Very Preliminary.
Please do not quote.

Labor Market Status and Transitions during the Pre-Retirement Years: Learning from International Differences

Arie Kapteyn, James P. Smith, and Arthur van Soest
RAND Corporation

James Banks
University College London

Prepared for the 8th Annual Joint Conference of the Retirement Research Consortium
"Pathways to a Secure Retirement"
August 10-11, 2006
Washington, DC

The research reported herein was pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Retirement Research Consortium (RRC). The findings and conclusions expressed are solely those of the authors and do not represent the views of SSA, any agency of the Federal Government or the RRC.

Abstract

Many western industrialized countries face strong budgetary pressures due to the aging of baby boom generations and the general trends toward earlier ages of retirement. The commonality of these problems has the advantage of offering an empirical laboratory for the testing of programmatic incentives on labor force participation and retirement decisions that would not be possible in a single country where programs typically only change very slowly. Once can gauge the effect of policies by analyzing the differences in the prevalence of unemployment, early retirement or work disability across countries. We use the American PSID and the European Community Household Panel (ECHP) to explain differences in prevalence and dynamics of self-reported work disability and labor force status. To that end we specify a two-equations dynamic panel data model describing the dynamics of labor force status and self-reported work disability. We find that transitions between work and non-work are more frequent in the US than in the 13 European countries we analyze. For self-reported work disability we don't observe similar differences in transition rates between disability states, although overall Americans are less likely to report work disabilities. Since the difference in outflow out of work between the US and Europe appears to be bigger than the difference in inflow into work, the net result is that if we assign parameters of the US model to the models for he European countries we find lower prevalence of self-repored disabilty, but also fewer Europeans working. One interpretation of this result is that employment protection in Europe is relatively effective in keeping workers with a disability in the labor force.

Table of Contents

Abstract

Many western industrialized countries face strong budgetary pressures due to the aging of baby boom generations and the general trends toward earlier ages of retirement. The commonality of these problems has the advantage of offering an empirical laboratory for the testing of programmatic incentives on labor force participation and retirement decisions that would not be possible in a single country where programs typically only change very slowly. Once can gauge the effect of policies by analyzing the differences in the prevalence of unemployment, early retirement or work disability across countries. We use the American PSID and the European Community Household Panel (ECHP) to explain differences in prevalence and dynamics of self-reported work disability and labor force status. To that end we specify a two-equations dynamic panel data model describing the dynamics of labor force status and self-reported work disability. We find that transitions between work and non-work are more frequent in the US than in the 13 European countries we analyze. For self-reported work disability we don't observe similar differences in transition rates between disability states, although overall Americans are less likely to report work disabilities. Since the difference in outflow out of work between the US and Europe appears to be bigger than the difference in inflow into work, the net result is that if we assign parameters of the US model to the models for he European countries we find lower prevalence of self-repored disabilty, but also fewer Europeans working. One interpretation of this result is that employment protection in Europe is relatively effective in keeping workers with a disability in the labor force.

1. Introduction

Increasing labor force participation among older workers is an important issue on the scientific and policy agenda in the US and other industrialized countries. Major categories of individuals out of the labor force at later ages consist of persons drawing disability benefits, unemployment benefits, and early retirement benefits. Cross-country differences in the prevalence of early retirement are clearly related to differences in financial incentives (Gruber and Wise, 2003). The fraction of workers on disability insurance is vastly different across countries with similar levels of economic development and comparable access to modern medical technology and treatment. Health is a major determinant of economic inactivity, and those who have a health problem that limits them in their daily activities or in the amount or kind of work they can do (a "work disability") are much less likely to work for pay than others (Stapleton and Burkhauser, 2003). In view of the aging of the work force in developed countries, reducing work disability among the working population and particularly among older workers may have a major impact on the sustainability of social security and health care systems, among others. Institutional differences in eligibility rules, workplace accommodation of older or sick workers, or generosity of benefits contribute to explaining the differences in disability rolls (cf., e.g., Bound and Burkhauser, 1999). Recent survey data show, however, that significant differences between countries are also found in self-reports of work limiting disabilities and general health (Banks et al. 2004).

In this paper we use data from the Panel Study of Income Dynamics (PSID) and the European Community Household Panel (ECHP) to study the labor force dynamics in the U.S. and in thirteen European countries. We consider the dynamics of work disability (i.e. the extent to which work disability varies over time and its reversibility) and how this varies across countries. One of the questions we address is whether we can explain the prevalence of self-reported work disability as a function of individual characteristics, including general health. We pay attention to different incentives in different countries, including the generosity of benefits and the attractiveness of alternative exit routes out of the labor force, e.g. through early retirement or unemployment.

In Section 2 we describe the data. Section 3 discusses some pertinent characteristics of institutions in Europe and the U.S. Section 4 presents the model that is used to describe labor force dynamics in the various countries. The model is estimated for each country separately. Section 5 presents the estimation results. In the final Section 6 we discuss the results by showing a number of simulations, where we assign U.S. parameter values to the models for the European countries. The implied differences in outcomes can be seen as a counterfactual simulation of the impact that U.S. policies would have when implemented in European countries.

At this point the results are very preliminary and should be seen as illustrations of our approach, rather than as substantive policy conclusions. In the final section we discuss various extensions of our analysis that we expect to provide more robust outcomes.

2. Data

Our data come from two sources: the European Community Household Panel (ECHP) and the Panel Study of Income Dynamics (PSID).

The ECHP is an annual longitudinal survey of households in the EU.[1] Data were collected by national statistical agencies under the supervision and coordination of Eurostat (the statistical office of the EU). Table 1, taken from Eurostat (2003, p.16) gives an overview of the waves of ECHP in all fifteen countries that participated in the ECHP project. The ECHP started in 1994 and was terminated in 2001. The first wave covered some 60,500 households and some 130,000 adults aged 16 and above from all countries except Austria, Finland and Sweden. Austria and Finland were added in the second and third waves. As of the fourth wave, the original ECHP survey was terminated in Germany, Luxembourg and the UK. Comparable data for these countries were obtained from existing national panels. For the UK this was the British Household Panel Survey (BHPS), for Germany the Socio-Economic Panel (SOEP) and for Luxembourg the Psell. For these countries we will use the existing national panels rather than the few waves of the ECHP. As of the 4th wave, data for Sweden were obtained from the Swedish Living Conditions Survey. Since this is not a panel, we will exclude Sweden from our analysis. We will also not use the Luxembourg data, since information on self-reported disability is missing.

The PSID needs little introduction. We will use the waves from 1995 to 2003. It should be noted that since 2001 the PSID is no longer annual, but bi-annual.

[1] See Nicoletti and Peracchi (2002) and Peracchi (2002) for more information on ECHP.

Table 1: Overview of ECHP waves

	Sub-sample																	
	B	DK	D		EL	E	F	Irl	I	L		NL	A	P	Fin	S	UK	
			Echp	Soep						Echp	Psell						Echp	Bhps
1994											■		■		■	■		
1995															■	■		
1996																■		
1997			■							■							■	
1998			■							■							■	
1999			■							■							■	
2000			■							■							■	
2001			■							■							■	

3. Institutions

There is great variation in labor market institutions across OECD countries; regulations with respect to disability insurance are no exception. Various dimensions can be distinguished. The main ones are the loss of earnings capacity required to qualify for benefits, eligibility requirements based on work or contribution history, and benefit levels in relation to loss of earnings capacity. Table A1 provides an overview of the main features of disability insurance systems in the countries we study in this paper.

Not surprisingly, the variation in DI systems leads to differences in prevalence of DI receipt across countries and in the disability status of individuals receiving DI. Table A2 provides information on some characteristics of DI recipients for most of the countries we are considering in this paper.[2]

The first column shows that a substantial fraction of the people on DI declare that they have no work disability. This fraction varies a lot across countries and is particularly large in Sweden (48.9%) and the US (46.7%). Thus many people are granted DI benefits while not acknowledging disability status. A possible explanation might be that people who recover from their disability are not able to find a job and stay on DI. The third column of Table A2 shows indeed that exit rates from DI are extremely low. The UK and the Netherlands seem to be the exceptions in this respect, but this might have to do with reforms in the disability insurance system in these countries.

The second column of Table A2 shows the other side of the coin – many people who report to have a (moderate or severe) work disability receive neither earnings nor DI or other benefits. Again, variation across countries is substantial. In Sweden, almost everyone with a work disability has earnings from work or receives benefits, but in Spain and Italy, 28 or 29% receive neither of the two. The US has an intermediate position in this respect.

Column 4 shows the expected negative relation between disability and the chances to be employed in all countries: the relative employment rate is always less than one. Still, there are substantial differences across countries. In Spain, someone with a work disability is 0.41 times as likely to do paid work as someone without a work disability, compared to 0.79 in Switzerland. Again, the US is somewhere in the middle with 0.58. Column 5 shows that there is an earnings differential between workers with and without a work disability, but in most countries, it is not very large. Here the US and (surprisingly) Sweden are the exceptions – with workers with a disability earning almost 30% less than workers without disability. On the other hand, for those with a work disability, working seems to be an effective way of increasing income, as is borne out by column 6. This is particularly true in the US, where the disabled who work have an average income that is 2.84 times as high as the average income of disabled who do not work. In Europe, the differences are smaller, but even in Sweden and Denmark, the countries with the lowest

[2] Table A2 is based upon OECD (2003a, Table 3.7 and Table 3.8). These tables are summaries of more detailed information provided in OECD (2003b). The underlying data source is ECHP 1996 or ECHP 1997 for the European countries and SIPP for the US.

income differentials between working and non-working disabled persons, the difference is still 37 or 38%. These cross-country differences seem to be in line with the generosity of disability insurance systems.

4. The Model

In this section, we outline our model of the interrelated dynamics of self-reported disability and labor force status (work versus no work). We first outline the model for the ECHP data other than the UK and then for PSID and BHPS (which is the ECHP for the UK), because the former data sets make the distinction between a mild and a severe work disability, while the latter do not.

The ECHP model consists of one ordered Probit and one Probit equation. The equation for disability of individual i in time period t is specified as:

$$\begin{aligned} D_{it}^{*} &= X_{it}^{'}\beta^{D} + \gamma_{d}^{D}{}' d_{i,t-1} + \delta_{W}^{D} W_{i,t-1} + \alpha_{i}^{D} + \varepsilon_{it}^{D} \\ D_{it} &= 1 \text{ if } D_{it}^{*} \le 0, \quad D_{it}=2 \text{ if } 0<D_{it}^{*} \le \tau, \quad D_{it}=3 \text{ if } D_{it}^{*} > \tau \end{aligned} \tag{1}$$

Here D_{it} indicates the extent of self-reported work disability: 1: no disability; 2: mild disability; 3: severe disability; $d_{i,t-1}$ is a vector of two dummies indicating whether in the previous period individual i had a mild or a severe work disability ("no disability" is the reference category). Lagged labor force status is denoted by an indicator variable $W_{i,t-1}=1$ if the respondent worked in the previous period and $W_{i,t-1}=0$ otherwise. The threshold parameter τ is estimated jointly with the other parameters of the model. The error terms ε_{it}^{D} are assumed to be independent standard normal; α_{i}^{D} is an individual effect, normally distributed with variance σ_{α}^{2}. The error terms ε_{it}^{D} and α_{i}^{D} are assumed mutually independent and independent of the vector of explanatory variables X_{it}.

Thus there are two sources of persistence in the disability equation: the vector of lagged dependent dummies $d_{i,t-1}$ and the unobserved heterogeneity term α_{i}^{D}. We allow for a lagged effect of work force status on work disability, but not for a contemporaneous effect.

The second equation explains whether respondents do paid work or not. Labor force status W_{it} is explained by a Probit equation as follows:

$$\begin{aligned} W_{it}^{*} &= X_{it}^{'}\beta^{W} + \gamma_{d}^{W} d_{i,t-1} + \gamma_{W}^{W} W_{i,t-1} + \delta_{d}^{W} d_{i,t} + \alpha_{i}^{W} + \varepsilon_{it}^{W} \\ W_{it} &= 1[W_{it}^{*} > 0] \end{aligned} \tag{2}$$

Thus we allow for both a contemporaneous and a lagged effect of work disability on labor force status. The assumptions about individual effects and error terms are the same as before. We do not allow for correlation between the error terms in the two equations, but we do allow for correlated individual effects. Also here there are two sources of persistence, lagged labor force status and an individual effect.

The parameterization of the individual effects is as follows. Let $u_i = (u_i^D, u_i^W) \sim N_2(0, I)$. Then we specify the vector of individual effects $\alpha_i = (\alpha_i^D, \alpha_i^W)$ as $\alpha = \Lambda u$, with

$$\Lambda = \begin{pmatrix} \lambda_D^D & 0 \\ \lambda_D^W & \lambda_W^W \end{pmatrix}, \qquad (4)$$

a lower triangular matrix. The parameter estimates summarized in the next section include the estimates of the entries in Λ.

