

The Workforce Participation of People with
Disability:
*Infrastructure, Governance and the Cost of
Employment*

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Abstract

Slow progress in employment participation of people with disabilities should come as no surprise given the lack of enabling social capital and infrastructure, an effective funding mechanism, and a structure of work-incentives which integrates taxes and allowances with workforce participation costs.

Part 1 critiques Richard Epstein's *Forbidden Grounds* by accounting for the space-dimension and endowment heterogeneity which are critical dimensions in disability. Part 2 describes the discontinuities involved in negotiating a reliable and continuous pathway to and at work and analyses the impact of these on workforce participation choices. Part 3 uses a traditional labour supply to analyse the discontinuities in labour supply that result from restricted choice, and applies the analysis in a simple simulation model which integrates Federal and State taxes and subsidies with the discontinuities of negotiating the journey to work. Part 4 comments on funding the Disability Discrimination Act and the demand for labour.

Introduction

There is in general significant community support ¹ for people with disabilities, and in the last two decades this community support has been backed up by legislative initiatives world-wide. ² Despite some progress, people with disabilities have however by and large been disappointed with the pace of progress, particularly in terms of progress in employment participation. Furthermore, there has been judicial and intellectual backlash in the United States because the ADA has not led to a significant increase in employment participation by people with disabilities, and some argue that it has led to a decrease ³. This backlash has recently also made its way into Australian debate ⁴.

Definitional changes in 1998 make comparisons between 1993 and the subsequent Australian Bureau of Statistics quinquennial surveys of Ageing and Disability problematical, but they support the view that at best there has been little progress and at worst participation has decreased ⁵. Crude comparisons suggest that the employment participation rate of persons **with** disability fell from 54.9% in 1993 to 53.2% in both 1998 and 2003 while the participation rate of persons **without** disability increased from 76.9% to 80.1% and 80.6%. Although the unemployment rate of persons with disability fell significantly from 17.8% to 8.6% over the period, the decrease may be partly explained by the decrease in the participation rate and improved economic conditions overall rather than increased social participation by persons with disability.

More critically from a human rights/social justice perspective, the participation rate decreased from:

- 18.9% to 15.2% for people with “profound” activity restrictions;
- 40.2% to 35.8% for people with “severe” activity restrictions;
- 56.5% to 50.8% for people with “mild” activity restrictions; and
- 46.4% to 44.9% for people with employment or schooling or employment restriction only.

¹ Tony Eardley, Peter Saunders and Ceri Evans, *Community Attitudes Towards Unemployment, Activity Testing and Mutual Obligation*, SPRC Discussion Paper No. 107, May 2000.

² The World Bank Group, *Social Protection, Disability Overview*, 2004 at <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALPROTECTION/EXTDISABILITY/0,,menuPK:282706~pagePK:162100~piPK:159310~theSitePK:282699,00.html> [accessed on 25/02/05]

³ Richard A. Epstein, *Forbidden Grounds: The Case against Employment Discrimination Laws*, Harvard University Press, Cambridge Massachusetts, 1992.

⁴ Peter Saunders, *Australia's Welfare Habit and How to Kick It*, St. Leonards, N.S.W., Centre for Independent Studies, 2004.

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The only increase in the participation rate (from 46.3% to 47.9%) occurred for persons with “moderate” activity restriction increased.

Some commentators suggest that the decrease in the participation rate implies that the anti-disability discrimination laws are at best useless and at worst dysfunctional in promoting the employment of people with disabilities and that the DDA ought to therefore be repealed. Before coming to rash conclusions, it is important to examine whether or not other factors may be at work to explain the unexpected workforce participation effect and whether the expectations for a rapid improvement in employment participation might not have been unreasonable.

This paper argues that the slow progress in employment participation of people with disabilities should come as no surprise. This is because employment participation is the end result of a wide set of pre-conditions which are, but should not be, be taken for granted for a person with a disability even if they can be for an “average” worker. These pre-conditions include:

- an enabling infrastructure of transport, buildings and services
- a holistic structure of work-incentives which integrate Federal and State taxes, grants and allowances at the margin and the additional cost of negotiating a reliable and continuous journey to and at work and
- a financial mechanism for affecting the demand of employers for workers with disabilities.

Part 1 demonstrates the importance of geography and endowment heterogeneity in an analysis of disability by critiquing Richard A. Epstein’s argument for repealing the Americans for Disability Act in *Forbidden Grounds*. Part 2 outlines the necessary pre-conditions for workforce participation by people with disability, and shows how the cost to people with disability of negotiating a reliable and continuous pathway to and from work can be incorporated into the traditional neoclassical labour-leisure model of labour supply. Part 3 analyses the supply of labour by focusing on the “incremental cede rate” and presents a simple simulation model which integrates Federal and State taxes and subsidies with the

⁵ Australian Bureau of Statistics, *Disability, Ageing and Carers, Australia: Summary of Findings*, Publication No. 4430, 1993, 1998 and 2003

additional cost of negotiating the journey to work. Part 4 makes some comments on the demand for labour and its implications for hiring people with disability.

Part 1: Repealing the ADA/DDA: Richard A. Epstein's *Forbidden Grounds*

Richard Epstein's call for repeal of the Americans for Disability Act has been cited in Australia by both the Productivity Commission and the Australian Building Codes Board's Regulatory Impact Statement relating to the Disability Building Standards ⁶. This is despite the fact that Epstein spends only 20 of the 400-page book on disability, and merely generalises his gender and race-based arguments without examining the specific details of disability or questioning how disability may differ from race and gender.

Epstein uses a simple Becker-type model to argue that the unemployment of people with disabilities is not due to discrimination but more likely due to the additional costs likely to result from employing a person with a disability. He concludes that it would be more efficient to segregate persons with disability into separate workplaces instead of requiring the integration called for by the ADA.

The argument can be illustrated by a simple example in which 20 wheelchair users need a ramp to get into their workplace, the annualised fixed cost plus maintenance cost of a ramp is \$2,000 per year and the wage of a wheelchair user is fixed by law to be no lower than a non-wheelchair user. Workers are assumed to be homogeneous in all characteristics other than their need for a ramp, and employment participation is assumed to be independent of transport costs.

For this example, it is clearly more efficient to require one employer to employ 20 persons with a disability in one location instead of requiring 20 employers to each employ one person with a disability. Segregation avoids the cost of building 20 ramps in 20 locations and therefore costs only \$2,000 as opposed to the \$40,000 cost of employing 20 wheelchair users in 20 locations.

⁶ Productivity Commission, *Review of the Disability Discrimination Act 1992*, Report no. 30, Melbourne, 2004, p. 161; Australian Building Codes Board, *Disability Standards for Access to Premises, Draft Regulatory Impact Statement*, 2004 p. 38.

Transport Costs

One of the most significant additional costs of living due to disability for many wheelchair users is transport costs ⁷. While all workers face direct expenditures, time costs and uncertainty in the journey to work, wheelchair users face substantially higher direct, time and uncertainty costs than other employees. In general, buses, trains and ferries do not provide a relatively certain, inexpensive and continuous path of travel between any two locations.

Even when rail stations at the two relevant transport nodes are nominally accessible, the realities are that a guard will not always be available to assist with the ramp from the platform to the train, or one of the lifts will not be working - forcing the wheelchair user to go to the next accessible station and to then make their way back to their desired destination by taxi, bus or wheeling - arriving at their destination between one and three hours behind schedule, and out of pocket. The result of these regular uncertainties and gaps is to make taxi transport and private transport less costly to a person with a disability than public transport – in contrast to people without disability, and even between two accessible nodes. When one of the two nodes in the transport network is not even nominally accessible, the person with the disability has no choice other than to use a taxi or private vehicle where ambulatory persons in a similar socioeconomic position and with similar preferences would use a train, bus or ferry.

How does the additional cost of transport effect Epstein's conclusions? If we assume that the real cost of public transport is \$3 per trip, the cost of private/taxi transport to a central segregated workplace is \$20 per trip and that private/taxi cost of transport to an integrated workplace closer to the wheelchair user's home is \$10 per trip, then the additional cost of transport per year for a wheelchair user will be \$3,360 in the integrated workplace and \$8,160 p.a. ⁸ in the segregated workplace. In this model, the \$4,800 p.a. saving in transport costs per person to the integrated workplaces more than make up for the \$2,000 cost per ramp.

⁷ The Australian Quadriplegic Association, *A Survey of the Unavoidable Cost of Disability Among 200 People with Quadriplegia*, Matraville, NSW; February 1999.

⁸ i.e. differential cost * 2 trips per day * 240 days per year = 7*2*240 in the integrated workplace and 17*2*240 in the segregated workplace.

