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Social Policy in Australia: Recent Directions and the Use of Microsimulation Models in the Policy Reform Process

Presentation to 'Research Institute for Socionetwork Strategies' International Workshop, Osaka

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29 January 2009

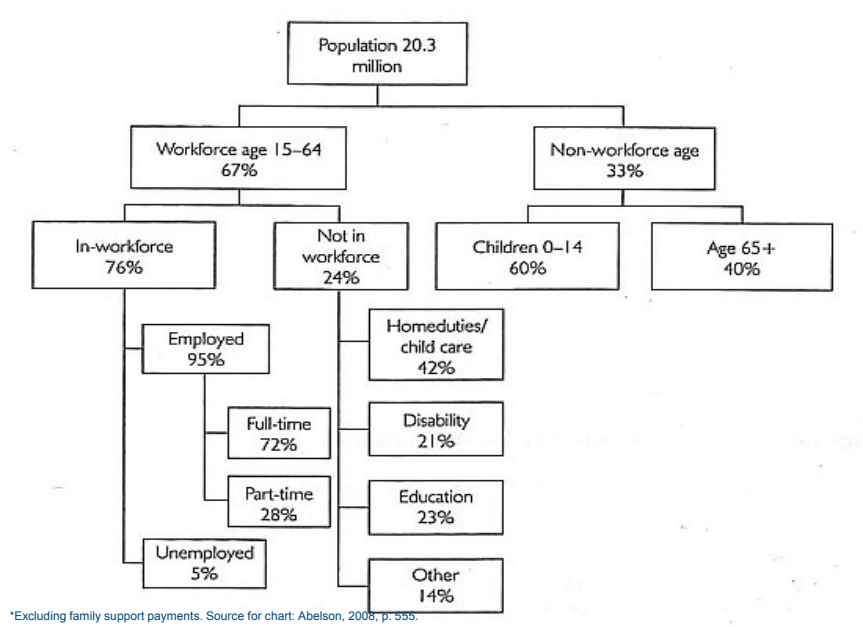
Support for a basic living standard: 'income support'

- Cash benefits to individuals are main pillar of Australian welfare system
- Paid to those who can't work, can't find work or are not expected to work
  - Aged
  - Disabled
  - Unemployed
  - Sick
  - Carers
  - Sole parents
  - Students
- Constant evolution in system as our values change
  - Widow pension, 'welfare to work' changes

Structure of income support system

- Payments are income and asset tested (targeted to those in most need)
- 'Pensions' have more liberal income tests (as work disincentives less of a problem)
  - Age, disability, parenting payment single (child < 8)
- 'Allowances' have much harsher income tests (and may be activity tested)
  - Newstart, Youth Allowance
- Benefits are **flat-rate**, paid from general revenue
  - Quite different to the social insurance (earnings-related) systems of Europe

¼ of population receive income support, 2005



*Excluding family support payments. Source for chart: Abelson, 2008, p. 555.

Family and child care payments

- Relatively high cash payments to families with children (Family Tax Benefit) (FTB)
- Around 60% of families with children receive FTB(A)
- Greatly expanded under Howard government (1996-2007)
  - Criticised as 'middle class welfare'
  - Improved child poverty outcomes
  - Increased effective marginal tax rates
  - FTB(B) was non-means-tested, but 'top end' means test now introduced by Rudd Labor government

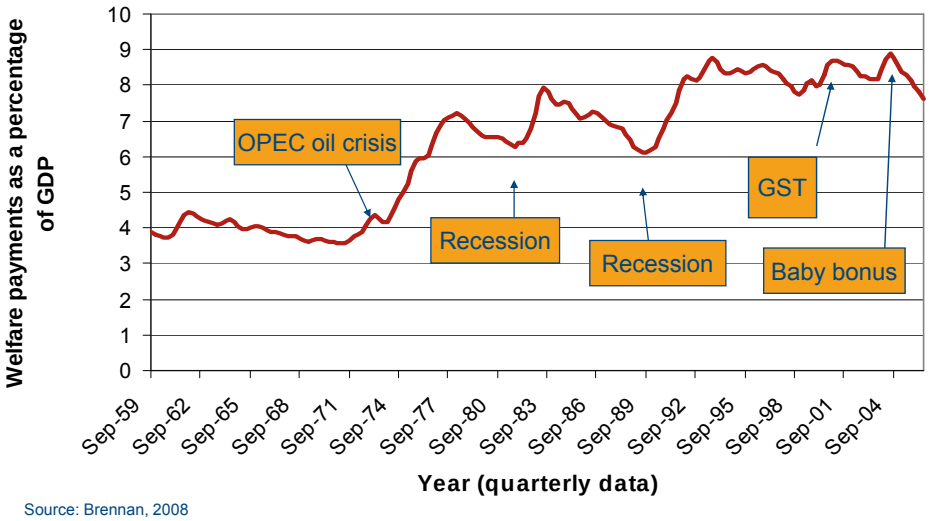
Introduction and expansion of other family-related payments

- Baby bonus – on birth of baby
  - was non-means-tested, now top end means test
- Child Care Benefit and Child Care Rebate
  - Illustrates crucial point that equivalent assistance can be delivered via cash transfer system or income tax system
  - A refundable tax credit can have the same impact as a cash transfer
  - Changes in recent 2008 budget: child care benefit no longer available to high income families, but CCR up from 30 to 50% of child care out-of-pocket costs