To account for the initial conditions problem, we follow Heckman (1981), Hyslop (1999) and Vella and Verbeek (1999) and specify separate equations for wave 1. These equations have the same exogenous regressors and contemporaneous dependent variables on the right hand side as the dynamic equations presented above, but do not include the lagged dependent variables. No restrictions are imposed on the coefficients or their relation to the coefficients in the dynamic equations. These coefficients are estimated jointly with the parameters in the dynamic equations and can be seen as nuisance parameters.

In the initial condition equations, we include arbitrary linear combinations of the individual effects in the two dynamic equations. This is the same as including an arbitrary linear combination of the two entries in u_i. The estimated coefficients of these linear combinations can be seen as nuisance parameters.

The above equations are slightly adapted for the BHPS and PSID data. The disability indicator is binary in both BHPS and PSID, so that equation (1) is replaced by a Probit equation. Furthermore, in PSID, the frequency of interviewing was reduced from once a year to once every two years starting in 1997.[3] As a result for these years a lagged variable now refers to a value two years ago. Hence in the model for the PSID data we include separate coefficients for the lagged variables for the case that the previous wave is one year ago and the case that the previous wave is two years ago.[4]

5. Results

Table A3 contains the estimation results. Perhaps the most striking result is that the most interesting parameter estimates of the models for the different countries do not seem to vary dramatically across countries. As one would probably expect the parameter estimate for the effect of lagged work status on current work status is smallest in the US, reflecting a higher turnover than in the European countries (both from working to not working and from not working to working). Somewhat harder to explain is the relatively large negative effect of lagged work status on current self-reported disability. That is, if one

[3] To be precise, we use PSID waves 1994, 1995, 1996, 1997, 1999, 2001 and 2003.
[4] To be precise, for the years 1995, 1996, 1997, only the one year lags are included; for the years 1999, 2001, and 2003, only the two year lags are included.

worked in the previous period then one is in general less likely to report a work disability in this period, but that effect is strongest in the U.S.

The estimated variances of the individual effects are generally a little less than one. Thus, individual heterogeneity is a smaller source of unobserved variation than the white noise errors in the equations (which have a variance equal to one by normalization).

The estimated models describe fairly complex dynamic patterns. Hence we will present a number of dynamic simulations in the next section that will aid in characterizing the differences across the countries.

6. Discussion

To gain a better understanding of the differences between the countries, we carry out two simulations. The first simulation simply generates values of work and self-reported disability over the sample period in each country, using the estimated models. The second simulation replaces the country specific parameter estimates for the effect of lagged disability and lagged work on current disability by the estimates for the U.S. Similarly the estimates for the effect of current and lagged disability and of lagged work status on current work status are replaced by the U.S. estimates. The outcomes of these simulations are shown in Tables A4 and A5 and the figures in Appendix B.

Table A4 shows the results for work status. For each country there are three panels. The first panel shows the observed transitions in the data, organized in a 2x2 transition matrix. For example, the number 0.86 for Germany is the probability that someone who does not work in period t-1 will also not work in period t; 0.14 is the probability that someone who does not work in period t-1, will work in period t. The column “relative frequency” presents observed prevalence of the two work states in the data. So again for Germany we see that 35% of the sample individuals did not work, whereas 65% did. The row labeled “equilibrium” presents the equilibrium prevalence of “doesn’t work” and “work” if inflow and outflow would follow a first order Markov process with probabilities given by the transition matrix. To get an idea how good an approximation that is, one may compare the row labeled “equilibrium” with the column labeled “relative frequency”.

The next panel has the same structure, but now all numbers are the result of simulation using the estimated model. The third panel is also the result of simulation, but with some of the parameters replaced by US coefficients, as explained above.

Table A5 has essentially the same structure as Table A4, but now there are three states: “not disabled”, “mildly disabled”, and “severely disabled”. It may be noted that in the UK only two disability states are distinguished, so there the transition matrix is 2x2, whereas for the other European countries the matrices are 3x3.

The figures in Appendix B give time paths of three variables: the percentage of individuals with a mild disability; the percentage of individuals with a severe disability; and the percentage of individuals working. For each of these three variables we once

again produce actual values, simulated/predicted values, and simulated values using U.S. coefficients.

Considering the transition matrices in Table A4, we observe that the off-diagonal elements tend to be biggest when using U.S coefficients, implying more turnover if one were to impose U.S. institutions. One also observes however that the difference is smaller when considering the North-East element (transition from "doesn't work" to "work") than when considering the South-West element (transition from "work" to "doesn't work"). As a result, the U.S. coefficients tend to imply a lower percentage of the population working. This is also reflected in the figures in Appendix B, where often the U.S. coefficients imply a lower percentage of the population at work. The figures do show that the U.S. coefficients would imply lower self-reported disability, but on balance this does not lead to a higher percentage working.

The patterns in Table A5 are less clear-cut, and generally it is harder to detect clear differences between the simulations with own coefficients and with U.S. coefficients. For example if there would be more turnover in disability status in the U.S. than in the European countries then the diagonal elements in the transition matrices would have to be smaller when we use U.S. coefficients than when we use the countries' own coefficients. Although this is observed in some cases, it is not generally true.

The results presented here are illustrative and preliminary in a number of different ways. First of all, men and women have very different experiences in the labor market. Hence we plan to repeat the analyses by gender. Secondly, the different categorizations of disability in the various countries (usually a three point scale: not, mild, severe; a two point scale in the U.S. and the U.K.) makes comparison of the disability dynamics across countries less than obvious. We plan to estimate versions of the model where disability is coded as a binary variable in all countries, so that we can directly investigate the implications of results for the U.S. for other countries. Thirdly, so far we have considered the implications of U.S. parameters for European countries. Although this is suggestive of how U.S. policies work out in European countries and thereby potentially tells us something about how European policies might work out in the U.S., a more direct approach is to take European parameters and insert them into the U.S. model.

References

Banks, J., A. Kapteyn, J.P. Smith, A. van Soest (2004), "An International Comparison of Work Disability", RAND, Labor and Population Working Paper WR-155.

Bound, J. and R. Burkhauser (1999), Economic analysis of transfer programs targeted on people with disabilities, *Handbook of Labor Economics, Vol. 3C*, O. Ashenfelter and D. Card (eds.), 3417-3528.

Eurostat (2003), ECHP UDB Description of variables Data Dictionnary, Codebook and Differences between Countries and Waves; European Commission, Brussels.

Gruber, J. and D. Wise (eds.) (2003), *Social Security Programs and Retirement around the World: Micro Estimation*, University of Chicago Press: Chicago

Heckman, J.J. (1981), The Incidental Parameters Problem and the Problem of Initial Conditions in Estimating a Discrete Time-Discrete Data Stochastic Process, in C.F. Manski and D.L. McFadden (eds.), *Structural Analysis of Discrete Data with Econometric Applications*, London: MIT Press, 179-195.

Hyslop, D.R. (1999), State dependence, serial correlation and heterogeneity in inter-temporal labor force participation of married women, *Econometrica*, 67, 1255-1294.

Nicoletti, C., and F. Peracchi (2002), "Aging in Europe: What Can We Learn from the Europanel?" in T. Boeri, A. Börsch-Supan, A. Brugiavini, R. Disney, A. Kapteyn and F. Peracchi (eds.), *Pensions: More Information, Less Ideology*, Kluwer, Dordrecht.

OECD (2003a), OECD Employment Outlook 2003: Towards more and better jobs, OECD, Paris.

OECD (2003b), Transforming disability into ability: policies to promote work and income security for the disabled, OECD, Paris.

Peracchi, F. (2002), "The European Community Household Panel: A Review," *Empirical Economcs* 27, 63-90.

Stapleton, D.C. and R.V. Burkhauser (eds.) (2003), *The Decline in Employment of People with Disabilities: A Policy Puzzle*, Kalamazoo MI: W.E. Upjohn Institute for Employment Research.

Vella, F. and M. Verbeek (1999), Two-step estimation of panel data models with censored endogenous variables and selection bias, *Journal of Econometrics*, 90, 239-263.

Appendix A: Tables

Table A1. Selected characteristics of disability pension policies across countries

	Qualifiying conditions		Benefits
	Loss of earning capacity	**Minimum period of contributions**	**Permanent disability**
Austria	>= 50% compared to person with the same education	60 months +1 month for each month from age 50) in the last 10 years (plus 2 months for each month from age 50)	60% of assessment base (=average earnings in the best 16 years, up to an annual maximum of €3,013)
Belgium	2/3 in the usual occupation	6 months, incl. 120 days of actual/credited work	65% of lost earnings (s.t. ceiling) for an insured w/ dependents; 40% if no dependents; 50% if no dependents but living w/ others with no income. Payable >1 year disability (1st year-sickness benefit)
Denmark	Reduced working capacity & inability to assure subsistence	Disability pension & supplement (both income-tested) payable age 18 64 w/ >=3 years' residence from age 15	13,895 kroner monthly for single, 11,810 kroner if not living alone; disability supplement (income test): 6,000 kroner a year
Finland	60% if earnings-related disability pension	Universal disability pension (income-tested) - oermanent incapacity for suitable work	Universal dis.- Income tested €11.21 to €496.38 a month; earnings-related disability: 1.5% of wage for each year of service up to disability onset
France	2/3 of earning capacity in any occupation under age 60	12 months insurance before disability onset and 800 hrs employment in lats 12 months	50% of average earnings in the best paid 10 years if incapable of any professional activity, up to a maximum of €1,238 a month. Partial disability 30% of average earnings in best ys, min pension €241/month
Germany	Full reduction (can't work >3 hours/day in any form of employment) or partial reduction (can't work >6 hours/day in any form of employment)	5 years of contributions and 36 months of compulsory contributions in the last 5 years	Total of individual earnings points (individual annual earnings divided by the average earnings of all contributors multiplied by the entry factor) multiplied by pension factor and pension value.
Greece	at least 80% disabled	max 4,500 days of contributions (1,500 days if the insured began working after 1993); 300 days if younger than 21	For an assessed degree of disability of 80% or more (severe), 100% of the pension is paid; for an assessed degree of disability of 67% to 79.9% (ordinary), 75% of the pension paid; min pension €392.16/month.

Ireland	invalidity pension - permanent incapacity for work; disability allowance (means-tested): aged 16-66, physically/mentally disabled	260 weeks of paid contributions with 48 weeks paid or credited in the last tax year.	invalidity pension: €140.30 a week; €167.30 a week if aged 65 or older; disability allowance (means-tested): up to €134.80 a week, + €89.40 a week for a qualified adult and €16.80 for each dependent child
Italy	Total and permanent inability to perform any work.	5 years of contributions, including 3 in the 5 years before the claim. No other forms of income, including earnings from self-employment and unemployment benefits	Pension based on a progressive percentage (0.9% to 2%) of salary multiplied by the number of years of contributions, up to a maximum of 40
Netherlands	at least 80% of earning capacity in the current occupation for full pension	Partial pension: The loss of 15% to 80% of earning capacity for employed workers	Up to 70% of earnings for loss of earning capacity of at least 80%; 14% to 50.75% of earnings for a loss of earning capacity of 15% to 80%. €167.70 a day max
Portugal	2/3 of earning capacity	5 years of contributions (120 days of registered pay)	2% of average adjusted lifetime salary for each year of contributions
Spain	Loss of normal earning capacity	1/4 of period from age 20 to the onset of disability, with at least 5 years of contributions and at least 1/5 of the required contributions in the last 10 years	Permanent total disability, pension 100% of the benefit base (min €411.76). For permanent occupational disability, award 55% of benefit base, plus 20% if aged 55+ & not employed (min €411.76).
Sweden	Work capacity reduced by at least one quarter	Earnings-related sickness compensation independent of insurance periods	94,320 kronor for an insured person with 40 years of residence and without an earnings-related benefit
Switzerland	at least 40% disabled	contributions in all years from age 21. Special pension for nationals not meeting required min contribution period for disability base pension	9,146 francs a year plus a variable amount calculated by multiplying annual income by 13/600 if income <37080
UK	Long-term incapacity benefit & disability living allowance (noncontributory, no means test)	3 years before the claim, age before 65	Long-term incapacity benefit £72.15 a week, plus £43.15 a week for a dependent adult. Allowance £57.20, £38.30, or £15.15 a week according to needs
US	Disability pension: Incapable of permanent substantial gainful activity; Disability supplemental income benefit (means-tested): disabled & blind persons age <65 low income	Quarter of coverage for each year since age 21 up to the year of the onset of disability, up to a maximum of 40 quarters of coverage, 20 quarters of coverage in the 10-year period	pension based on the average covered earnings since 1950 (or age 21, if later) and indexed for past wage inflation, up to the onset of disability, excluding up to 5 years with the lowest earnings. max monthly pension $2,036 (certain conditions)

Source: SSA, Social Security Programs Throughout the World: Europe, 2004
http://www.ssa.gov/policy/docs/progdesc/ssptw/2004-2005/europe/

Table A2. Disability benefits:

	Late 1990s					
	% of disability benefit recipients declaring that they are not disabled	% of disabled persons ages 20-64 with neither income from work nor income from benefits	Annual rates of outflow from disability benefits	Relative employment rate of disabled persons age 20-64 vs. non-disabled ages 20-	Relative income from work of disabled over non-disabled persons	Relative average personal income of disabled persons working over disabled persons not
Austria	27,7	14,2	1,04	0,60	0,97	1,96
Germany	n/a	11,9	1,25	0,67	0,92	1,79
Sweden	48,9	1,1	n/a	0,69	0,70	1,37
Netherlands	30,6	19,5	3,34	0,60	0,87	1,45
Spain	18,3	28,0	0,57	0,41	0,86	2,07
Italy	43,9	28,8	n/a	0,60	0,94	1,94
Portugal	28,6	20,9	0,97	0,59	n/a	1,81
France	33,3	11,7	n/a	0,72	n/a	1,83
Denmark	26,2	6,3	n/a	0,61	0,88	1,38
UK	43,3	9,1	5,64	0,53	0,84	1,61
US	46,7	18,8	1,16	0,58	0,71	2,84
Switzerland	29,8	14,2	n/a	0,79	0,98	n/a
Belgium	43,4	16,2	n/a	0,54	0,90	1,91

n/a - data not available

Source: *OECD (2003, Chapter 3, Tables 3.7 and 3.8)*

Table A3a: Estimation Results for Work Disability Model

Work disability (1: no; 2: mild; 3: severe)

	Germany		Denmark		Netherlands		Belgium	
	par.	t-val.	par.	t-val.	par.	t-val.	par.	t-val.
constant	-2.515	-30.43	-1.815	-19.8	-2.272	-25.23	-2.279	-17.19
female	0.025	1.47	0.13	3.79	0.052	1.83	-0.171	-3.74
age 35-44	0.077	2.8	-0.015	-0.29	0.075	1.81	0.107	1.46
age 45-54	0.22	8.15	-0.071	-1.34	0.051	1.2	0.062	0.82
age 55-64	0.398	13.66	-0.031	-0.51	0.087	1.8	0.165	1.98
educ med	0.004	0.17	0.053	1.19	0.022	0.43	-0.03	-0.58
educ high	-0.078	-2.9	-0.024	-0.49	-0.092	-1.45	-0.007	-0.13
marr/coh	0.027	1.17	-0.036	-0.85	-0.102	-2.96	-0.095	-1.88
hlth good	0.807	10.88	0.747	16.38	0.649	11.27	0.524	6.07
hlth fair	1.854	25.17	1.589	31.28	1.993	33.56	1.445	17.23
hlt bad/vb	3.143	41.52	2.577	34.76	3.382	44.82	2.289	20.96
1996	0	0	-0.073	-1.14	-0.046	-0.99	-0.032	-0.42
1997	0	-0.01	0.083	1.25	-0.052	-1.01	-0.146	-1.72
1998	0.028	0.91	0.038	0.59	-0.017	-0.26	0.206	2.7
1999	-0.027	-0.86	-0.047	-0.71	0.021	0.34	-0.059	-0.75
2000	-0.036	-1.13	0.008	0.12	0.023	0.36	0.028	0.37
2001	0.007	0.21	0.058	0.87	0.057	0.9	0.077	0.99
lag dis sv	1.564	48.25	1.498	19.85	1.367	34.75	1.727	25.12
lag dis ml	0.839	48	0.995	27.4	0.921	33.43	1.221	25.73
lag work	-0.076	-3.32	-0.298	-5.59	-0.093	-2.76	-0.215	-3.67
thres dis	2.184	118.45	1.773	50.75	1.44	80.54	1.391	42.67

	France		Ireland		Italy		Greece	
	par.	t-val.	par.	t-val.	par.	t-val.	par.	t-val.
constant	-2.004	-26.24	-2.265	-20.58	-3.654	-16.29	-2.949	-29.44
female	-0.068	-3.06	-0.15	-3.04	-0.03	-1.14	-0.167	-4.65
age 35-44	0.004	0.12	0.027	0.34	-0.05	-1.1	0.147	2.03
age 45-54	0.164	4.55	0.041	0.51	0.063	1.41	0.132	1.91
age 55-64	0.26	6.1	0.094	1.13	0.136	2.92	0.099	1.38
educ med	-0.077	-2.56	-0.157	-2.93	-0.056	-1.91	-0.002	-0.05
educ high	-0.21	-6.76	-0.226	-2.71	-0.226	-4.19	0.031	0.57
marr/coh	-0.044	-1.59	-0.099	-1.81	-0.056	-1.67	0.011	0.23
hlth good	0.326	5.28	0.736	11.46	1.294	5.77	0.933	16.43
hlth fair	1.234	20.6	1.982	30.63	1.93	8.66	2.494	43.55
hlt bad/vb	2.401	36.23	3.096	29.94	3.381	15.15	3.681	53.94
1996	-0.043	-1.03	-0.013	-0.15	0.057	1.3	-0.007	-0.11
1997	0.021	0.45	0.123	1.45	0.048	0.98	0.013	0.21
1998	0.049	1.1	0.187	2.21	0.099	2.15	0.154	2.6
1999	-0.045	-1	0.047	0.57	-0.022	-0.44	0.087	1.48
2000	0.036	0.81	0.287	3.49	0.008	0.16	0.238	4.14
2001	0.002	0.05	0.23	2.78	-0.014	-0.29	0.279	4.88
lag dis sv	1.502	45.26	1.424	14.04	1.514	36.29	1.018	21.41
lag dis ml	0.911	32.51	0.942	18.65	0.999	34.39	0.692	16.78
lag work	-0.206	-6.77	-0.26	-5.11	0.069	2.09	-0.121	-3.14

thres dis	1.039	71.75	1.775	46.61	1.23	67.51	1.171	57.08

	Spain		Portugal		Austria		Finland	
	par.	t-val.	par.	t-val.	par.	t-val.	par.	t-val.
constant	-2.383	-25.67	-2.243	-11.67	-2.902	-20.75	-2.257	-22.04
female	-0.164	-5.7	-0.089	-3.69	-0.052	-1.32	0.074	2.34
age 35-44	-0.001	-0.02	-0.09	-2.05	0.048	0.69	0.018	0.35
age 45-54	0.1	2.21	-0.081	-1.95	0.195	2.85	-0.036	-0.68
age 55-64	0.2	4.13	-0.066	-1.52	0.297	4.22	0.084	1.45
educ med	-0.143	-3.26	-0.156	-2.7	0.052	1.28	-0.057	-1.46
educ high	-0.36	-7.7	0.008	0.1	-0.087	-0.9	-0.117	-2.69
marr/coh	-0.135	-4.01	-0.163	-5.15	-0.074	-1.58	0.013	0.32
hlth good	0.51	6.45	-0.17	-0.89	1.079	9.89	0.808	10.13
hlth fair	1.579	20.12	1.176	6.32	2.226	19.91	1.689	20.59
hlt bad/vb	2.592	31.63	2.605	13.99	3.163	25.55	3.065	32.08
1996	-0.038	-0.77	0.198	4.58	0	0	0	0
1997	0.057	1.09	0.16	3.32	0.025	0.44	0	0
1998	0.079	1.55	0.135	2.97	-0.001	-0.01	0.074	1.55
1999	0.119	2.31	0.203	4.33	-0.106	-1.75	0.094	1.75
2000	0.094	1.82	0.118	2.58	-0.088	-1.41	0.145	2.69
2001	0.094	1.82	0.193	4.2	-0.023	-0.37	0.106	1.99
lag dis sv	1.143	25.69	1.448	43.86	1.328	20.6	1.499	25.68
lag dis ml	0.794	26.42	0.926	35.72	0.905	23.56	1.066	31.65
lag work	-0.246	-7.63	-0.154	-5.24	-0.118	-2.44	-0.112	-2.54
thres dis	1.192	59.3	1 1.312	88.76	1.579	53.66	1.707	62.85

	UK		USA	
	par.	t-val.	par.	t-val.
constant	-2.804	-28.52	-2.109	-23.83
female	0.09	2.79	-0.034	-1.27
age 35-44	0.138	2.61	0.040	0.96
age 45-54	0.303	5.9	0.183	4.15
age 55-64	0.53	9.26	0.224	4.01
educ med	-0.031	-0.69		
educ high	-0.131	-3.71		
yrs ed 12			-0.049	-1.21
y ed 13-15			0.031	0.73
y ed > 15			-0.057	-1.23
marr/coh*	-0.056	-1.47	-0.138	-4.79
hlth good	0.525	7.56	1.057	21.32
hlth fair	1.375	20.27	1.809	32.52
hlt bad/vb	2.205	30.08	2.745	30.32
1996	0.067	1.12	0.004	0.08
1997	0.185	2.87	0.035	0.71
1998	0.083	1.29		
1999	-0.227	-3.85	0.280	3.72
2000	0.175	2.84		
2001	0.205	3.28	0.290	3.87
2003			0.198	2.63

black			-0.329	-10.46
hispanic			-0.011	-0.15
lag dis	1.215	35.93	1.240	28.73
lag2 dis			1.017	25.36
lag work	-0.195	-4.78	-0.403	28.73
lag2 work			-0.539	-11.92

*married in PSID

Table A3b: Estimation Results for Work Model

Work (0: no; 1: yes)

	Germany		Denmark		Netherlands		Belgium	
	par.	t-val.	par.	t-val.	par.	t-val.	par.	t-val.
constant	0.028	0.38	-0.057	-0.53	0.066	0.59	-0.431	-2.91
female	-0.483	-18.25	-0.395	-8.43	-0.854	-17.41	-0.557	-9.47
age 35-44	0.117	3.4	0.202	3.15	0.065	1.3	-0.068	-0.87
age 45-54	0.078	2.13	0.131	1.97	-0.035	-0.66	-0.382	-4.55
age 55-64	-0.687	-17.95	-0.451	-6.17	-0.781	-12.57	-1.245	-12
educ med	0.095	3.3	0.181	3.31	0.24	3.96	0.169	2.81
educ high	0.433	11.59	0.435	6.96	0.472	6.72	0.511	7.67
marr/coh	-0.097	-3.11	0.162	3.19	-0.301	-6.16	-0.07	-1.22
hlth good	-0.023	-0.48	-0.077	-1.41	-0.061	-1.42	-0.028	-0.5
hlth fair	-0.05	-0.97	-0.214	-2.86	-0.256	-4.4	-0.213	-2.88
hlt bad/vb	-0.246	-4	-0.613	-5.14	-0.699	-6.65	-0.333	-2.15
1996	0	0	-0.106	-1.48	0.071	1.29	0.098	1.42
1997	-0.035	-1.03	-0.029	-0.36	0.024	0.38	0.111	1.42
1998	-0.067	-1.81	0.082	0.99	0.339	4.43	0.136	1.59
1999	0.069	1.82	0.14	1.69	0.338	4.57	0.151	1.78
2000	-0.003	-0.08	-0.002	-0.02	0.403	5.25	0.215	2.64
2001	-0.001	-0.03	0.075	0.87	0.46	5.85	0.212	2.29
lag dis sv	-0.438	-8.41	-0.524	-3.89	-0.217	-3.28	-0.196	-1.35
lag dis ml	-0.117	-4.13	-0.127	-2.04	-0.001	-0.03	0.052	0.49
lag work	1.899	75.86	1.88	37.21	2.316	74.82	2.688	51.57
disab seve	-0.303	-5.22	-0.589	-4.74	-0.204	-2.58	-0.593	-3.41
disab mild	-0.023	-0.72	-0.224	-3.47	-0.239	-4.55	-0.277	-2.96

Ind. effects

	Germany		Denmark		Netherlands		Belgium	
	par.	t-val.	par.	t-val.	par.	t-val.	par.	t-val.
ie disab	0.902	23.9	0.872	11.89	0.873	20.41	1.137	14.06
ie dis->wk	0.199	4.61	0.14	1.74	0.223	3.25	0.336	3
ie work	0.554	15.88	0.395	7.26	0.438	7.9	0.34	4.47
cov matrix	dis	work	dis	work	dis	work	dis	work
disability	0.814		0.716		0.761		1.293	
work	0.18	0.347	0.122	0.175	0.194	0.242	0.382	0.228
correlation	0	338	0	333	0	453	0	702

Work (0: no; 1: yes)