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This simple counter-example implicitly assumes that wheelchair users adjust behaviour by living closer to their workplace in order to reduce transport costs and that as a result, the private transport costs to the integrated workplaces is \$10 per trip less than the transport costs to the segregated workplace. It could be argued that wheelchair users are as likely to adjust behaviour by living closer to the segregated workplace and that there would therefore be no savings.

This objection merely pushes back the argument however because wheelchair users (and people with other impairments and disabilities) generally also have other needs. Foremost among the other non-discretionary needs are paid and unpaid personal assistance with dressing, hygiene, cleaning, cooking, shopping, and banking.

Even if a wheelchair user does move so that they live closer to their workplace, the same cannot be assumed about family members and friends who provide a significant amount of **unpaid** personal assistance. If an unpaid family member and/or friend lives far from the wheelchair user, then they will bear the cost of travelling to the wheelchair user's home and the immediate transport costs of the wheelchair user will be reduced and even eliminated, but the savings will be at the expense of the additional transport costs of the unpaid family member or friend. If the unpaid family member or friend also moves closer to the wheelchair user and their workplace, then the associate will bear a higher cost in travelling to their own workplace. In either case, the resource costs would merely be shifted – and not eliminated.

The only way that a segregated workplace does not involve higher costs than decentralised workplaces is if the wheelchair user and their unpaid associates and the location of the unpaid associates' workplace are all in the same location. This is hardly the reality of a modern geographically dispersed metropolitan economy where location is itself a good and location is one of the least important factors in determining labour market matching of demand and supply.

The above suggests that Epstein's conclusion that segregation is more efficient than the decentralised integration of the ADA depends critically on the additional transport costs from a segregated workplace being less than the cost of the several ramps needed in decentralised workplaces. This of course is an empirical issue which needs to be carefully modelled to account for third party resource, time and workplace participation effects.

Labour Market Skills

Epstein's argument also implicitly assumes that the skills required at a segregated employment location can accommodate each of 20 wheelchair users at lower cost than can 20 decentralised employment locations. This time, the implicit assumption is that labour is fungible and/or homogeneous.

This is a highly unrealistic assumption in a complex labour market where people have a wide range of skills. Some wheelchair users will be unskilled, others will have a high degree of general skill in one vocation but not another while others will have a high degree of sector-specific skills within a vocation. To assume that an architect, a physicist, a sculptor, a foreign exchange dealer and bricklayer are all employable at the same location simply because they are all wheelchair users is ludicrous⁹.

If a wheelchair user is an architect, surely it would be less expensive to build a ramp to an office which employs several architects than to set up a single architecture subsidiary office in an industrial park where the only characteristic of the industrial park is its accessibility to several single offices accommodating the wide range of specific skills of the wheelchair users. To retrain the workers to a common set of skills that could accommodate a single site would merely shift the nature of the costs from physical construction to training, and to ignore the skills by accommodating the lowest common denominator of skills shifts the costs from expenditures to the opportunity costs of skills foregone. Contrary to Epstein's implicit assumption, the building costs, retraining costs and opportunity costs cost of accommodating locations to skills is likely to be less than the cost of accommodating skills to location, but the issue is ultimately empirical rather than a priori.

The Epstein argument ignores the heterogeneity of location and heterogeneity of specific skills. The real world equivalent of this sort of model is one where persons with disability are devoid of specific skills and where they all live in a single location. It is consistent with the whole-of-life institutionalised segregation which existed in the past, but

⁹ It brings to my daughter's high school teacher who apparently in all seriousness asked my daughter whether my daughter, being a wheelchair user was related to the wheelchair user who had attended the same school six years earlier.

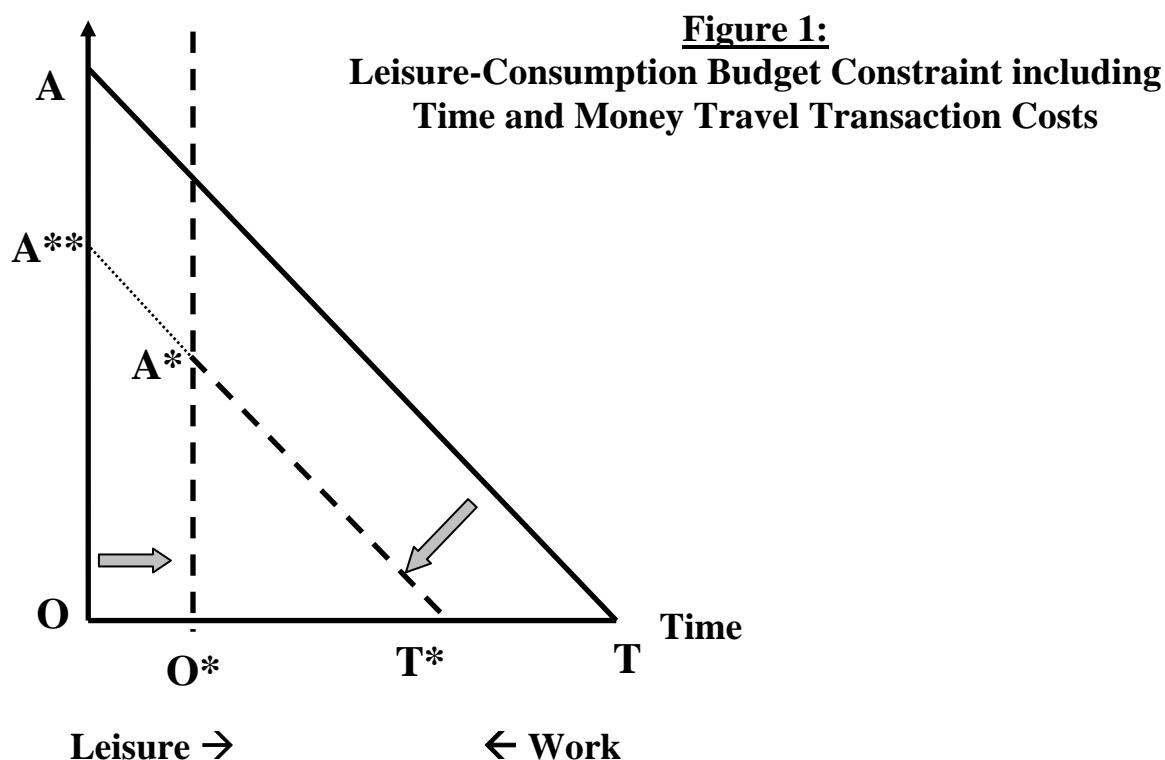
inconsistent with the wishes of most people with disability, inconsistent with the wishes of most family members and friends of persons with disability, inconsistent with the range of specific skill endowments embodied in persons with disability and inconsistent with social mores.

Part 2: Choice and the Preconditions for Workforce Participation

The “average citizen” takes for granted a fairly continuous, regular and inexpensive path of travel between the bed they wake up in and their workplace because individuals, businesses and governments work to ensure such an outcome. Discontinuities are usually quickly filled by the market, and where the market “fails” or is “too slow”, governments or other institutions come into play as co-ordinators, facilitators or direct providers.

Discontinuities affect labour supply for two reasons. Firstly, the time required to negotiate discontinuities reduces the time available for work and secondly, the expenditure involved in negotiating discontinuities reduces the amount available for the consumption to which work is the end, and thereby increases the opportunity cost of time taken to work relative to leisure.

The discontinuities are generally ignored in traditional labour supply models because they are quickly filled, but they can be easily incorporated into the model. The first time effect can be represented by a rightward shift in the time endowment, and the second effect can be represented by a downward/leftward shift in the leisure-consumption budget constraint. Thus in Figure 1, the leisure-consumption constraint is normally represented by the line AT where the x-axis represents time, OT represents time endowment) with leisure being shown by moving rightward from the origin O and work being show by moving leftward from T, the y-axis represents consumption, and the slope of the line TA represents the wage rate. When time is used up negotiating travel, the time available for both work and leisure is reduced so that the origin moves to O* and when a fixed amount AA** is spent on negotiating travel, the leisure-consumption constraint shifts to A*T*.



Negotiating discontinuities is highly pertinent for people with disabilities because in general the path of travel from the bed to the workplace and then around the workplace is not continuous, regular or inexpensive. Getting to work and being at work costs both time and money. To get to work on time in the morning in a regular way, a wheelchair user will in general need assistance to get out of bed, get dressed and have breakfast; need to have access to a structurally sound and useful maintained wheelchair; and have access to both a transport system in full working order and fully accessible buildings. Contact with suppliers, clients and work colleagues also require negotiating discontinuities buildings, equipment and social behaviours.

