and have expected signs. Among the taste shifters, exogenous income and net wage rate of spouse are negatively related to participation, and are very significant. Number of children and presence of young children under six suppress the labor force participation of husbands, wives and nonmarried females, but have little effect for nonmarried males. The probability of participation is higher if the respondent has more full-time working experience and does not shift between jobs. The local unemployment rate has the expected negative signs consistently across all equations. Generally speaking, the precision of estimated Probit equations is good, in terms of both the log likelihood ratio as well as the consistency of the estimates across the equations.

FINDINGS ON RESERVATION WAGE RATES

In the second stage of the estimation, equations for offered wage (2.1) and hours worked (2.3) are estimated and presented in the second and third column of each table, respectively. The equations are estimated using OLS on all working samples, with the Mills ratio from the probit analysis included.

Equations for Offered Wage and Hours Worked

In the equations for offered wage, the effects of schooling on offered wage are positive and significant across equations, with the rate of return from one year of schooling ranging from 3.7 percent to 5.8 percent. The "kinked" effect of college education to offered wage exists, and is significant only for husbands and wives, whereas no such effect is found for high school education. Age and age squared have the expected signs, and are significant across equations, which indicates the existence of a non-linear relationship between offered wage and age. Health status, full-time working experience and number of full-time jobs held prior to 1982 are significant determinants of offered wage. The unemployment rate has the expected negative signs only in the equations for husbands and nonmarried females. In the equation for wives, the coefficient turns to positive after the tax adjustment. The problem may be caused by adjusting the wage rates of both husband and

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[6] Wage rate of the spouse enters this equation since first, it reflects past decisions on marriage sorting. Second, it is a proxy for the relative market productivity of the husband and wife. Exogenous income includes incomes independent of labor supply decisions. It is a summation of asset income, child support and alimony, and other incomes. Public assistance, such as unemployment compensation, AFDC, and pension benefits are not included because they are endogenous.

[7] The estimated coefficients of unemployment rate in (2.1) and (2.3) can be used to identify b_{20}, i.e. $b_{20} = a_{15} / c_{20}$. Then, all the coefficients in (2.2) can be calculated.

wife by the same marginal tax rate (due to the lack of information on filing status). The effects of average local wage rates are found positive whenever the coefficient is significantly different from zero. The Mills ratio is significant only in the equations for wives and nonmarried females, indicating that the sample selectivity is not a big problem for males in general. Overall, the equations are estimated with precision, in terms of both the consistency of estimates across equations, as well as the adjusted R^2 which ranged from .2597 to .2914. However, the precision of the offered wage equation for nonmarried males is relatively poor.

In the equations for hours worked, the effects of age and age squared are consistent and significant across groups, whereas schooling has positive effects for married groups but negative effects for nonmarried groups. The "kinked" effects of college education to hours of working is significantly higher for males (both married and nonmarried) than for females, which suggests that males are more committed to market work than females, given that both have college education. The two working experience variables are found to be important determinants of hours of working, whereas the health status has little effect. One interesting finding is that the effects of spouses' wage rates are consistently negative and significant on hours worked, ranging from -28.3 (for husbands) to -31.8 (for wives), which suggests that a one dollar increase in the husband's net wage rate would suppress the wife's labor supply by 31.8 hours if she is working. The presence of children younger than six depresses the labor supply by 40 to 232 hours, although the sign for nonmarried females is positive. Generally speaking, equations for hours of working are estimated with less precision than offered wage equations.

Predicted Reservation Wage Rates

Using the estimated coefficients in the offered wage and hours of working equations, one can calculate all the coefficients of the reservation wage equation. The calculated coefficients are presented in the fourth column of each table. Reservation wage rates for husbands, wives, and nonmarried males and females are then predicted using these calculated coefficients. The following discussion will be focused on the predictions.