	France		Ireland		Italy		Greece	
	par.	t-val.	par.	t-val.	par.	t-val.	par.	t-val.
constant	-0.371	-4.6	-0.009	-0.09	-0.452	-7.06	0.285	3.44
female	-0.43	-12.71	-0.93	-16.37	-0.774	-21.69	-1.116	-23.18
age 35-44	0.133	3.04	0.014	0.21	0.122	3.03	0.226	4.64
age 45-54	0.049	1.08	-0.13	-1.96	-0.094	-2.33	-0.044	-0.91
age 55-64	-0.94	-17.66	-0.617	-8.06	-0.742	-16.34	-0.533	-9.75

educ med	0.174	4.65	0.222	4.87	0.46	14.86	0.03	0.77
educ high	0.372	9.14	0.52	7.36	0.828	14.23	0.482	9.06
marr/coh	-0.091	-2.58	-0.154	-2.82	-0.021	-0.63	-0.052	-1.15
hlth good	0.125	2.98	-0.077	-1.76	-0.005	-0.15	-0.064	-1.88
hlth fair	0.137	2.94	-0.299	-4.19	-0.029	-0.74	-0.162	-3.14
hlt bad/vb	-0.295	-4.02	-0.585	-3.22	-0.296	-4.27	-0.763	-8.71
1996	-0.035	-0.74	0.077	1.13	0.121	3.22	-0.072	-1.55
1997	-0.111	-2.42	0.208	2.88	0.031	0.76	-0.086	-1.79
1998	-0.09	-1.72	0.245	3.24	0.053	1.31	0.144	2.85
1999	-0.022	-0.39	0.265	3.52	0.054	1.27	-0.29	-5.59
2000	-0.078	-1.41	0.407	5.54	0.086	1.94	0.054	1.06
2001	-0.034	-0.61	0.172	2.25	0.062	1.37	0.04	0.76
lag dis sv	-0.264	-4.15	-0.226	-1.32	0.058	0.72	0.076	0.91
lag dis ml	-0.061	-1.32	0.019	0.25	0.019	0.35	0.045	0.77
lag work	2.401	76.35	2.088	53.99	2.347	93.5	2.077	66.42
disab seve	-0.232	-3.27	-0.723	-4.3	-0.414	-4.75	-0.431	-5.17
disab mild	-0.101	-2.07	-0.439	-5.36	0.021	0.33	-0.099	-1.57

Ind. effects

	France		Ireland		Italy		Greece	
	par.	t-val.	par.	t-val.	par.	t-val.	par.	t-val.
ie disab	0.767	18.6	1.399	15.86	0.7	15.82	0.712	12.95
ie dis->wk	0.269	4.33	0.577	6.08	0.019	0.27	0.031	0.49
ie work	0.437	9.79	0.563	8.71	0.793	16.3	0.822	15.34
cov matrix	dis	work	dis	work	dis	work	dis	work
disability	0.589		1.966		0.49		0.507	
work	0.207	0.26	4 0.807	0.65	0.013	0.628	0.022	0.677
correlation	0	524	0.7	16	0	24	0	38

Work (0: no; 1: yes)

	Spain		Portugal		Austria		Finland	
	par.	t-val.	par.	t-val.	par.	t-val.	par.	t-val.
constant	0.169	2.62	0.488	3.34	-0.463	-4.28	-0.26	-2.37
female	-1.061	-29.41	-0.712	-16.32	-0.442	-9.35	-0.246	-5.53
age 35-44	0.132	3.36	-0.058	-1.05	0.176	3.01	0.231	3.5
age 45-54	0.036	0.88	-0.282	-4.88	-0.005	-0.08	0.182	2.71
age 55-64	-0.541	-11.68	-0.606	-9.95	-1.008	-15.17	-0.726	-10.09
educ med	0.336	8.49	0.247	3.65	0.093	2.03	0.103	1.96
educ high	0.785	18.37	0.569	5.62	0.437	4.64	0.36	6.11
marr/coh	-0.261	-7.43	-0.075	-1.67	-0.148	-2.8	0.168	3.38
hlth good	0.016	0.47	0.065	0.52	-0.08	-1.76	-0.003	-0.04
hlth fair	-0.012	-0.27	-0.093	-0.74	-0.226	-3.47	-0.118	-1.58
hlt bad/vb	-0.176	-2.72	-0.369	-2.76	-0.628	-5.88	-0.191	-1.51
1996	-0.019	-0.48	-0.037	-0.8	0	0	0	0
1997	0.108	2.48	-0.054	-1.04	-0.007	-0.12	0	0
1998	0.113	2.41	-0.032	-0.63	-0.063	-1.04	0.168	3.05
1999	0.148	3.17	0.042	0.79	0.02	0.33	0.082	1.25
2000	0.151	3.31	-0.072	-1.36	-0.026	-0.43	0.153	2.32
2001	0.182	3.99	-0.101	-1.87	-0.019	-0.29	0.122	1.74

lag dis sv	-0.548	-6.7	-0.097	-1.61	-0.27	-2.23	-0.397	-3.72
lag dis ml	-0.17	-3.46	-0.018	-0.42	-0.13	-1.96	-0.162	-2.72
lag work	1.745	68.99	2.16	65.07	2.657	69.47	1.893	38.83
disab seve	-0.594	-7.52	-0.577	-9.61	-0.317	-2.87	-0.372	-3.58
disab mild	-0.192	-3.83	-0.061	-1.29	-0.131	-1.74	-0.145	-2.53

Ind. effects

	Spain		Portugal		Austria		Finland	
	par.	t-val.	par.	t-val.	par.	t-val.	par.	t-val.
ie disab	0.664	14.3	8 0.840	18.22	1.03	15.68	0.619	9.43
ie dis->wk	0	0	0 0.165	2.57	0.245	2.23	0.215	2.79
ie work	0.915	20.4	0 0.801	16.27	0.149	1.8	0.494	7.69
cov matrix	dis	work	dis	work	dis	work	dis	work
disability	0.441		0.705		1.062		0.384	
work	0	0.83	8 0.139	0.669	0.253	0.082	0.133	0.29
correlation	0	0	0	202	0	854	0	399

Work (0: no; 1:yes)

	UK		USA	
	par.	t-val.	par.	t-val.
constant	0.217	3.17	0.254	3.72
female	-0.59	-18.48	-0.467	-17.22
age 35-44	0.107	2.73	0.099	2.82
age 45-54	0.027	0.65	0.112	2.88
age 55-64	-0.467	-10.3	-0.354	-7.49
educ med	0.004	0.11		
educ high	0.16	5.25		
yrs ed 12			0.311	8.29
y ed 13-15			0.335	8.39
y ed > 15			0.425	9.68
marr/coh*	-0.072	-2.11	-0.028	-1.05
hlth good	0.006	0.18	-0.034	-0.99
hlth fair	-0.066	-1.66	-0.301	-6.23
hlt bad/vb	-0.123	-2.42	-0.931	-11.66
1996	0.258	5.99	-0.059	-1.55
1997	0.145	3	-0.012	-0.30
1998	0.09	1.86		
1999	0.118	2.39	0.214	3.75
2000	0.128	2.75		
2001	0.063	1.37	0.076	1.33
2003			0.128	2.31
black			-0.147	-5.23
hispanic			-0.080	-1.17
lag dis	-0.043	-0.91	-0.021	-0.38
lag2 dis			-0.060	-1.24
lag work	1.689	62.17	1.620	45.96
lag2 work			1.329	35.33
disab	0.03	0.63	-0.636	-16.81

*married in PSID

Ind. effects

	UK		USA	
	par.	t-val	. par.	t-val.
ie disab	1.22	18.3	1.34	24.1
ie dis->wk	0.463	9.24	0.446	10.64
ie work	0.61	18.58	0.46	16.48
cov matrix	dis	work	dis.	work
disability	1.489		1.794	
work	0.565	0.586	0.597	0.41
correlation	0.605		0.696	

Remarks:

Waves: 1994, 1995, 1996, 1997, 1999, 2001, 2003. lag2 is used when waves are two yeas apart, lag (one year lagged) when waves are one year apart (in that case the second lag is no included).

Compared to ECHP, I used a fourth education level and I used dummies for black and hispanic.

Balanced panel, 5401 observations.

Table A4: Transition Probabilities and Equilibrium Distributions for Labor Force Status

Germany

	Doesn't work	Works	Relative Frequency
Country	**Germany**	**Actual**	.
Doesn't work	0.86	0.14	0.35
Works	0.09	0.91	0.65
Equilibrium	0.38	0.62	.
Country	**Germany**	**Predicted**	.
Doesn't work	0.74	0.26	0.28
Works	0.09	0.91	0.72
Equilibrium	0.27	0.73	.
Country	**Germany**	**Predicted, US**	.
Doesn't work	0.74	0.26	0.34
Works	0.14	0.86	0.66
Equilibrium	0.34	0.66	.

Denmark

	Doesn't work	Works	Relative Frequency
Country	**Denmark**	**Actual**	.
Doesn't work	0.79	0.21	0.22
Works	0.06	0.94	0.78
Equilibrium	0.22	0.78	.
Country	**Denmark**	**Predicted**	.
Doesn't work	0.69	0.31	0.16
Works	0.05	0.95	0.84
Equilibrium	0.15	0.85	.
Country	**Denmark**	**Predicted, US**	.
Doesn't work	0.66	0.34	0.18
Works	0.07	0.93	0.82
Equilibrium	0.18	0.82	.

Netherlands

	Doesn't work	Works	Relative Frequency
Country	**Netherlands**	**Actual**	.
Doesn't work	0.87	0.13	0.33
Works	0.06	0.94	0.67
Equilibrium	0.3	0.7	.
Country	**Netherlands**	**Predicted**	.
Doesn't work	0.83	0.17	0.33
Works	0.06	0.94	0.67
Equilibrium	0.27	0.73	.
Country	**Netherlands**	**Predicted, US**	.
Doesn't work	0.8	0.2	0.44
Works	0.16	0.84	0.56
Equilibrium	0.45	0.55	.

Belgium

	Doesn't work	Works	Relative Frequency
Country	**Belgium**	**Actual**	.
Doesn't work	0.93	0.07	0.33
Works	0.05	0.95	0.67
Equilibrium	0.4	0.6	.
Country	**Belgium**	**Predicted**	.
Doesn't work	0.89	0.11	0.32
Works	0.05	0.95	0.68
Equilibrium	0.31	0.69	.
Country	**Belgium**	**Predicted, US**	.
Doesn't work	0.84	0.16	0.5
Works	0.19	0.81	0.5
Equilibrium	0.55	0.45	.

France

	Doesn't work	Works	Relative Frequency
Country	**France**	**Actual**	.
Doesn't work	0.89	0.11	0.29
Works	0.06	0.94	0.71
Equilibrium	0.34	0.66	.
Country	**France**	**Predicted**	.
Doesn't work	0.82	0.18	0.25
Works	0.06	0.94	0.75
Equilibrium	0.26	0.74	.
Country	**France**	**Predicted, US**	.
Doesn't work	0.8	0.2	0.4
Works	0.17	0.83	0.6
Equilibrium	0.46	0.54	.

Ireland

	Doesn't work	Works	Relative Frequency
Country	**Ireland**	**Actual**	.
Doesn't work	0.88	0.12	0.41
Works	0.07	0.93	0.59
Equilibrium	0.35	0.65	.
Country	**Ireland**	**Predicted**	.
Doesn't work	0.76	0.24	0.36
Works	0.1	0.9	0.64
Equilibrium	0.3	0.7	.
Country	**Ireland**	**Predicted, US**	.
Doesn't work	0.75	0.25	0.42
Works	0.17	0.83	0.58
Equilibrium	0.4	0.6	.

Italy

	Doesn't work	Works	Relative Frequency
Country	**Italy**	**Actual**	.
Doesn't work	0.91	0.09	0.4
Works	0.06	0.94	0.6
Equilibrium	0.42	0.58	.
Country	**Italy**	**Predicted**	.
Doesn't work	0.81	0.19	0.35
Works	0.09	0.91	0.65
Equilibrium	0.34	0.66	.
Country	**Italy**	**Predicted, US**	.
Doesn't work	0.79	0.21	0.47
Works	0.21	0.79	0.53
Equilibrium	0.49	0.51	.

Greece

	Doesn't work	Works	Relative Frequency
Country	**Greece**	**Actual**	.
Doesn't work	0.89	0.11	0.38
Works	0.07	0.93	0.62
Equilibrium	0.4	0.6	.
Country	**Greece**	**Predicted**	.
Doesn't work	0.75	0.25	0.31
Works	0.11	0.89	0.69
Equilibrium	0.3	0.7	.
Country	**Greece**	**Predicted, US**	.
Doesn't work	0.76	0.24	0.39
Works	0.16	0.84	0.61
Equilibrium	0.4	0.6	.

Spain

	Doesn't work	Works	Relative Frequency
Country	**Spain**	**Actual**	.
Doesn't work	0.86	0.14	0.44
Works	0.09	0.91	0.56
Equilibrium	0.4	0.6	.
Country	**Spain**	**Predicted**	.
Doesn't work	0.74	0.26	0.38
Works	0.14	0.86	0.62
Equilibrium	0.35	0.65	.
Country	**Spain**	**Predicted, US**	.
Doesn't work	0.74	0.26	0.39
Works	0.15	0.85	0.61
Equilibrium	0.37	0.63	.