Where the discontinuity cannot be resolved technologically, resolution will require an external agency, and the uncertainty and potential conflict of interest which follows from agency. Thus:

- Personal assistance requires a paid or unpaid person whose interests will in general not coincide with the interests of the person with the disability;
- A reliable wheelchair requires tyres, battery power and structural integrity as well as speedy maintenance from a paid or unpaid mechanic;
- A fully accessible transport system requires all mechanical equipment to be maintained since failure at one junction in a node (e.g. one faulty lift out of the two needed to

get from platform to the street) makes the whole station inaccessible, and a fully accessible transport system will reliable and speedy assistants to ensure that the ramp from the platform to the train is available in the correct location; and

- Accessible buildings require not only that one's own workplace be accessible, but that workplaces and the various public places where workers interact socially (whether pub, café, bistro or karaoke club) also be accessible.

The agency problems, frictions, delays and uncertainties can be reduced by means of a mix of private/public and administrative/institutional/engineering solutions, but such solutions will generally involve additional cost above those needed to accommodate the "average citizen". Where the solutions are not accommodated publicly by government or by the private institutions, the additional cost will be born by the individual wheelchair user and/or her/his associates in the form of additional time taken to overcome discontinuities and in the form of direct payment for service.

The examples above are for wheelchair users, but the argument can be generalised for people with other disabilities, for whom the preconditions will be different but nevertheless just as real. Thus, a person with a psychiatric disability who is physically able-bodied will not require infrastructure preconditions, but s/he will require attitudinal preconditions by employers, clients and colleagues at the workplace as well as by members of the community. The necessary preconditions may involve flexibility in timetables, monitoring and social interaction; variations in expectations and differences in the quantity and nature of workplace training; and patience. The preconditions can of course be met, but again, the solutions will generally involve additional cost above those needed to accommodate the "average citizen".

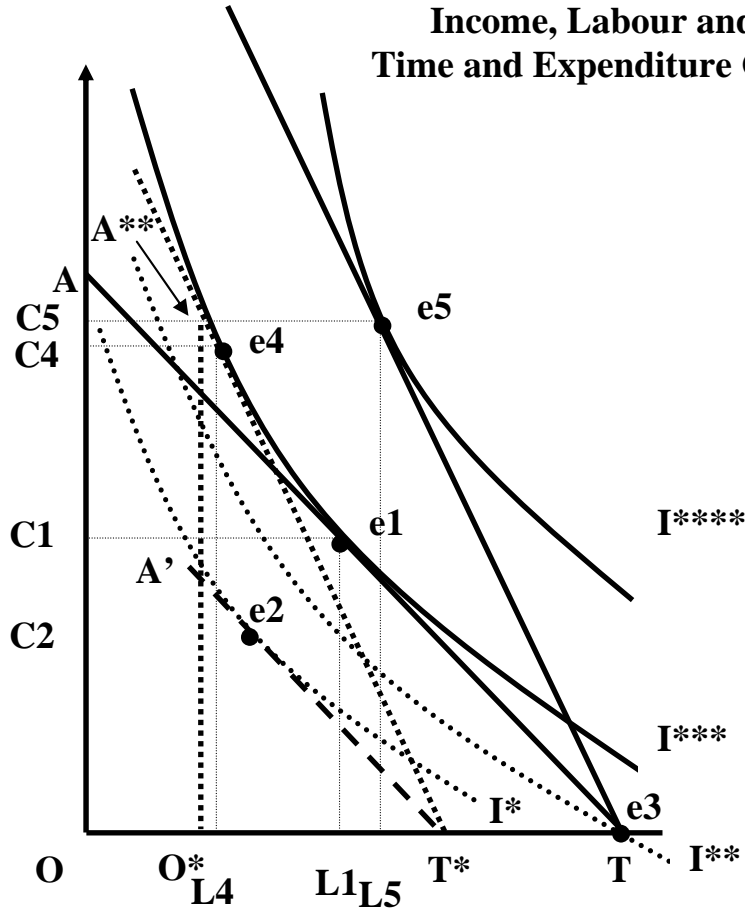
Part 3: The Supply of Labour

The Traditional Neoclassical Labour-Leisure Model

The traditional labour supply model can be used to show that discontinuous labour supply effects can result from both discontinuities in the journey to work and continuities in labour-leisure preferences, while a simple journey to work simulation can be used to show the discontinuities that result from integrating tax and social security parameters into the journey to work model.

Figure 2:

Income, Labour and Leisure in the Presence of Time and Expenditure Costs in the 'Journey' to Work



Thus in Figure 2 the wage rate is given by OA/OT ; everyone faces the same leisure-consumption preferences represented by the usually shaped indifference curves $I^* \dots I^{****}$; AT is the budget constraint of people without disability; A^*T^*T is the kinked budget constraint of people with time-and-expenditure transaction costs; and $e1$ and $e3$ show the equilibrium conditions for the budget constraints of people without and with disabilities respectively.

Figure 2 shows that people who do not need to negotiate a continue path of travel to work undertake T_L1 hours of labour, enjoy O_L1 hours of leisure and have O_C1 available for discretionary spending. By contrast for people with disabilities who face time and expenditure transaction costs, the corner equilibrium $e3$ occurs on a higher indifference curve I^{**} than the interior tangency point $e2$ on I^* so they do not participate in the workforce and have no discretionary income/consumption. People with disabilities do of course have more hours of leisure O^*_T , even if the term 'leisure' is a misnomer when much of the leisure

infrastructure is inaccessible and individuals have no income to complement their leisure-time.

In Figure 2, with higher wages O^*A^{**}/ T^*A^{**} and rightward-rotated budget constraints, the equilibrium of people with disabilities is at $e4$ on indifference curve I^{***} while that for non-disabled workers is at $e5$ on I^{****} .

Figure 2 shows that the discontinuity in leisure hours and work hours that results from an increase in wages is greater for people with disability than the discontinuity that occurs for people without disability whose wages increase above the reservation wage. The greater discontinuity in work hours is because of the shift downward in the budget constraint as a result of expenditure costs, while the extreme discontinuity in leisure hours results from the simultaneous downward shift in the budget constraint from TA to T^*A^* and the rightward shift in the vertical time-endowment line OA to O^*A^* .

Figure 2 also shows that an individual with disability enjoys a mere O^*_L4 hours of leisure compared to the higher O_L5 hours of leisure of persons without disability on the same wage, undertakes T^*_L4 hours of work compared to a similar T_L5 hours worked by persons without disability, and has discretionary consumption O_C4 which is not significantly different from the discretionary income of a person without disability O_C5 . It is an open question whether this result can be generalised.

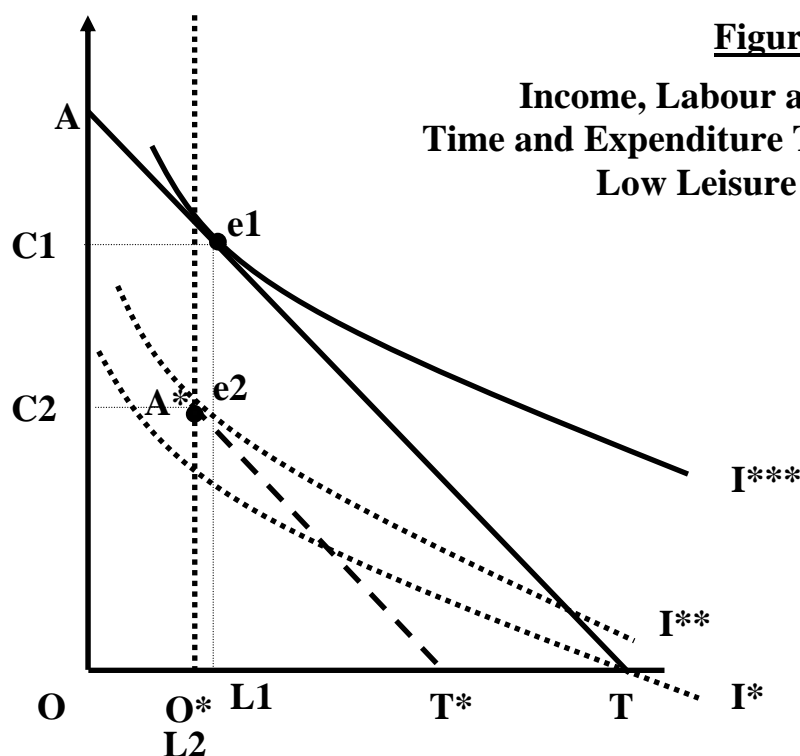


Figure 3:

**Income, Labour and Leisure with
Time and Expenditure Transaction Costs and
Low Leisure Preference**

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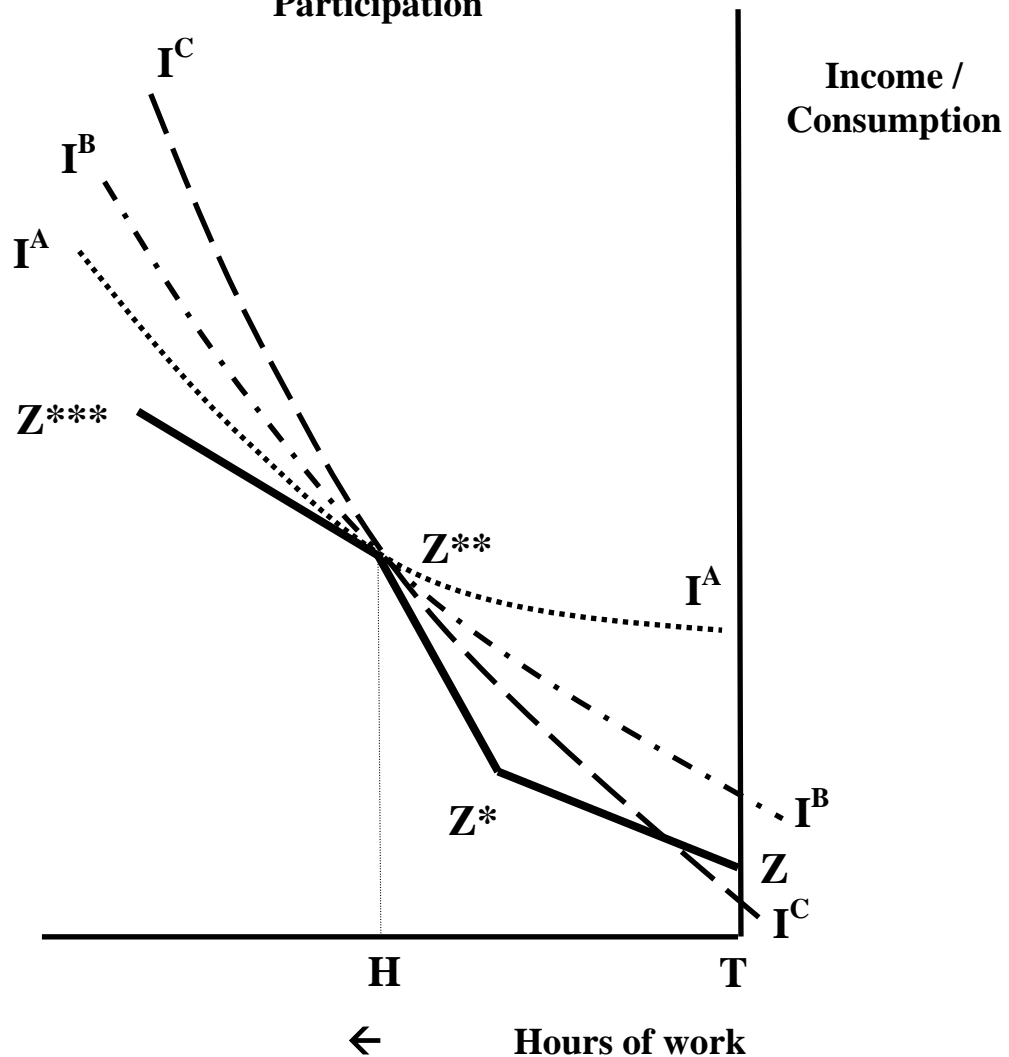
Figure 3 is based on the same low-wage budget constraints as Figure 2 while showing a flatter (less convex) set of indifference maps. The less convex indifference curves suggest a greater work-ethic because the marginal rate of substitution of income for leisure does not diminish as rapidly as leisure time increases. The interior equilibrium e_2 is on a higher indifference curve I^{**} than at T on I^* , implying as one would expect intuitively, that a person with a disability with a sufficient work ethic will participate in the workforce, albeit working fewer hours than a person without a disability ($T^*_O^*$ versus T_{L1}), enjoying significantly less leisure (O^*_L2 versus O_{L1}) and with significantly less discretionary consumption (O_{C2} versus O_{C1}).

Figures 2 and 3 demonstrate that where the infrastructure is such that significant time and expenditure costs are required to overcome obstacles and discontinuities, it will not be worthwhile participating in the workforce unless wages are higher than the wages of those without disability or unless the work ethic is stronger than that of people without disability. The figures also suggest that in general workforce participation discontinuities are greater for people with disabilities than for the population and they suggest that with sufficiently high costs to negotiating the journey to work, people with disability who do participate in the workforce will have less “leisure” time and lower incomes than workers without disability with the same preferences and wages.

The Marginal ‘Tax’ Rate - Incremental Cede Rate

Although the general impact of guaranteed incomes and increasing marginal tax rates on labour force participation are well known, the particular impact of integrating tax and support parameters with workforce participation costs needs particular highlighting because they lead to multiple discontinuities and clustering effects. Figure 4 shows the labour-leisure constraint $ZZ^*Z^{**}Z^{***}$ where there is a guaranteed minimum income (TZ in Figure 4) which is initially taxed at a high “taper” rate (at ZZ^*) then at a low base marginal tax rate (Z^*Z^{**}) and then at a higher marginal tax rate ($Z^{**}Z^{***}$). I^A , I^B and I^C are the decreasingly convex indifference curves of three individuals A, B and C where I^A is significantly more convex than I^B , I^B is only slightly more convex than I^C .

Figure 4:
Impact of Differences in Preferences on Workforce Participation



In Figure 4 the equilibria for individuals A and B are at Z^{**} while for C it is at Z . In Figure 4, where the marginal tax rates decreases (along ZZ^*Z^{**}) there is a discontinuous change in participation as the equilibrium jumps from Z to Z^{**} for a small difference in the convexity; and where the marginal tax rate increases (along $Z^*Z^{**}Z^{***}$), there is clustering at Z^{**} over large changes in convexity. There are only two changes of slope, but when Federal and State tax and support parameters for people with disabilities are integrated with workforce participation costs by individuals, there are multiple changes in slope and therefore several discontinuity and clustering effects.

The four most critical factors which interact with the cost of workforce participation are the income tax scales, the Disability Support Pension taper rate, the rate at which subsidy is withdrawn from the provision of equipment and the additional cost of negotiating a reliable

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and continuous journey to and at work (including the additional cost of transport and the additional cost of personal care). Because different agencies are responsible for the programs there is unsurprisingly minimal co-ordination across agencies and consequently little integration of the thresholds at which the “marginal tax rates” change and where discontinuities and clusters occur. Thus, the income tax schedule and Disability Support Pension are the responsibility of the Commonwealth Government’s Tax Office and Centrelink respectively, the provision of equipment and personal care services is the responsibility of the States thus leading to a wide range of parameters, and the cost of negotiating gaps in the journey to and at work is the responsibility of the individual, complemented with ad hoc subsidies and supports at the State and/or Local Government level and with charities.

Tables 1-4 below provide a simplified analysis of the impact at various incomes of parameter changes on the slopes of the budget lines. The impact (be referred to below as the ICR - incremental cede rate) incorporates the marginal tax rate, the social security taper (or withdrawal) rate and the incremental daily fixed cost of workforce participation. The income levels in the tables are shown at thresholds where incremental tax rates change (\$6,000, \$21,600, \$58,000, and \$70,000), where the DSP begins to be reduced (\$3,172) and where it is completely withdrawn (\$40,634.75), where equipment eligibility priorities change (\$26,759 and \$40,634.75), and at arbitrary levels designed to show intermediate incomes (\$1,500, \$13,500, \$17,000, \$35,000, \$45,000 and \$75,000).

Table 1: Commonwealth Taxes and the Disability Support Pension

The base model for Table 1 relates to a single person, living alone, without a dependent child, and with assets less than \$263,500 who:

- is classified as having a disability, and therefore eligible for the Disability Support Pension (DSP) of \$470.70 per fortnight (\$12,238.20 pa)
- is permitted to earn up to \$122 per fortnight (\$3,172 pa) without any reduction in the DSP, but must give up 40 cents of the DSP per dollar earned in employment when earnings are greater than \$122 per fortnight
- pays tax on earned income according to the regular tax schedule, but is exempt from paying tax on the DSP

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- pays sufficient rent in the private rental market to be eligible for a maximum rental assistance of \$96.80 per fortnight (\$2,516.8 pa) which is withdrawn with additional income at the same rate as the DSP
- being a pensioner, is eligible to receive a pharmaceutical allowance of \$5.80 per fortnight (\$150.8 pa) as well as a telephone allowance of \$3.05 per fortnight (\$79.30 pa)
- is eligible for a mobility allowance of \$68.00 per fortnight (1,768.00) without reference to an income or assets test.