As shown by Figure 1, Figure 2 and Table 3, the predicted reservation wage rates have some expected features. **First, the predicted reservation wage rates for the household head is positively related to the number of hours worked in 1982.** Figure 1 shows the weighted means of market wage rates, net reservation wage rates and gross reservation wage rates for household heads grouped by their number of hours worked in 1982. The market wage rates remain almost constant over all groups, whereas the reservation wage rates increase as the number of hours worked increases, with the gross reservation wage rates rising much faster than the net reservation wage rates. **The price of time for nonworkers and unemployed, then, is the reservation wage rate when the hours of work are zero.** Let $W^r(0)$ represent the reservation wage rate when the hours of work equal zero. As shown in Table 3, $W^r(0)$ is lower for household heads than for spouses, which makes intuitive sense since a higher price of time is expected for mothers with children.

Second, the reservation wage rates have an inverse U shape over an individual's life cycle, as shown by Figure 2. This implies that an individual's price of time is cheaper as he/she enters the labor market, gets more expensive in his/her peak years of work, and declines drastically in retirement. This suggests an answer for the puzzling question of how retired people measure their price of time: **The price of time for a retired person is the reservation wage rate when the hours of work equal zero, $W^r(0)$.** Here, $W^r(0)$ is higher than zero, but much lower than the reservation wage rate when the individual is working. Note that $W^r(0)$ for younger nonworkers is different from the $W^r(0)$ for retired people, because of their differences in age, working experience, health status, and market demand. This can be shown by the mean reservation wage rates for the group aged 75 and over, which is lower than that of the group with zero hours of work.

In the last part of Table 3, predicted reservation wage rates for working/nonworking spouses with/without young children are presented. Clearly, with the working decision given, **the price of time for spouses with young children is higher than that for those without young children.** However, no clear conclusion can be reached on the relative reservation wage rates for working and nonworking spouses.[8]

The same set of equations are also estimated using the gross wage rate rather than after tax wage rates as the dependent variable, with the results not presented here. Comparing the two sets of equations, there is little difference in the signs and magnitudes of the estimated coefficients, except for the sign of the coefficient for unemployment rate in the equation for spouse. This suggests that the estimated coefficients are insensitive to the measurement of dependent variables.

One must be cautious in interpreting these results, since there are problems in the methodologies used in this study. For example, the adjustment procedure for income tax is not

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[8] Findings show that working spouses have higher prices of time only if one looks at the gross reservation wage rates (column 4). The problem may be caused by the unexpected negative sign of the computed coefficient for hours of working, b_{20}, which is in turn caused by the adjustment procedure of income tax.

Table 1 Net Wage Rate Equations for Husbands: Estimated Using the Two-Stage Three Equation System

	Probit N=2024 Prob (WG>0)	OLS N=1326 ln(NETWG)	OLS N=1326 HRWK	Calculated ln(HNTWG)
CONSTANT	-2.08*	.3955	1159.39	-.4438
SCHOOL	.042	.0367*	3.81	.0340
HIGHSCHL	-.035	.0006	-17.93	.0136
COLLEGE	.261*	.1394*	118.62*	.0536
AGE	.157*	.0164*	44.94*	-.0161
AGESQ	-.002*	-.0003*	-.85*	.0003
HEALTH	.658*	.0508*	100.13	-.0216
NEXOGINC	-.004		1.60	-.0012
NTWGSP	-.039*		-28.30*	.0205
NKIDS	-.055*		-23.16	.0168
YKID < 6	-.360*		-97.72*	.0707
WHITE	.129		29.32	-.0212
YREXP	.551*	.0206*	30.20*	-.0012
NJOBS	-.759*	-.0119*	-31.73*	.0111
INSMSA	.243*	.0545	-16.06	.0661
MANUWG	-.029	.0162*	14.03*	.0060
RETAILWG	-.055	.0384*	6.69	.0336
NEAST	.183	.0685*	-85.26	.1302
NCENTR	.170	.0243	-51.13	.0614
SOUTH	.103	-.0261	-56.54	.0149
UNEMP	-.002*	-.0005	-.67	
HRWK				.0007
MILLS		.0235	3.96	
L.Likelihood Ratio	862.29			
Adj. R^2		.2597	.2104	

* Indicates the coefficient is non-zero with 95% confidence.