Portugal

	Doesn't work	Works	Relative Frequency
Country	**Portugal**	**Actual**	.
Doesn't work	0.85	0.15	0.27
Works	0.06	0.94	0.73
Equilibrium	0.28	0.72	.
Country	**Portugal**	**Predicted**	.
Doesn't work	0.72	0.28	0.23
Works	0.08	0.92	0.77
Equilibrium	0.23	0.77	.
Country	**Portugal**	**Predicted, US**	.
Doesn't work	0.71	0.29	0.31
Works	0.14	0.86	0.69
Equilibrium	0.33	0.67	.

Austria

	Doesn't work	Works	Relative Frequency
Country	**Austria**	**Actual**	.
Doesn't work	0.89	0.11	0.3
Works	0.06	0.94	0.7
Equilibrium	0.35	0.65	.
Country	**Austria**	**Predicted**	.
Doesn't work	0.91	0.09	0.3
Works	0.06	0.94	0.7
Equilibrium	0.38	0.62	.
Country	**Austria**	**Predicted, US**	.
Doesn't work	0.86	0.14	0.52
Works	0.22	0.78	0.48
Equilibrium	0.61	0.39	.

Finland

	Doesn't work	Works	Relative Frequency
Country	**Finland**	**Actual**	.
Doesn't work	0.8	0.2	0.28
Works	0.07	0.93	0.72
Equilibrium	0.26	0.74	.
Country	**Finland**	**Predicted**	.
Doesn't work	0.69	0.31	0.21
Works	0.06	0.94	0.79
Equilibrium	0.17	0.83	.
Country	**Finland**	**Predicted, US**	.
Doesn't work	0.67	0.33	0.24
Works	0.09	0.91	0.76
Equilibrium	0.22	0.78	.

United Kingdom			
	Doesn't work	**Works**	**Relative Frequency**
Country	**United Kingdom**	**Actual**	.
Doesn't work	0.78	0.22	0.26
Works	0.07	0.93	0.74
Equilibrium	0.25	0.75	.
Country	**United Kingdom**	**Predicted**	.
Doesn't work	0.57	0.43	0.2
Works	0.1	0.9	0.8
Equilibrium	0.18	0.82	.
Country	**United Kingdom**	**Predicted, US**	.
Doesn't work	0.62	0.38	0.25
Works	0.12	0.88	0.75
Equilibrium	0.24	0.76	.

Table A5: Transition Probabilities and Equilibrium Distributions for Self-Reported Work Disability

	Germany			
	Not Limited	**Limited**	**Severely Limited**	**Relative Frequency**
Country	**Germany**	Actual	.	.
Not	0.85	0.14	0.01	0.66
Mildly	0.31	0.59	0.09	0.27
Severely	0.07	0.31	0.62	0.07
Equilibrium	0.63	0.28	0.09	.
Country	**Germany**	Predicted	.	.
Not	0.78	0.2	0.03	0.63
Mildly	0.41	0.45	0.13	0.29
Severely	0.15	0.45	0.4	0.09
Equilibrium	0.61	0.3	0.09	.
Country	**Germany**	Predicted, US	.	.
Not	0.81	0.17	0.02	0.7
Mildly	0.48	0.41	0.11	0.24
Severely	0.18	0.49	0.33	0.05
Equilibrium	0.69	0.25	0.06	.

	Denmark			
	Not Limited	**Limited**	**Severely Limited**	**Relative Frequency**
Country	**Denmark**	Actual	.	.
Not	0.92	0.07	0.01	0.82
Mildly	0.38	0.52	0.11	0.14
Severely	0.1	0.39	0.51	0.04
Equilibrium	0.8	0.15	0.05	.
Country	**Denmark**	Predicted	.	.
Not	0.86	0.13	0.01	0.77
Mildly	0.51	0.36	0.13	0.18
Severely	0.25	0.42	0.33	0.05
Equilibrium	0.76	0.19	0.05	.
Country	**Denmark**	Predicted, US	.	.
Not	0.88	0.11	0.01	0.83
Mildly	0.62	0.3	0.08	0.14
Severely	0.26	0.43	0.31	0.03
Equilibrium	0.83	0.14	0.03	.

Netherlands

	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**Netherlands**	Actual	.	.
Not	0.91	0.07	0.02	0.79
Mildly	0.39	0.48	0.13	0.14
Severely	0.15	0.29	0.55	0.07
Equilibrium	0.78	0.14	0.07	.
Country	**Netherlands**	Predicted	.	.
Not	0.85	0.12	0.03	0.76
Mildly	0.54	0.3	0.16	0.16
Severely	0.3	0.32	0.38	0.07
Equilibrium	0.76	0.17	0.07	.
Country	**Netherlands**	Predicted, US	.	.
Not	0.88	0.1	0.02	0.81
Mildly	0.61	0.26	0.13	0.13
Severely	0.32	0.32	0.35	0.05
Equilibrium	0.81	0.13	0.05	.

Belgium

	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**Belgium**	Actual	.	.
Not	0.95	0.04	0.01	0.86
Mildly	0.42	0.46	0.12	0.1
Severely	0.18	0.28	0.54	0.04
Equilibrium	0.87	0.09	0.04	.
Country	**Belgium**	2	.	.
Not	0.89	0.09	0.02	0.82
Mildly	0.59	0.27	0.14	0.13
Severely	0.38	0.33	0.29	0.05
Equilibrium	0.82	0.13	0.05	.
Country	**Belgium**	3	.	.
Not	0.89	0.09	0.02	0.86
Mildly	0.72	0.2	0.08	0.11
Severely	0.49	0.35	0.16	0.03
Equilibrium	0.86	0.11	0.03	.

France

	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**France**	Actual	.	.
Not	0.92	0.06	0.02	0.83
Mildly	0.45	0.39	0.16	0.1
Severely	0.17	0.24	0.59	0.07
Equilibrium	0.81	0.11	0.08	.
Country	**France**	2	.	.
Not	0.87	0.1	0.03	0.8
Mildly	0.57	0.24	0.19	0.12
Severely	0.32	0.25	0.43	0.08
Equilibrium	0.79	0.13	0.09	.
Country	**France**	Predicted, US	.	.
Not	0.89	0.09	0.03	0.84
Mildly	0.66	0.19	0.14	0.1
Severely	0.38	0.26	0.36	0.06
Equilibrium	0.83	0.11	0.06	.

Ireland

	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**Ireland**	Actual	.	.
Not	0.94	0.05	0.01	0.86
Mildly	0.4	0.51	0.09	0.11
Severely	0.13	0.38	0.49	0.03
Equilibrium	0.86	0.11	0.03	.
Country	**Ireland**	Predicted	.	.
Not	0.85	0.13	0.02	0.8
Mildly	0.62	0.26	0.11	0.15
Severely	0.42	0.33	0.25	0.05
Equilibrium	0.79	0.16	0.05	.
Country	**Ireland**	Predicted, US	.	.
Not	0.87	0.1	0.02	0.84
Mildly	0.7	0.22	0.08	0.13
Severely	0.5	0.29	0.21	0.04
Equilibrium	0.84	0.13	0.04	.

Italy

	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**Italy**	Actual	.	.
Not	0.97	0.03	0.01	0.91
Mildly	0.55	0.35	0.09	0.06
Severely	0.3	0.25	0.46	0.03
Equilibrium	0.93	0.05	0.02	.
Country	**Italy**	Predicted	.	.
Not	0.94	0.05	0.01	0.91
Mildly	0.64	0.23	0.12	0.07
Severely	0.37	0.3	0.33	0.02
Equilibrium	0.91	0.07	0.02	.
Country	**Italy**	Predicted, US	.	.
Not	0.96	0.04	0.01	0.94
Mildly	0.73	0.19	0.09	0.05
Severely	0.46	0.28	0.25	0.01
Equilibrium	0.94	0.05	0.01	.

Greece

	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**Greece**	Actual	.	.
Not	0.95	0.04	0.02	0.89
Mildly	0.49	0.37	0.14	0.07
Severely	0.3	0.2	0.49	0.04
Equilibrium	0.89	0.06	0.05	.
Country	**Greece**	Predicted	.	.
Not	0.91	0.06	0.02	0.86
Mildly	0.61	0.2	0.19	0.08
Severely	0.36	0.23	0.41	0.05
Equilibrium	0.86	0.08	0.06	.
Country	**Greece**	Predicted, US	.	.
Not	0.94	0.04	0.02	0.89
Mildly	0.61	0.21	0.19	0.06
Severely	0.32	0.25	0.43	0.04
Equilibrium	0.89	0.06	0.05	.

Spain

	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**Spain**	Actual	.	.
Not	0.94	0.04	0.01	0.87
Mildly	0.48	0.34	0.18	0.08
Severely	0.22	0.35	0.43	0.04
Equilibrium	0.87	0.08	0.04	.
Country	**Spain**	Predicted	.	.
Not	0.92	0.07	0.02	0.87
Mildly	0.61	0.23	0.16	0.09
Severely	0.38	0.31	0.31	0.04
Equilibrium	0.86	0.09	0.04	.
Country	**Spain**	Predicted, US	.	.
Not	0.93	0.06	0.01	0.88
Mildly	0.64	0.23	0.12	0.08
Severely	0.34	0.3	0.36	0.03
Equilibrium	0.89	0.08	0.03	.

Portugal

	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**Portugal**	Actual	.	.
Not	0.93	0.05	0.02	0.79
Mildly	0.38	0.49	0.13	0.13
Severely	0.15	0.22	0.63	0.08
Equilibrium	0.8	0.12	0.08	.
Country	**Portugal**	Predicted	.	.
Not	0.88	0.09	0.03	0.78
Mildly	0.49	0.29	0.22	0.14
Severely	0.22	0.32	0.46	0.09
Equilibrium	0.76	0.14	0.1	.
Country	**Portugal**	Predicted, US	.	.
Not	0.9	0.08	0.02	0.82
Mildly	0.56	0.28	0.17	0.12
Severely	0.27	0.35	0.38	0.06
Equilibrium	0.82	0.12	0.06	.

Austria

	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**Austria**	Actual	.	.
Not	0.94	0.05	0.01	0.86
Mildly	0.44	0.47	0.09	0.1
Severely	0.15	0.34	0.51	0.03
Equilibrium	0.87	0.1	0.03	.
Country	**Austria**	Predicted	.	.
Not	0.88	0.1	0.02	0.82
Mildly	0.62	0.25	0.13	0.13
Severely	0.38	0.34	0.28	0.05
Equilibrium	0.83	0.13	0.04	.
Country	**Austria**	Predicted, US	.	.
Not	0.9	0.09	0.02	0.85
Mildly	0.64	0.25	0.11	0.11
Severely	0.38	0.35	0.27	0.04
Equilibrium	0.85	0.11	0.04	.

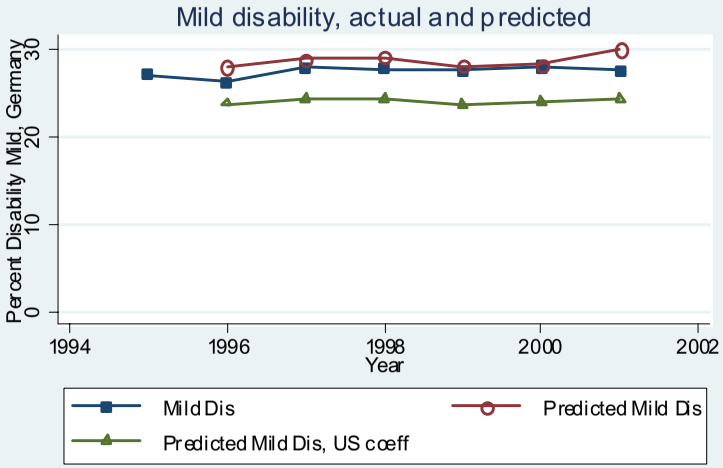
Finland

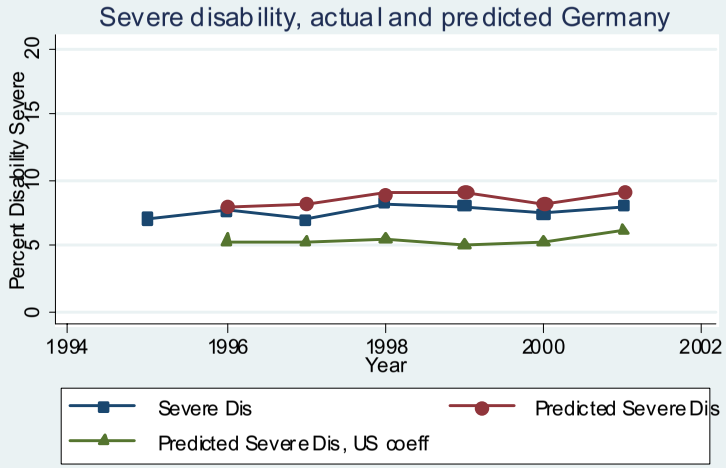
	Not Limited	Limited	Severely Limited	Relative Frequency
Country	**Finland**	Actual	.	.
Not	0.89	0.09	0.01	0.75
Mildly	0.34	0.55	0.11	0.19
Severely	0.12	0.4	0.49	0.06
Equilibrium	0.73	0.21	0.06	.
Country	**Finland**	Predicted	.	.
Not	0.84	0.14	0.02	0.73
Mildly	0.43	0.4	0.16	0.2
Severely	0.19	0.43	0.39	0.07
Equilibrium	0.7	0.22	0.08	.
Country	**Finland**	Predicted, US	.	.
Not	0.88	0.11	0.01	0.81
Mildly	0.56	0.36	0.08	0.15
Severely	0.23	0.4	0.37	0.03
Equilibrium	0.81	0.16	0.04	.