The Commonwealth tax schedule is shown below:

<u>Income</u>	<u>Tax</u>
\$0 – \$6,000	Nil
\$6,001 – \$21,600	17c for each \$1 over \$6,000
\$21,601 - \$58,000	\$2,652 plus 30c for each \$1 over \$21,600
\$58,001 – \$70,000	\$13,572 plus 42c for each \$1 over \$58,000
Over \$70,000	\$18,612 plus 47c for each \$1 over \$70,000

Table 1 shows the ICR at different incomes for the model Disability Support Pension recipient, and compares it to the incremental tax rate for an income earner who is not eligible for the Disability Support Pension.

TABLE 1
Incremental Tax and Taper Rates for Persons With and Without Disability Support Pension

Annual Income	DSP plus related Comm. subsidies	Income Tax	Income after tax and DSP plus related Comm. subsidies:	ICR - Persons with disability (ICR)	Marginal tax rate: Persons without disability	Column 5 minus Column 6
0.00	16,753.10	0	16,753.10	0%	0%	0%
1,500.00	16,753.10	0	18,253.10	0%	0%	0%
3,172.00	16,753.10	0	19,925.10	40%	0%	40%
6,000.00	15,621.90	0	21,621.90	57%	17%	40%
13,500.00	12,621.90	1,275.00	24,846.90	57%	17%	40%
21,600.00	9,381.90	2,652.00	28,329.90	70%	30%	40%
26,759.00	7,318.30	4,199.70	29,877.60	70%	30%	40%
35,000.00	4,021.90	6,672.00	32,349.90	70%	30%	40%
40,634.75	1,768.00	8,362.43	34,040.33	30%	30%	0%
45,000.00	1,768.00	9,672.00	37,096.00	30%	30%	0%
58,000.00	1,768.00	13,572.00	46,196.00	42%	42%	0%
70,000.00	1,768.00	18,612.00	53,156.00	47%	47%	0%
75,000.00	1,768.00	20,962.00	55,806.00			

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Table 1 shows that for income levels from \$3,172 to \$40,634.75, the ICR is 40% above the incremental tax rate and that only at incomes above \$40,436.50 are the incentives for workforce participation the same for people with disability as they are for people without a disability. The high differential results from the “double taxation” of income implied by the 40% taper rate applying to the DSP when earnings are greater than \$122 per fortnight and the taxation of the income at the ordinary scale.

Much of the community discussion around marginal tax rates for people without disability and their effect on incentives has argued that the top rate of 47% for high income earners is “punitive” and that it discourages workforce participation, yet people with disabilities on low incomes face a significantly higher ICR of 40-70%. It should come as no surprise that workforce participation by people with disabilities is low, particularly when account is taken of the fact that:

- the level to which children with congenital disabilities were educated in the past was low, with a consequent high probability that their adult incomes will also be low
- the loss of human capital and specific skills that often occurs when a person acquires a disability also lowers their potential income
- community and employer discrimination leads to low income offer rates.

If a 47% marginal tax rate is indeed punitive, then Table 1 suggests that low income individuals with disabilities are given less incentive to work than people without disabilities on the same incomes, and that high income individuals with disabilities with the same incentive to work, are taxed at a rate which is considered by some to be “punitive”.

Under the Commonwealth-State Disability Agreement, the provision of equipment for people with disabilities is the responsibility of the states. Programs vary across states in the nature of the equipment provided, co-payments, eligibility criteria and administration. Because the programs are under-funded, the programs are subject to waiting lists and there is a high degree of uncertainty in the provision of equipment. While personal factors and advocacy are important means of allocation, the most useful generalisation for economic purposes is to assume that allocation is on the basis of means and the nature of the equipment.

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The Equipment program is modelled on the assumption that the DSP recipient buys equipment valued at \$2,000 every year (equivalent to a \$10,000 wheelchair with a life of 5 years) and that where the equipment is not financed by the state, it will be self-financed and thereby lead to a decrease in discretionary income.¹⁰ The uncertainty in the provision of finance is modelled by applying probability weights to the value of the equipment purchase, with the probability of being funded decreasing with income.

Table A			
Expected Value of Support for Equipment for People with Disability \$			
Band	Income	PADP(1)	PADP(2)
1	1,500.00	1,960.00	2,000.00
1	3,172.00	1,915.41	2,000.00
1	6,000.00	1,840.00	2,000.00
1	13,500.00	1,640.00	2,000.00
1	21,600.00	1,424.00	2,000.00
1	26,759.00	1,286.43	2,000.00
2	35,000.00	1,066.67	1,500.00
2	40,634.75	966.28	1,500.00
3	45,000.00	800.00	1,000.00
3	58,000.00	453.33	1,000.00
3	70,000.00	133.33	1,000.00
4	75,000.00	0.00	500.00

Source: Circular 2000/103, Program of Appliances for Disabled People (PADP) Policy, p. 6 of 59 from www.health.nsw.gov.au/fcsd/rmc/cib/circulars/2000

The two probability distributions implied in Table A represent two extremes in how people with disability may perceive the likelihood of receiving equipment. Thus, the expected value of state support for to PADP(1) declines continuously and is inversely related to the distance from income of \$75,000 while the expected value for PADP(2) declines step-wise in line with that implied by the NSW PADP policy document. A number of alternative probability weights were simulated, but the two extremes shown in Table 1 are sufficient to show the impact on the ICR.

Table 2 adds the expected value of support distributions of Table A to the tax and DSP regimes of Table 1.

¹⁰ The alternative assumption, to treat the provision of equipment by the state as income makes no difference to conclusions relating to the incremental cede rate even if it affects the extent to which disposable income is interpreted as being available for discretionary consumption or all consumption.

TABLE 2
ICR after tax, DSP and PADP

Annual earned Income	Income after tax and DSP plus related Comm. subsidies	PADP(1)	Income after tax, DSP and PADP(1)	ICR with PADP (1)	PADP(2)	Income after tax, DSP and PADP(2)	ICR with PADP (2)
0.00	16,753.10	0.00	16,753.10	3%	0.00	16,753.10	0%
1,500.00	18,253.10	-40.00	18,213.10	3%	0.00	18,253.10	0%
3,172.00	19,925.10	-84.59	19,840.51	43%	0.00	19,925.10	40%
6,000.00	21,621.90	-160.00	21,461.90	60%	0.00	21,621.90	57%
13,500.00	24,846.90	-360.00	24,486.90	60%	0.00	24,846.90	57%
21,600.00	28,329.90	-576.00	27,753.90	73%	0.00	28,329.90	70%
26,759.00	29,877.60	-713.57	29,164.03	73%	0.00	29,877.60	76%
35,000.00	32,349.90	-933.33	31,416.57	72%	-500.00	31,849.90	70%
40,634.75	34,040.33	-1,033.72	33,006.61	34%	-500.00	33,540.33	41%
45,000.00	37,096.00	-1,200.00	35,896.00	33%	-1,000.00	36,096.00	30%
58,000.00	46,196.00	-1,546.67	44,649.33	45%	-1,000.00	45,196.00	42%
70,000.00	53,156.00	-1,866.67	51,289.33	50%	-1,000.00	52,156.00	57%
75,000.00	55,806.00	-2,000.00	53,806.00		-1,500.00	54,306.00	

Table 2 shows that for PADP(1) the ICR increases across all income ranges by a 2-4% while for PADP(2) the rate increases by 6%, 11% and 10% at the three steps where the expected funding for equipment decreases by \$500, and but is the same as in Table 1 for other income ranges. It can easily be shown that where the funding for equipment involves higher cost items, the percentages are commensurately higher at the same threshold incomes as above but the location of ICR changes is not affected.

The difference between PADP(1) and PADP(2) highlights the ideal of eligibility criteria which are seen to be continuous, as in PADP(1) rather than step-wise as in PADP(2). To translate the ideal into practical policy is difficult however because to do so would make the eligibility criterion complex and thereby less transparent and less accountable. The most that can be said is that a larger number of income bands to more closely approximate continuity would increase the number of thresholds, while reducing the ICR at each threshold.

Table 3: Costs of Negotiating a Reliable Continuous Journey to Work

Modelling the additional cost of negotiating a reliable continuous journey to, from and at work is based on the number of trips or number of days worked per week and the wage rate. The simulation in Table 3 assumes that:

- the additional cost of negotiating a reliable continuous journey to and at work is \$30 per day, including the additional cost of using a taxi instead of public transport (including the booking fees and phone calls and accounting for the taxi transport subsidy scheme) as well as organising reliable and timely personal care
- the individual travels to work 48 weeks per year
- the maximum length of a workday for someone working less than 5 days per week is 8.5 hours, and that the length of workdays are organised by individuals to minimise the number of trips to work per week. Thus, an individual earning \$34,941 p.a. on a wage of \$20/hour works 33.6 hours in 4 days and while on a wage of \$30/hour, the individual work 22.4 hours in 3 days.