Table 2 Net Wage Rate Equations for Wives:

	Probit N=2024 Prob (WG>0)	OLS N=1223 ln(NETWG)	OLS N=1223 HRWK	Calculated ln(HNTWG)
CONSTANT	-3.289*	.3043	738.51	.5025
SCHOOL	.097*	.0376*	23.91*	.0440
HIGHSCHL	.018	.0396	-73.02	.0200
COLLEGE	.116	.1911*	22.56	.1971
AGE	.155*	.0199*	43.54*	.0315
AGESQ	-.002*	-.0004*	-.69*	-.0006
HEALTH	.523*	.0279	74.60	.0479
NEXOGINC	-.009*		.76	.0002
NTWGHD	-.042*		-31.80*	-.0085
NKIDS	-.054*		-3.20	-.0009
YKID < 6	-.337*		-40.15	-.0108
WHITE	.125		16.74	.0045
YREXP	.645*	.0313*	18.85*	.0364
NJOBS	-.137*	-.0366*	-19.73	-.0419
INSMSA	-.069	.0076	36.55	.0174
MANUWG	.021	.0079	-1.55	.0074
RETAILWG	.016	.0397*	47.24*	.0523
NEAST	.015	-.0505	-17.02	-.0551
NCENTR	.028	-.0998*	26.77	-.0926
SOUTH	-.022	-.1266*	28.40	-.1190
UNEMP	-.0014	.0002	-.65	
HRWK				-.0003
MILLS		.1795*	-47.54	
L.Likelihood Ratio	919.98			
Adj.R^2		.2914	.1740	

* Indicates the coefficient is non-zero with 95% confidence.

Figure 1
Predicted Gross and Net Reservation Wage Rates for the Household Head by Hours Worked in 1982

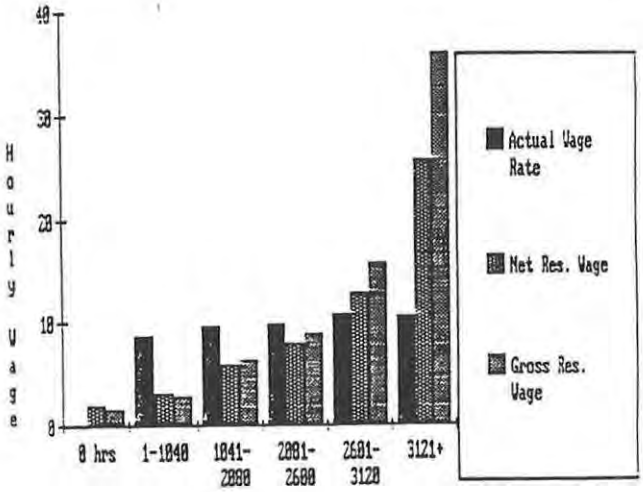

Figure 2
Predicted Gross and Net Reservation Wage Rates for the Household Head by Age Groups

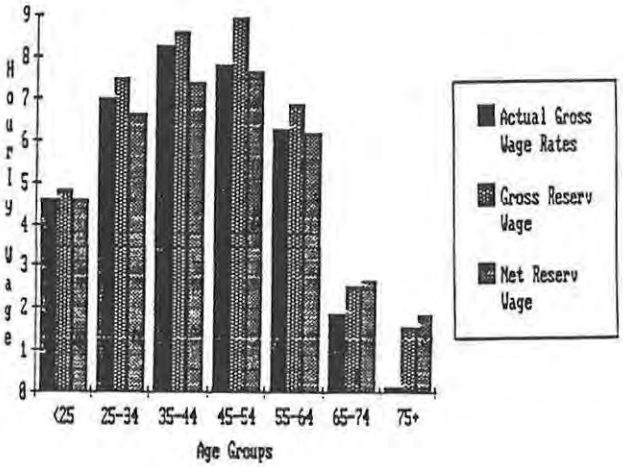

Table 3 Predicted Reservation Wage Rates by the Two-Stage Three Equation System: Comparison by Groups