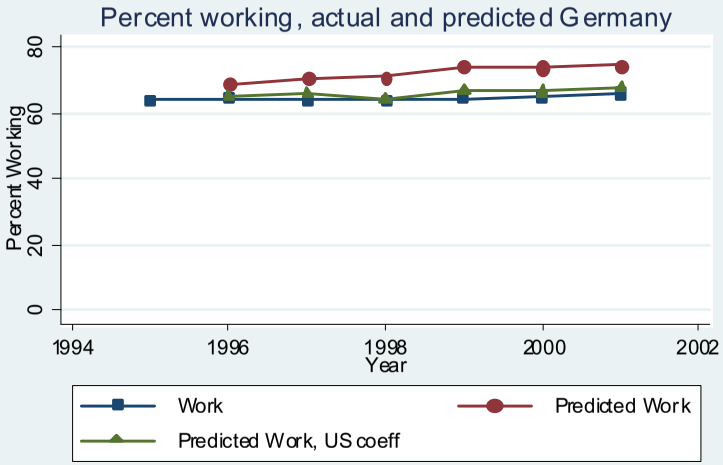
United Kingdom				
	Not Limited	**Limited**	**Severely Limited**	**Relative Frequency**
Country	**United Kingdom**	Actual	.	.
Not	0.95	0.05	.	0.89
Mildly	0.32	0.68	.	0.11
Severely	.	.	.	.
Equilibrium	0.87	0.13	.	.
Country	**United Kingdom**	Predicted	.	.
Not	0.87	0.13	.	0.82
Mildly	0.56	0.44	.	0.18
Severely	.	.	.	.
Equilibrium	0.81	0.19	.	.
Country	**United Kingdom**	Predicted, US	.	.
Not	0.9	0.1	.	0.85
Mildly	0.57	0.43	.	0.15
Severely	.	.	.	.
Equilibrium	0.85	0.15	.	.

Appendix B: Simulated Time Paths of Mild and Severe Disability and of Labor Force Status

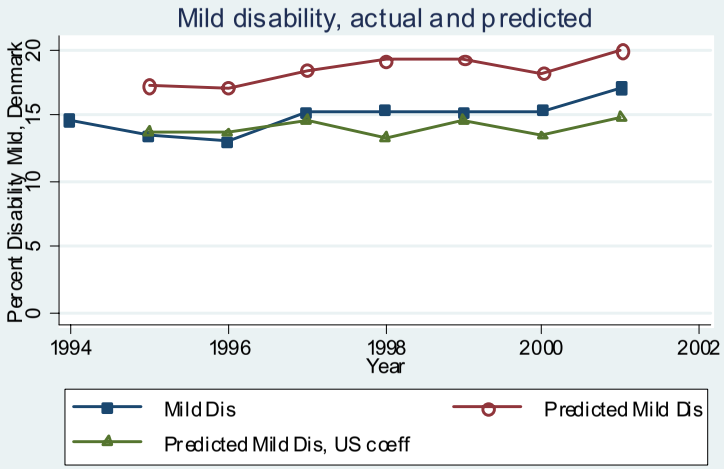
Simulated disability and work Germany

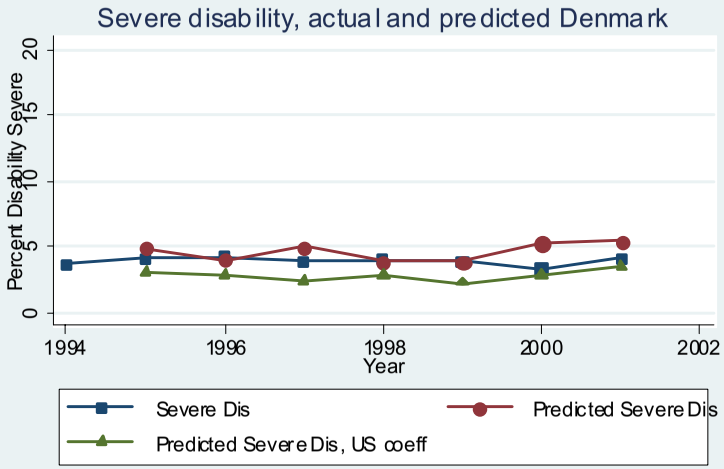


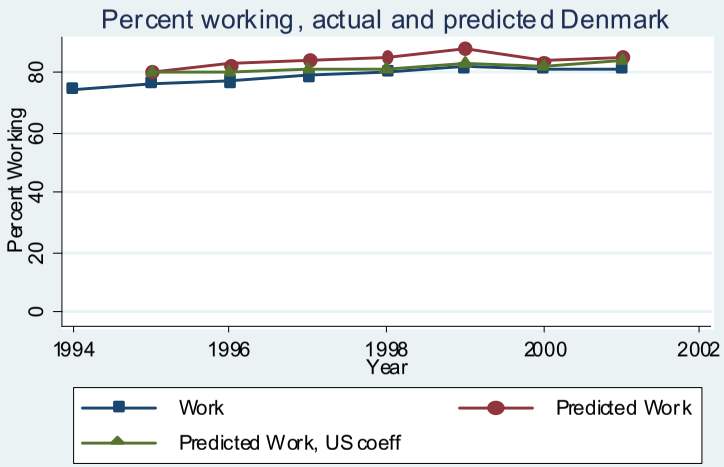




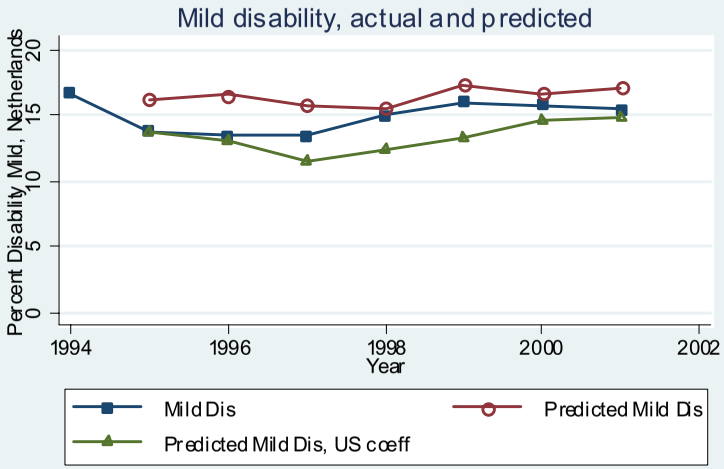
Simulated disability and work Denmark

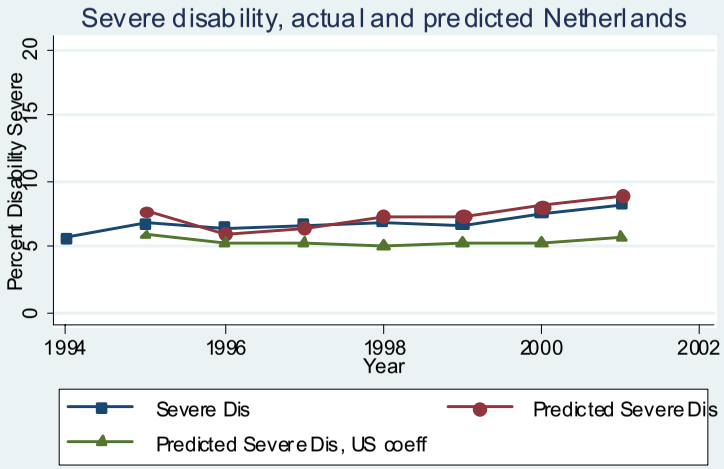


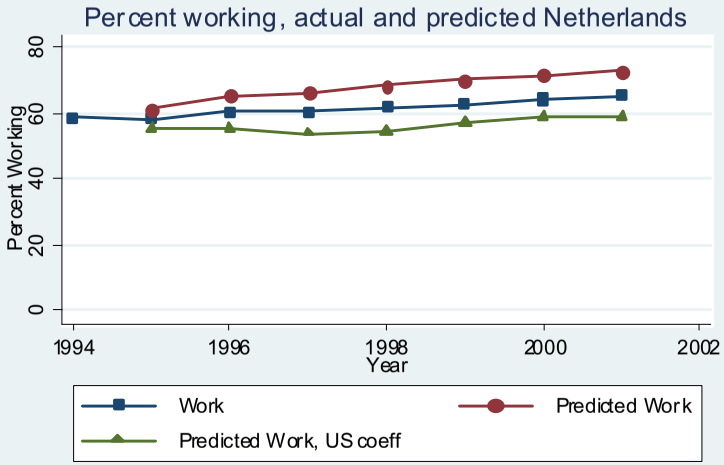




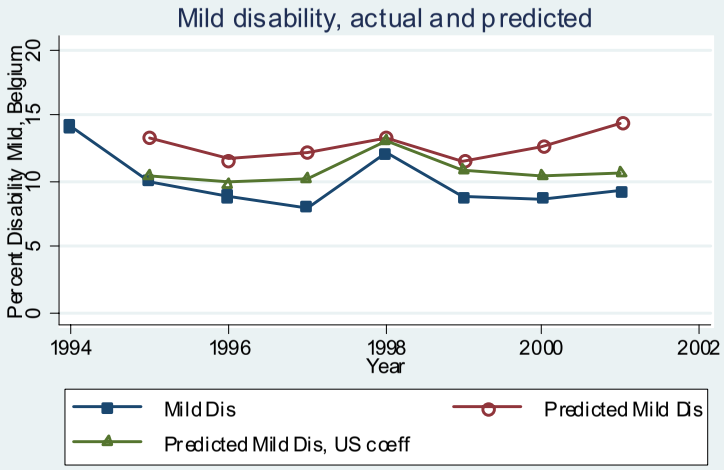
Simulated disability and work Netherlands