Table 3 adds the additional costs of negotiating a fairly continuous and regular journey to and at work to the tax and DSP regimes of Table 1 for three model workers earning the amounts shown in Column 1 with gross wages of \$20, \$30 and \$40 per hour.

Table 3 shows or implies that:

- the ICR for workers earning from \$6,000 to \$40,000 ranges from a minimum of 57% to a maximum of 98%
- the ICR increases by 19-41% over the base ICR of Table 1 at the discrete income steps where the number of journeys to work increases discretely, and they are the same as in Table 1 for other incomes
- the ICR is discontinuous, increasing significantly when there is an increase in the number of days worked and non-decreasing when the number of days remains constant
- the ICR for a person with a disability is the same as the ICR of a person without a disability only for workers who journey to work five days per week, or whose incomes are above the DSP eligibility cut-off who increase income without increasing the number of trips
- the ICR of an additional \$5,000 earned working 7.2 hours per day over 5 days instead of working 8.4 hours per day over 4 days for a person whose wage is \$40/hour and income is therefore \$70,000 is 76%, or 29% above the marginal tax rate of a person without disability.

The Workforce Participation of People with Disability

TABLE 3

ICR after tax, DPS and Cost of Negotiating the Journey to Work

Annual earned Income	<u>Assuming \$20 per hour</u>					<u>Assuming \$30 per hour</u>					<u>Assuming \$40 per hour</u>				
	No. of days work per week	Disability negotiation costs \$ p.a.	Income after tax, DSP and neg. costs \$ p.a.	ICR with neg. costs %	+se over Table 1 %	No. of days work per week	Disability negotiation costs \$ p.a.	Income after tax, DSP and neg. costs \$ p.a.	ICR with neg. costs %	+se over Table 1 %	No. of days work per week	Disability negotiation costs \$ p.a.	Income after tax, DSP and neg. costs \$ p.a.	ICR with neg. costs %	+se over Table 1 %
0.00	0	0.00	16,753.10	96%	96%	0	0.00	16,753.10	96%	96%	0	0.00	16,753.10	96%	96%
1,500.00	1	1,440.00	16,813.10	0%	0%	1	1,440.00	16,813.10	0%	0%	1	1,440.00	16,813.10	0%	0%
3,172.00	1	1,440.00	18,485.10	40%	0%	1	1,440.00	18,485.10	40%	0%	1	1,440.00	18,485.10	40%	0%
6,000.00	1	1,440.00	20,181.90	76%	19%	1	1,440.00	20,181.90	76%	19%	1	1,440.00	20,181.90	57%	0%
13,500.00	2	2,880.00	21,966.90	57%	0%	2	2,880.00	21,966.90	57%	0%	1	1,440.00	23,406.90	98%	41%
17,000.00	2	2,880.00	23,471.90	88%	31%	2	2,880.00	23,471.90	57%	0%	2	2,880.00	23,471.90	57%	0%
21,600.00	3	4,320.00	24,009.90	70%	0%	2	2,880.00	25,449.90	98%	28%	2	2,880.00	25,449.90	70%	0%
26,759.00	3	4,320.00	25,557.60	87%	17%	3	4,320.00	25,557.60	70%	0%	2	2,880.00	26,997.60	70%	0%
35,000.00	4	5,760.00	26,589.90	96%	26%	3	4,320.00	28,029.90	96%	26%	2	2,880.00	29,469.90	96%	26%
40,634.75	5	7,200.00	26,840.33	30%	0%	4	5,760.00	28,280.33	30%	0%	3	4,320.00	29,720.33	30%	0%
45,000.00	5	7,200.00	29,896.00	30%	0%	4	5,760.00	31,336.00	41%	11%	3	4,320.00	32,776.00	41%	11%
58,000.00	5	7,200.00	38,996.00	42%	0%	5	7,200.00	38,996.00	42%	0%	4	5,760.00	40,436.00	42%	0%
70,000.00	5	7,200.00	45,956.00	47%	0%	5	7,200.00	45,956.00	47%	0%	4	5,760.00	47,396.00	76%	29%
75,000.00	5	7,200.00	48,606.00			5	7,200.00	48,606.00			5	7,200.00	48,606.00		

The Workforce Participation of People with Disability

The additional cost of negotiating a reliable and continuous journey to and at work is clearly a significant factor in the workforce participation decision. It adversely affects the incentive to participate in the work force, the number of days worked and the number of hours worked per day. It leads to discontinuities and clustering in workforce participation, and it significantly increases the reservation wage for people with disabilities – leaving as it often does, little pecuniary gain from workforce participation.

Table 4: Equipment Plus the Costs of Negotiating the Journey to Work

Table 4 adds the additional costs of negotiating the journey to work as well as PADP(1) to the tax and DSP regimes of Table 1 for a worker \$30 per hour. It merely shows that the various factors are additive.

TABLE 4
ICR after tax, DPS, Cost of Negotiating the Journey to Work and PADP(1)
assuming \$30 per hour wage

Annual Income	<u>Assuming \$30 per hour</u>				
	Number of days worked per week	Disability negotiation costs per year	PADP(1)	Income after tax, DSP and negotiation costs	ICR with negotiation costs
0.00	0	0.00	0.00	16,753.10	99%
1,500.00	1	1,440.00	-40.00	16,773.10	3%
3,172.00	1	1,440.00	-84.59	18,400.51	43%
6,000.00	1	1,440.00	-160.00	20,021.90	79%
13,500.00	2	2,880.00	-360.00	21,606.90	63%
17,000.00	2	2,880.00	-576.00	22,895.90	60%
21,600.00	2	2,880.00	-713.57	24,736.33	102%
26,759.00	3	4,320.00	-933.33	24,624.27	71%
35,000.00	3	4,320.00	-1,033.72	26,996.18	99%
40,634.75	4	5,760.00	-1,200.00	27,080.33	38%
45,000.00	4	5,760.00	-1,546.67	29,789.33	44%
58,000.00	5	7,200.00	-1,866.67	37,129.33	43%
70,000.00	5	7,200.00	-2,000.00	43,956.00	47%
75,000.00	5	7,200.00	-2,000.00	46,606.00	

Part 4: The Demand for Labour

Governments have met mainly only those costs of funding the Disability Discrimination Act which have fallen on them as direct service providers. Funding has in general been placed on private sector developers, service providers and employers. While the DDA obligates accessible design and forbids both direct and indirect discrimination against people with disability, a broad loophole permits discrimination where the defendant can show that reasonable accommodation of the complainant's claim would cause "unjustifiable hardship" to the defendant. The definition of unjustifiable hardship has never been clearly spelt out, and although the Human Rights and Equal Opportunities Commission has published Guidelines¹¹ which make them resemble a cost-benefit analysis, the methodology for conducting a cost-benefit analysis remains vague and general and provides little guidance. Little certainty is provided, and consequently obligations are ill-defined.

The following are a sample of some of pertinent questions and issues relating to the demand for employing people with disability.

1. Who bears the burden of an impost? The Case of Competitive Industries

One of the consensus issues on which economists generally agree is that the real burden of an impost is not the same as the nominal burden, and that the real burden depends on the degree to which costs can be passed forward onto consumers, or backwards onto suppliers.

When an impost is imposed equally on all firms in a competitive industry, the firms in the industry will in general be able to pass the cost forward or backwards, but where the impost varies across firms, the cost cannot be passed on and it will be born by the firm. In general, the fixed costs of accommodating a person with a disability in employment will vary significantly across individuals because of the wide variation in impairments and the consequent wide variation in the costs of the obstacle-reducing technologies.

¹¹ Human Rights and Equal Opportunity Commission, *Advisory Notes on Access to Premises*, Appendix A at http://www.hreoc.gov.au/disability_rights/standards/Access_to_premises/premises_advisory.html#6.3 [accessed on 25/02/05].

If the industry is competitive, then the firm will be making little or no economic profit even before the impost. As a result, a firm facing a higher cost because it needs to accommodate the additional costs of employing a person with a disability is likely to face an economic loss to the extent that it bears the burden of the impost. For many small businesses operating in a competitive environment, with low economic profits, this is a serious issue. It is unclear whether this kind of scenario would pass the unjustifiable hardship defence or not, but a case can certainly be made that the impost is unjustified and that discrimination is permissible.

If so, this suggests that only firms in non-competitive industries would be unable to defend discrimination on the basis of unjustifiable hardship. The irony is that only firms in non-competitive industries are likely to have the resources to defend a discrimination case.

If it is further argued that in a globalised competitive world economy, there are arguably few industries which are not competitive in the sense of earning sustainable and regular long-term excess profits. If this view is accepted, then the unjustifiable hardship clause arguably narrows the scope of disability discrimination legislation considerably.