	NETWGHD Net ave. hr. earning for head	HNTWGHD Predicted Net Reserv. Wage Rate for head	HRWGHD Gross ave. hr. earning for head	HATWGHD Predicted Gross Res. Wage Rate for head
Hours Worked by Head in 1982				
0 hour	0.00	2.88	0.00	1.71
1-1040 hours	6.99	3.78	8.65	2.92
1041-2080	7.21	5.61	9.62	6.34
2081-2600	7.29	6.93	9.78	8.89
2601-3120	7.64	9.80	10.75	15.63
3121 +	7.16	16.53	10.58	36.59
By Age of Head				
Under 25	3.79	4.64	4.62	4.87
25-34	5.32	6.06	7.03	7.50
35-44	6.11	6.36	8.26	8.59
45-54	5.62	6.64	7.81	8.93
55-64	4.61	5.81	6.32	6.87
65-74	1.40	3.15	1.86	2.53
75 +	0.12	2.42	0.14	1.54
	NETWG for spouse	HNTWG for spouse	HRWG for spouse	HATWG for spouse
By Presence of Young Children <6 and Working Status				
With Ykid<6				
& not working	0.00	6.75	0.00	2.15
& working	6.64	5.91	9.33	7.58
Without Ykid<6				
& not working	0.00	6.63	0.00	2.19
& working	6.52	5.42	8.67	6.78

flawless, and may have caused measurement errors in the estimation. The sample used is, clearly, non-random. The deletion of some high income samples may be necessary to prevent the impact of influential observations, but may have created some unknown selectivity bias. Therefore, no inference should be made to the behavior of the general population.

CONCLUDING REMARKS

In conclusion, the results of this paper indicate clearly the complexity and number of factors determining the shadow price of time of individuals. The approach suggested here introduces disequilibrium in the hours worked into a framework developed by Heckman. The underlying assumption of the model is less restrictive, and the model can be applied generally to population groups including "overworked" or "underworked." The empirical results are mostly consistent with those of the previous studies, with some interesting findings in the measurement of reservation wage rates of the unemployed, the retired, and mothers with young children. Although there are problems in the methodology used in this study, it can be considered as a useful exercise attempting to incorporate involuntary unemployment into Heckman's model. For the purpose of future research, it might be useful to explore a model with an identifiable equation of "unwanted hours of working" and predict H^U, although such an estimation may require better data. In addition, there is much room for further study of the determinants of reservation wage rates for specific groups of people, such as the retired and mothers with young children.

Appendix I.
Descriptions of Variables used in Wage Equations

Variables	Descriptions
ln(NETWG)	Logarithm of the net hourly wage rate obtained by dividing annual labor income by hours worked per week and weeks worked, and then multiply by (1-MTAXR).
ln(HNTWG)	Logarithm of the net reservation wage rate predicted.
HRWK	Total number of hours worked by respondent in 1982.
SCHOOL	Total number of years of schooling for respondent.
HIGHSCHL	=1 if respondent is a high school graduate; =0 otherwise.
COLLEGE	=1 if respondent is a college graduate; =0 otherwise.
AGE	Age of respondent on last birthday (asked in 1983).
AGESQ	$=(AGE)^2$ of respondent.
HEALTH	=1 if respondent reports excellent/good health, =0 otherwise.
YREXP	Years of full-time working experience up to 1982.
NJOBS	Number of full-time jobs held up to 1982.
NEXOGINC	Net exogenous income in 1982 obtained by summing up asset income, child support, alimony, gifts, and other income, and adjusting by (1-ATAXR).
NTWGHD	Net hourly wage rate for household head (husband if married).
NTWGSP	Net hourly wage rate for spouse (wife).
NKIDS	Number of children currently living with respondent.
YKID<6	=1 if the youngest child is under six; =0 otherwise.
WHITE	=1 if respondent is white; =0 otherwise.
INSMSA	=1 if respondent lives in SMSA; =0 otherwise.
MANUWG	Average annual wage of local manufacturing workers.
RETAILWG	Average annual wage of local retailing workers.
UNEMP	Unemployment rate in 1982 for the county.
NEAST NCENTR SOUTH	Regional dummy variables.
MILLS	Mills ratio obtained from the probit analysis.

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