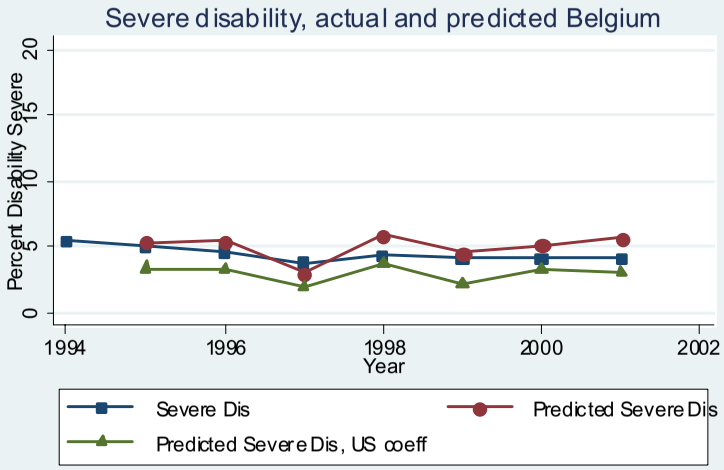


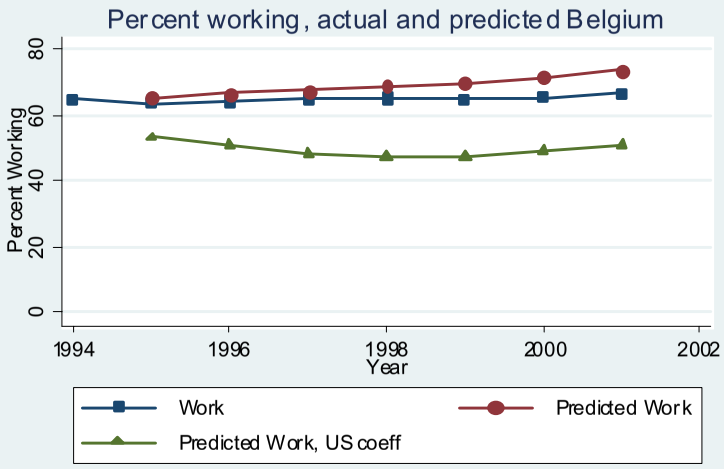




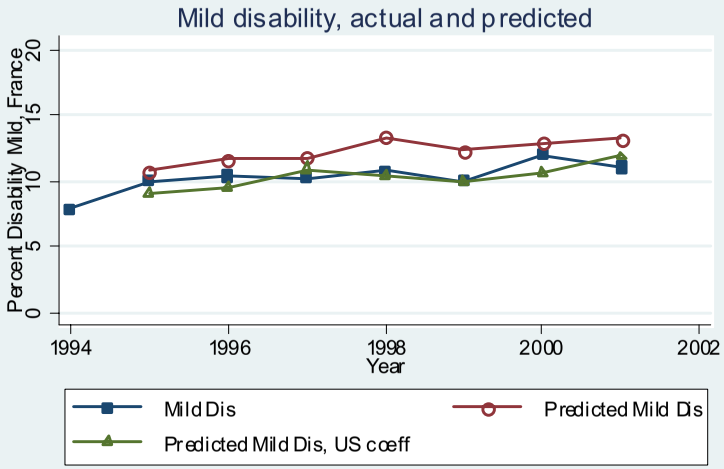
Simulated disability and work Belgium

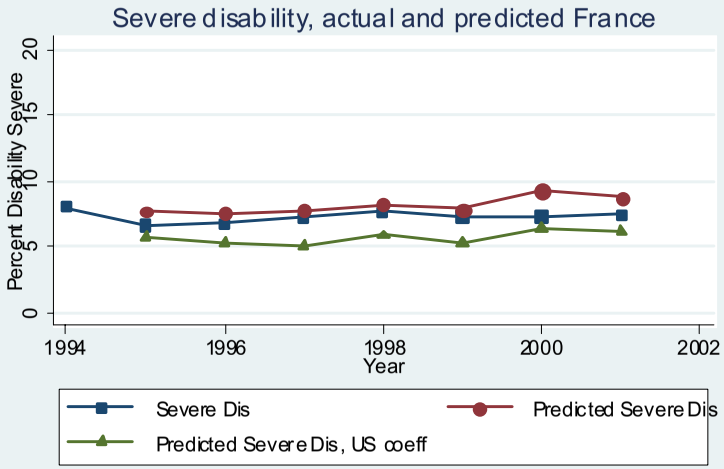


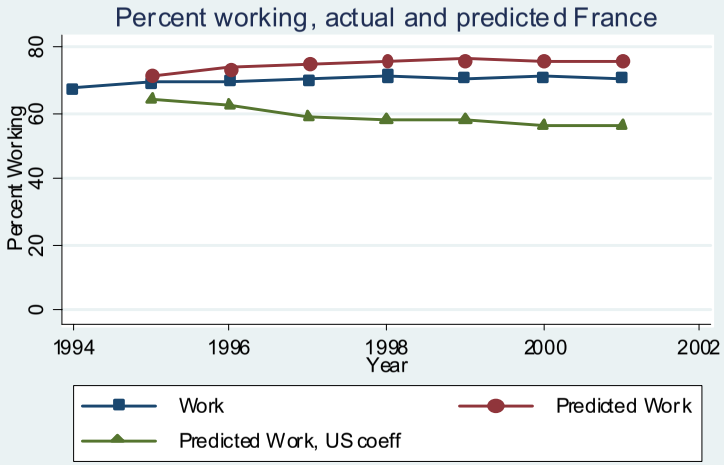




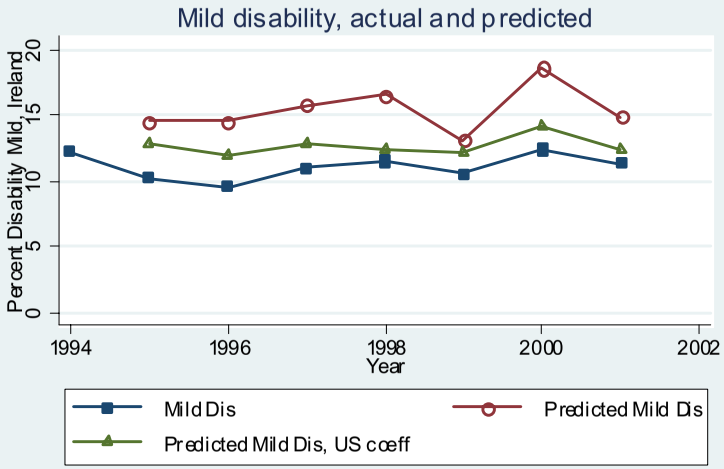
Simulated disability and work France

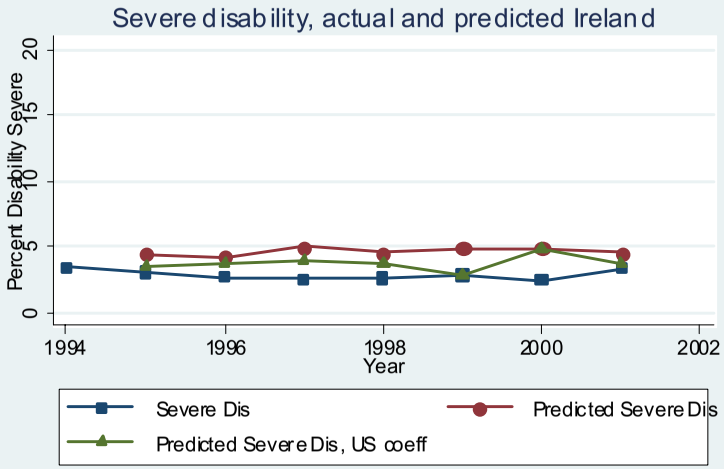


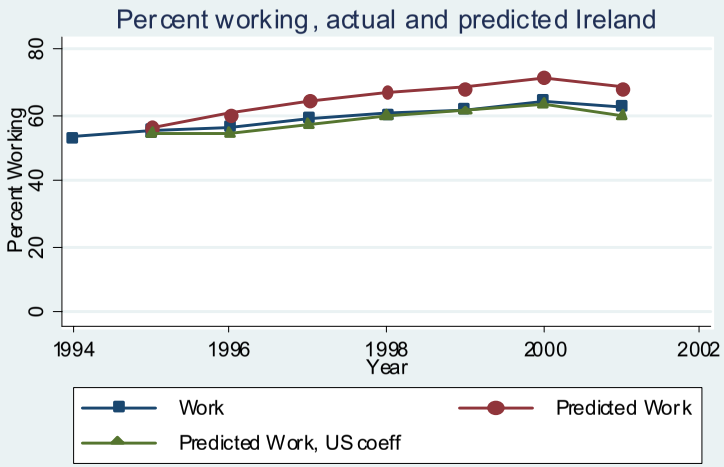




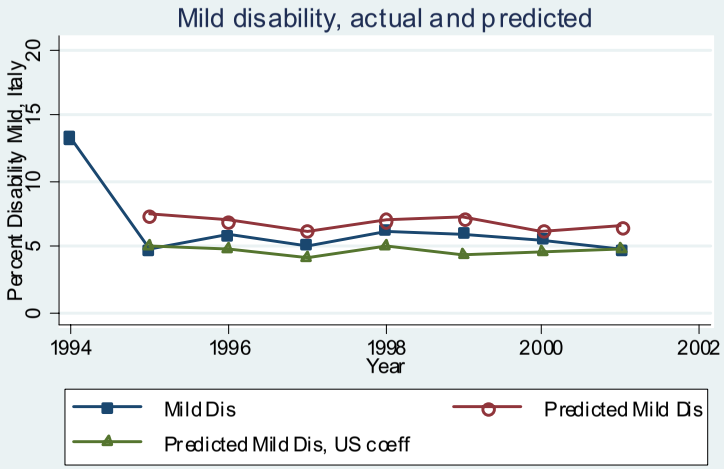
Simulated disability and work Ireland

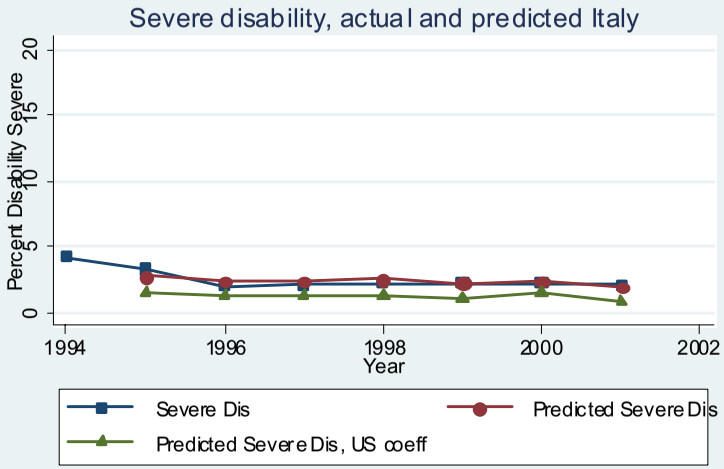


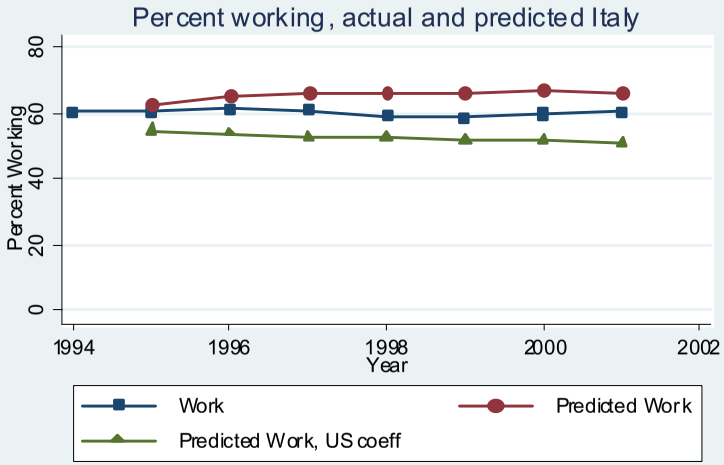




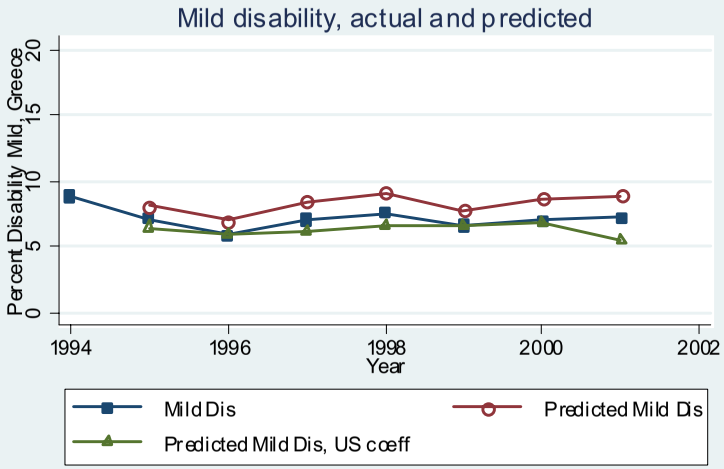
Simulated disability and work Italy

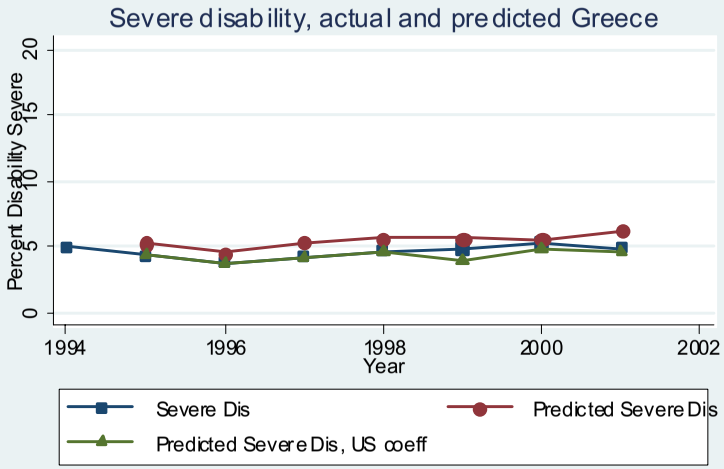


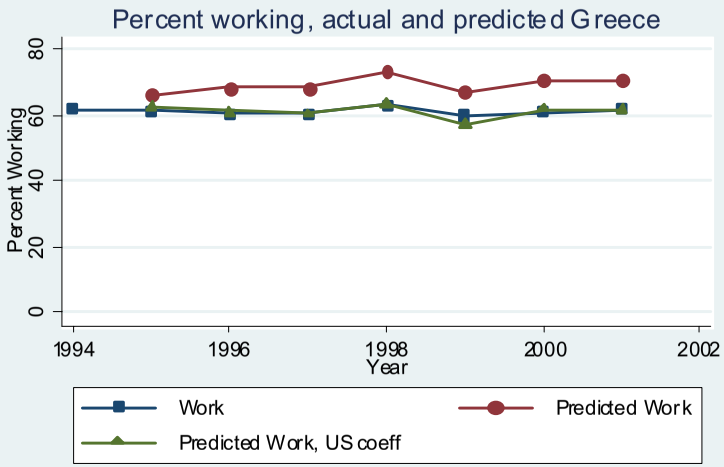