2. Are subsidies to employers likely to be effective in encouraging the employment of people with disability? The Displacement Effect

A firm's demand for labour is derived from the demand for its goods and services by consumers and customers. When a fixed subsidy is offered to employ a worker preferentially, the firm will accept the subsidy if it is sufficient to cover the cost of any additional fixed cost that such employment would entail, and otherwise reject the subsidy as inadequate. In the former case, the preferential employment will be at the expense of another employer because the subsidy will not of itself increase the demand for labour but will merely result in a substitution of one worker for another. When the employer rejects the subsidy, there is obviously no employment effect¹².

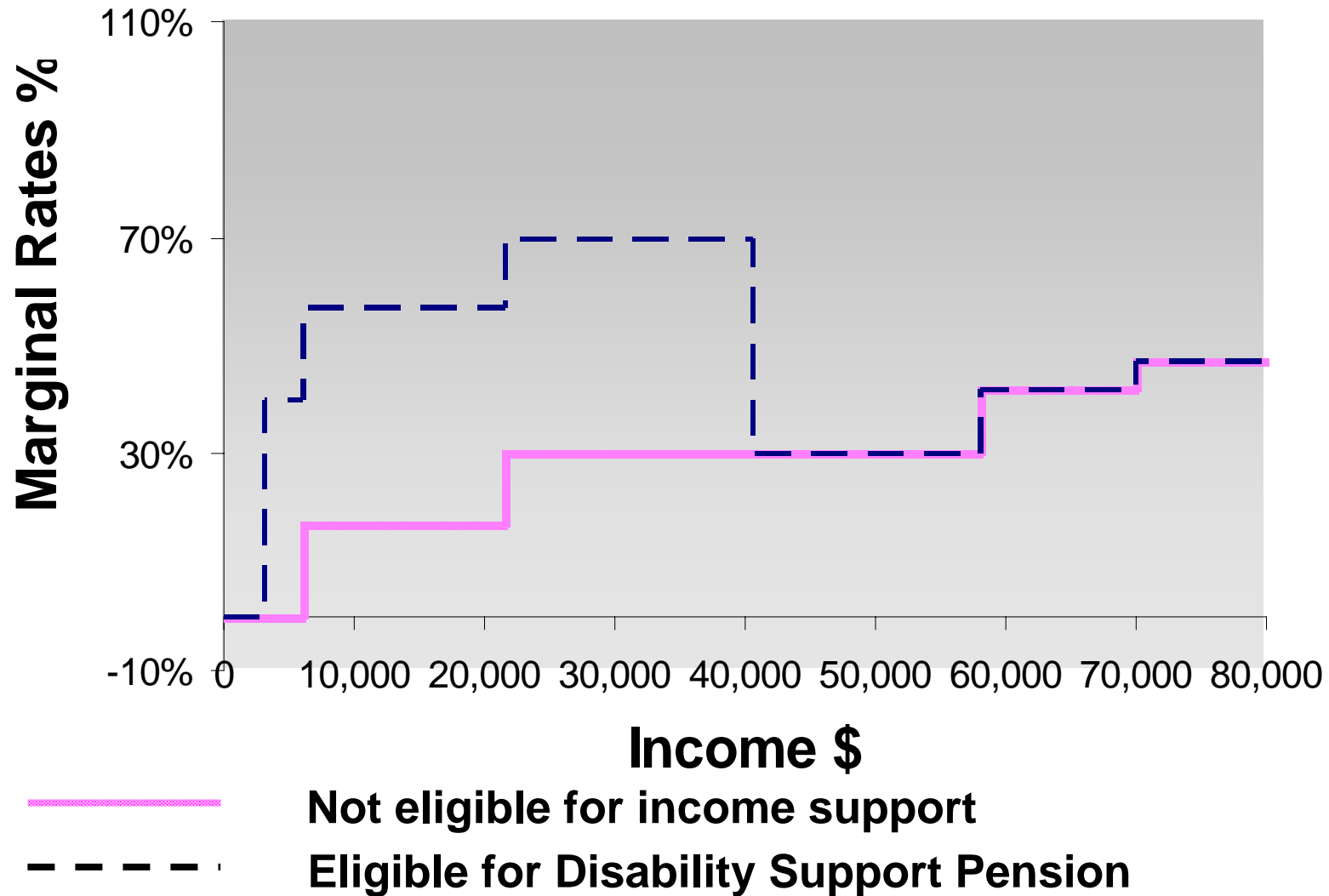
¹² The subsidy above refers to a fixed amount, for example, to cover the cost of accommodating a person with a disability with capital equipment and infrastructure. The same argument holds for a subsidy per unit of labour e.g. a wage subsidy, with the difference being that the displacement effect is not as direct within the firm, and is instead indirect via financial obligation to fund the subsidy elsewhere.

The Workforce Participation of People with Disability

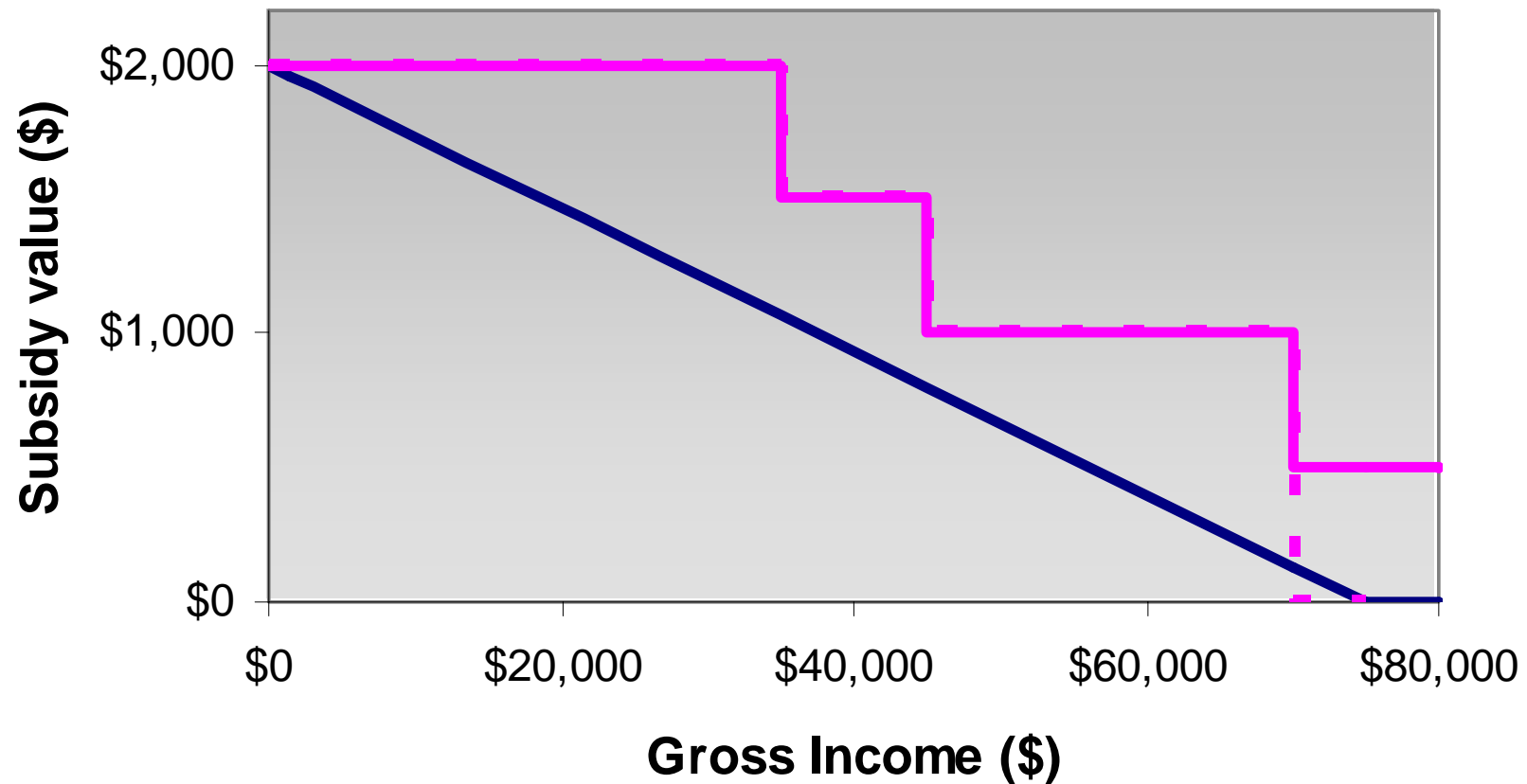
Both US and Australian evidence suggests employers do not take up the subsidies that are made available by government. This is not surprising given that the subsidies are generally tied to evidence of spending on capital goods, even though the fixed costs of employing a worker at the margin are significantly greater than the capital costs. Other fixed costs include hiring costs, land and communication costs, on-the-job training, and the cost of carrying unproductive labour that cannot be dismissed.