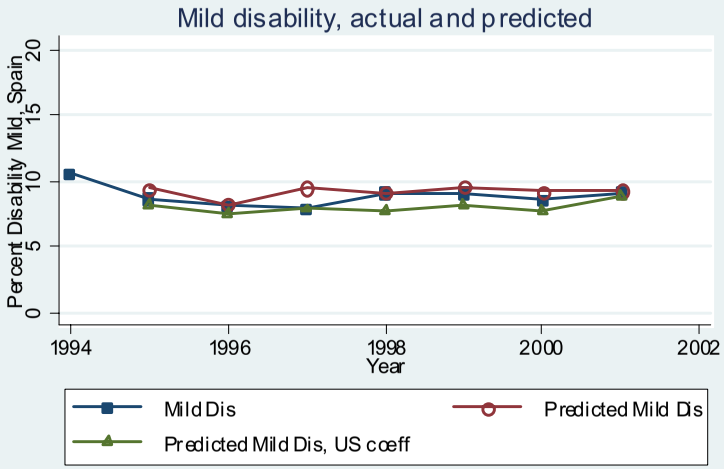
Simulated disability and work Greece

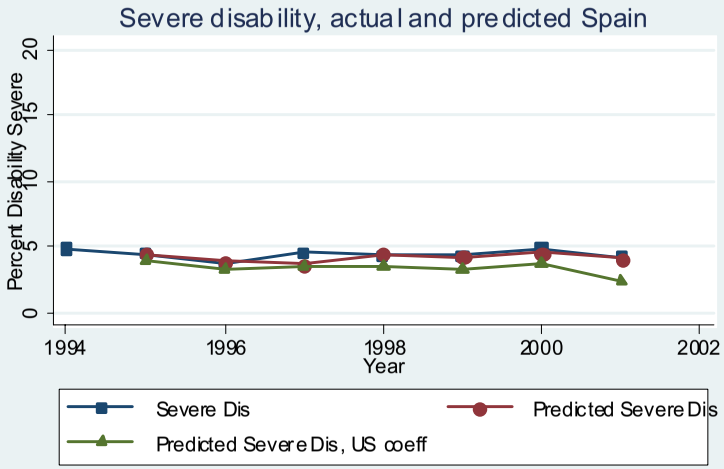


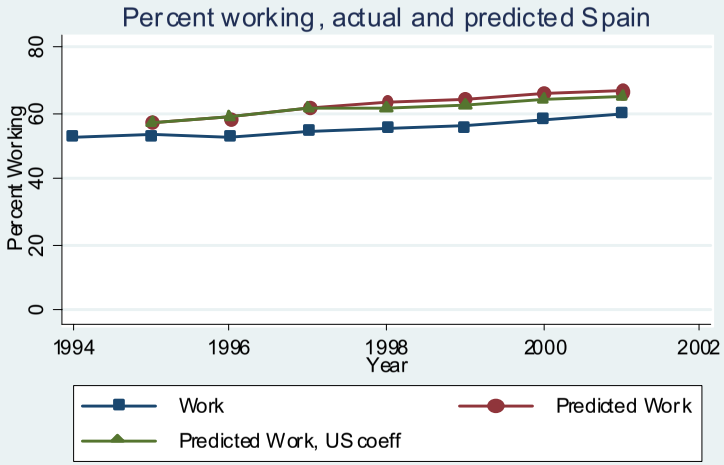




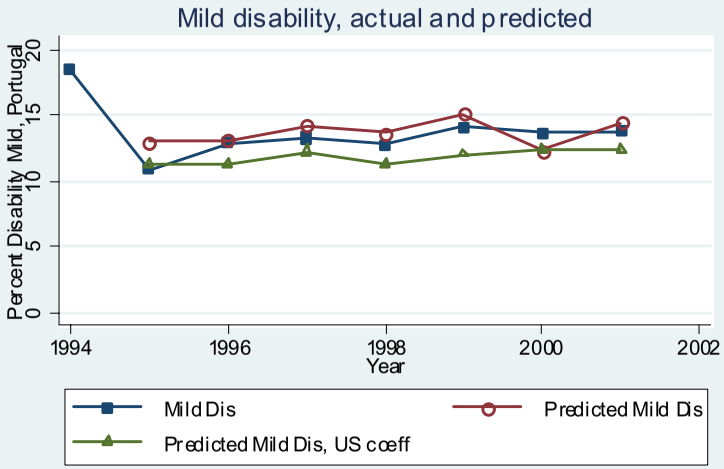
Simulated disability and work Spain

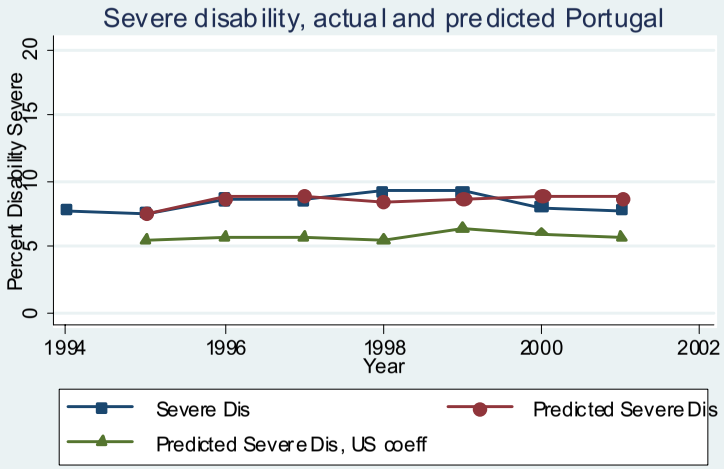


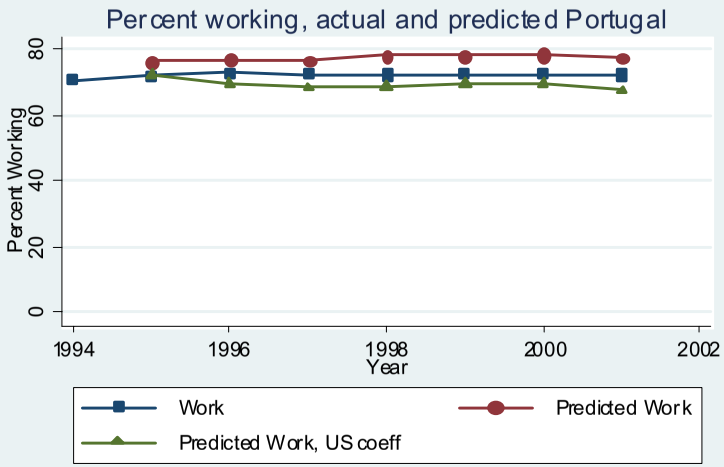




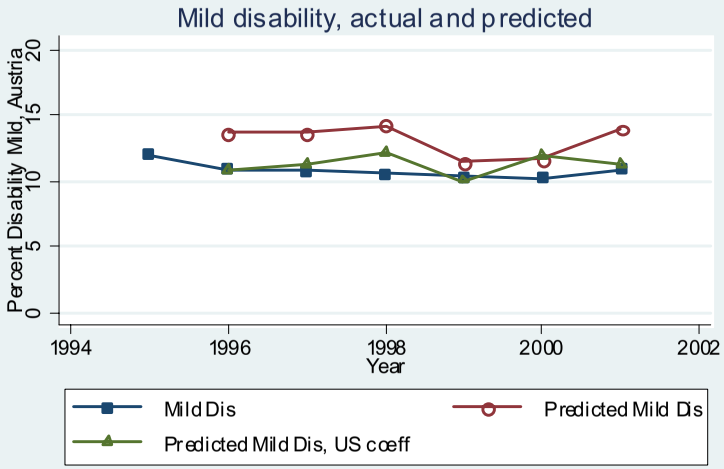
Simulated disability and work Portugal

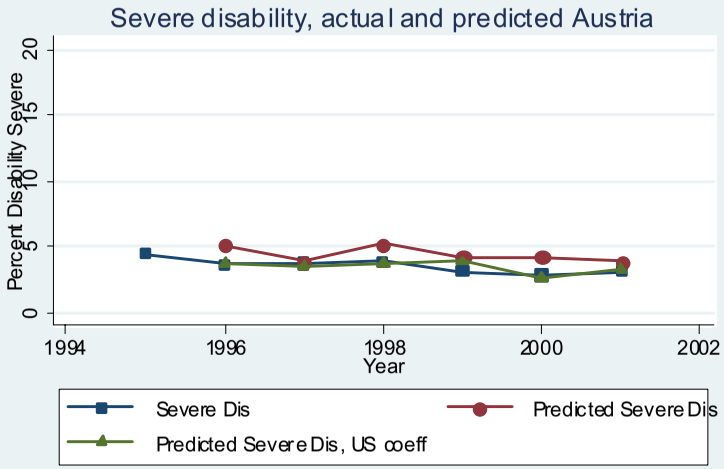


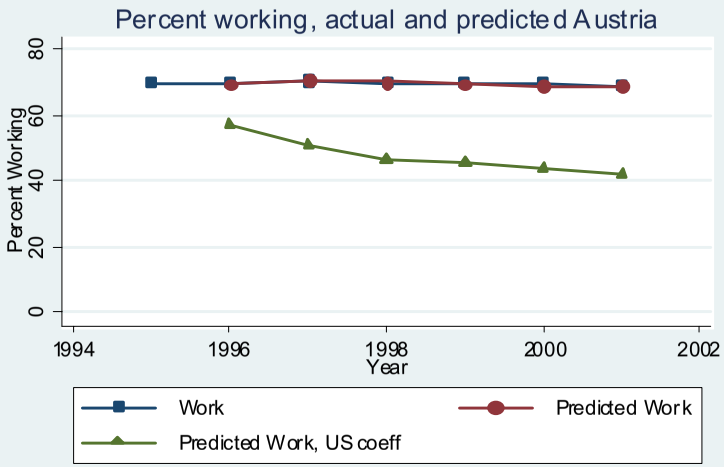




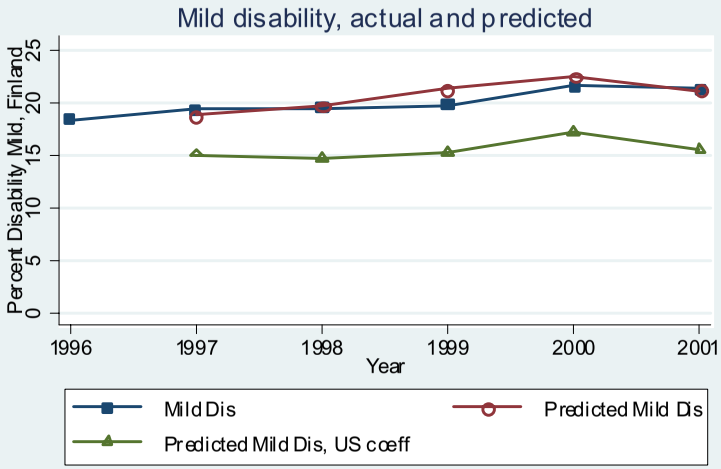
Simulated disability and work Austria

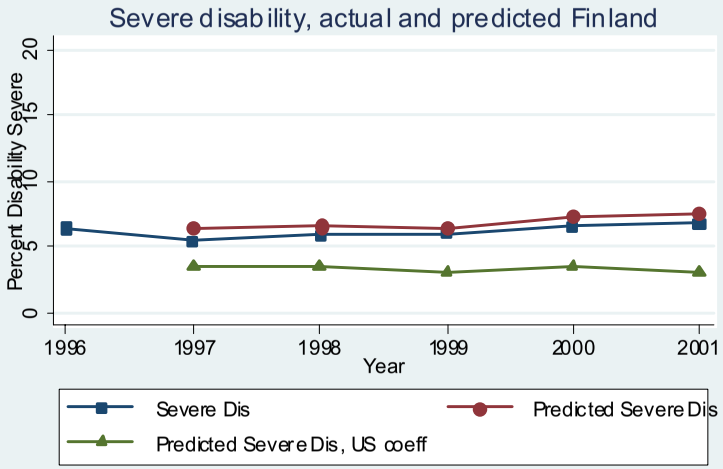


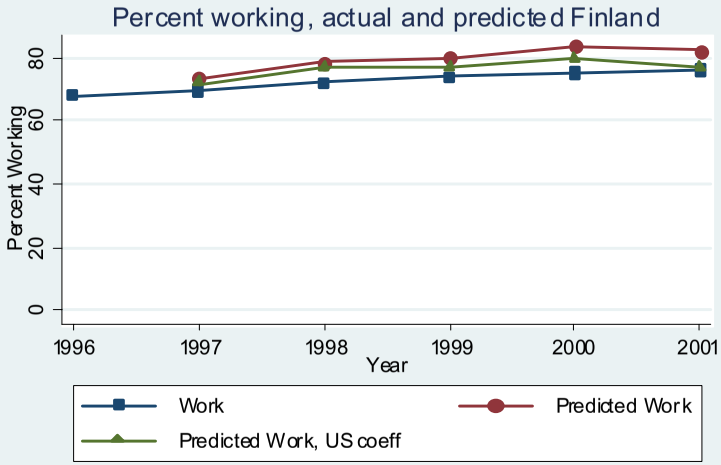




Simulated disability and work Finland







Simulated disability and work United Kingdom