The last point is particularly important insofar as the DDA is concerned, since anti-discrimination legislation increases the likelihood of litigation and the probability of not being able to dismiss a worker with a disability if they prove to be unproductive. The anti-discrimination provisions of the DDA thus increase the expected fixed carry costs of employment, and thereby discourage the employment of people with disabilities. The difficulty of dismissal affects all workers of course, but to the extent that it is even more difficult to dismiss a person with a disability, it should come as no surprise that the demand for employment of people with disabilities is muted.

Marginal Tax Rate and the DSP Taper Rate



Assumed Value of 'Equipment' Subsidy

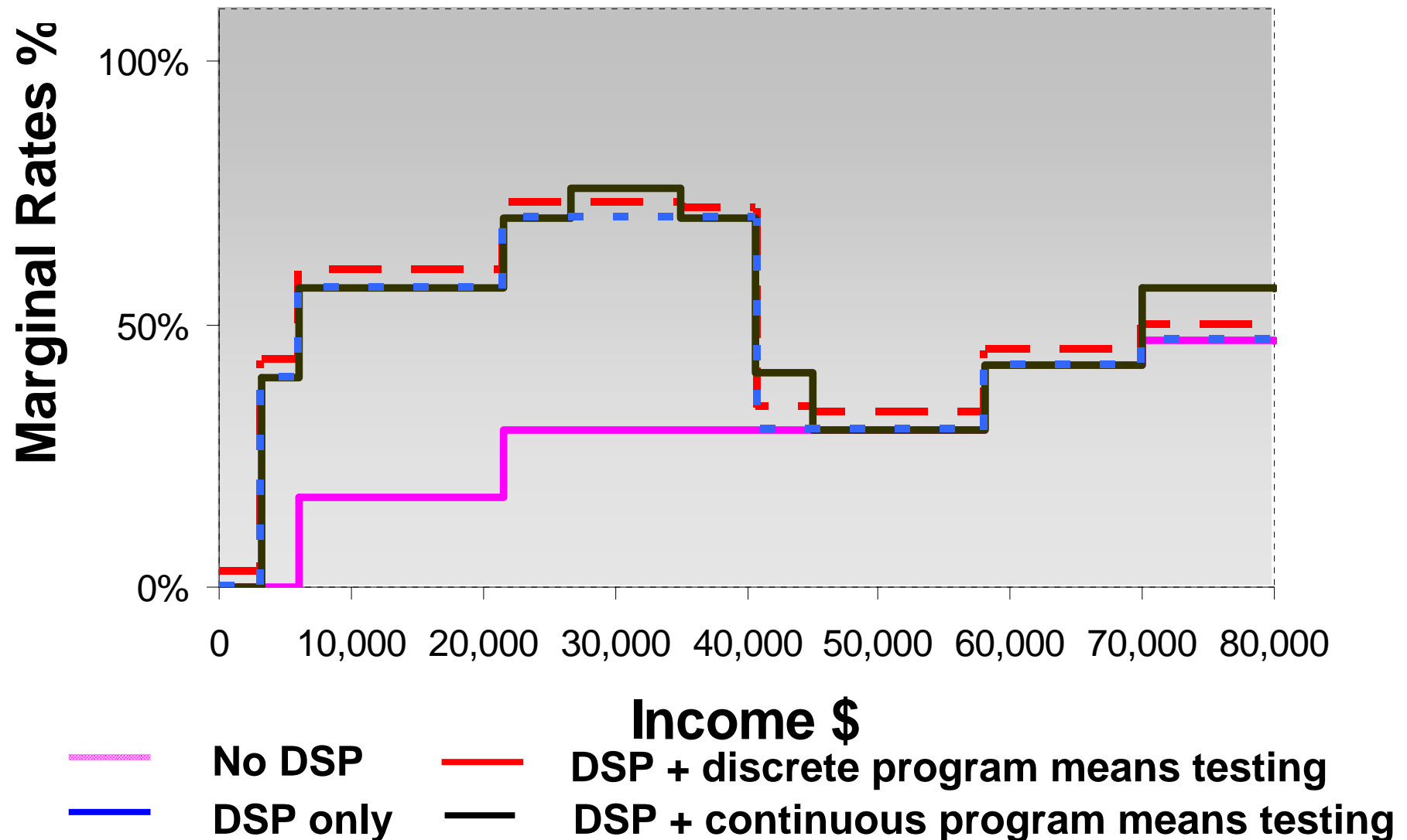


Expectation of continuous means testing

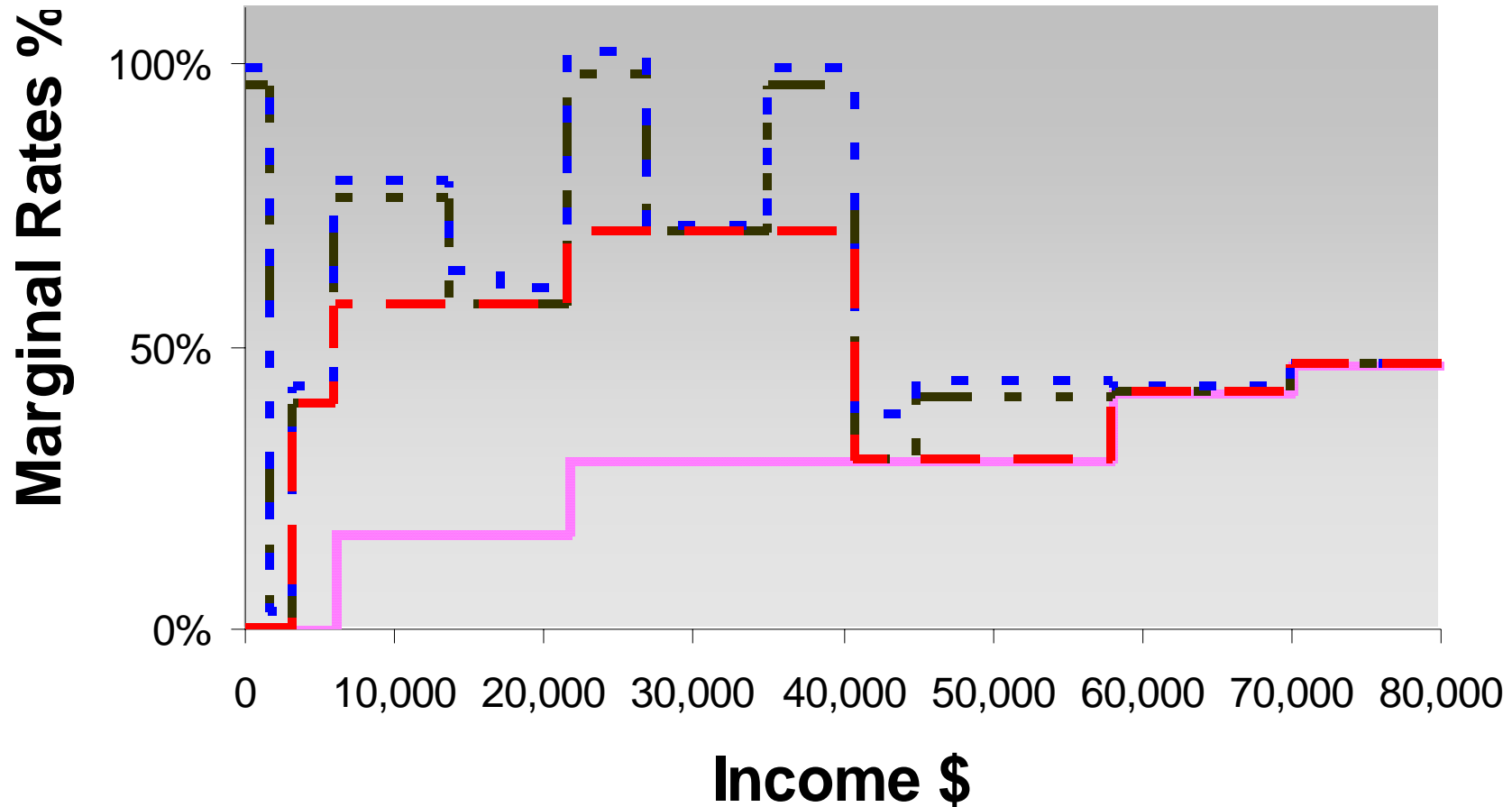


Expectation of discrete means testing

Incremental 'Cede' Rates (ICR): DSP and Program Means Testing



The Cost of Participation and the ICR



- No DSP
- DSP only
- · - DSP + journey costs
- - - DSP + journey costs + continuous program means testing

The “Journey” to Work