Numerous other minor cash transfers to serve particular purposes

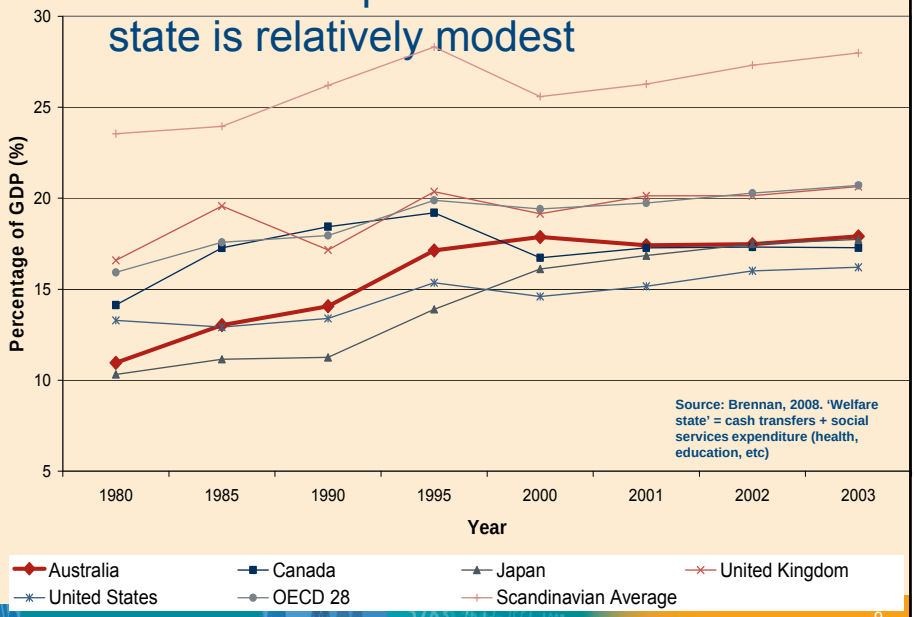
- Rent assistance
- Pharmaceutical allowance
- Utilities allowance
- Seniors concession allowance
- Telephone allowance
- Mobility allowance
- Pensioner Education Supplement etc etc
- Plus 'health' concession cards (passport to concessional pharmaceuticals)

Welfare payments as % of GDP have been at around the same level since 1993



Source: Brennan, 2008

Australia's expenditure on its welfare state is relatively modest



Income tax side

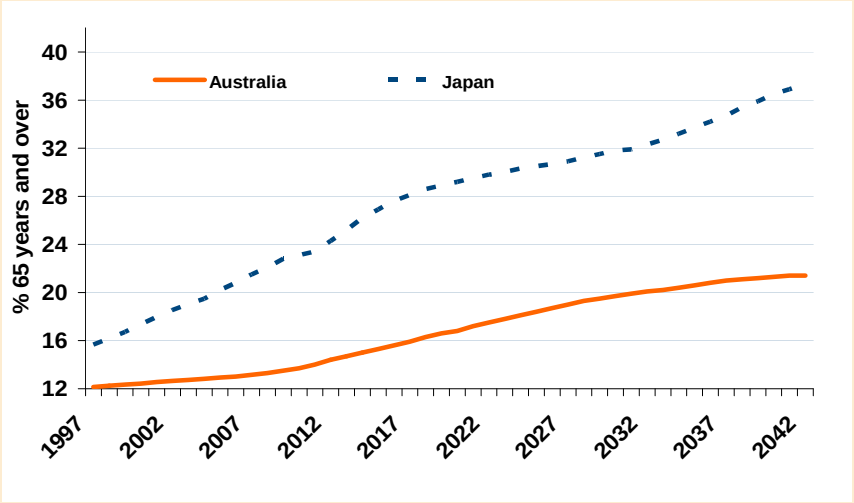
- 'Progressive' tax schedule means that marginal tax rates increase as income increases
  - Top marginal rate of 45c in $ above $180,000 + 1.5% Medicare levy
- Also a multitude of tax concessions for specific groups
  - Senior Australians Tax Offset
  - Low Income Tax Offset
  - Mature Australians Tax Offset
  - Pensioner Rebate/Beneficiary Rebate

Challenges facing Australian welfare state

- Population ageing
- High effective marginal tax rates (work incentives)

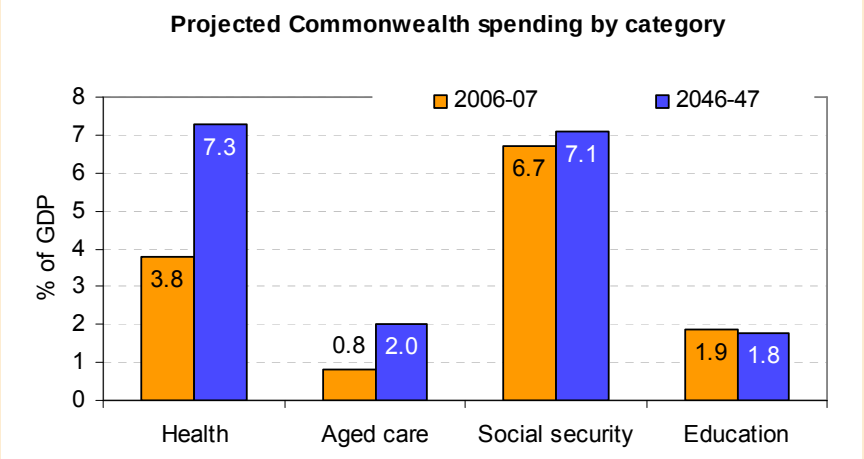
- Currently major reviews underway
  - Harmer pension review (reports February 2009)
  - Henry tax review (reports December 2009)

↑ in % of population aged 65 years +



Sources: Australian Bureau of Statistics + http://www.e-stat.go.jp/SG1/estat/eStatTopPortalE.do + Kaneko et al.(2008) based on medium-variant mortality (with medium-variant fertility)

Resulting in much higher health and aged care costs in Australia



Source: Treasury *Intergenerational Report*, 2007 Budget Papers

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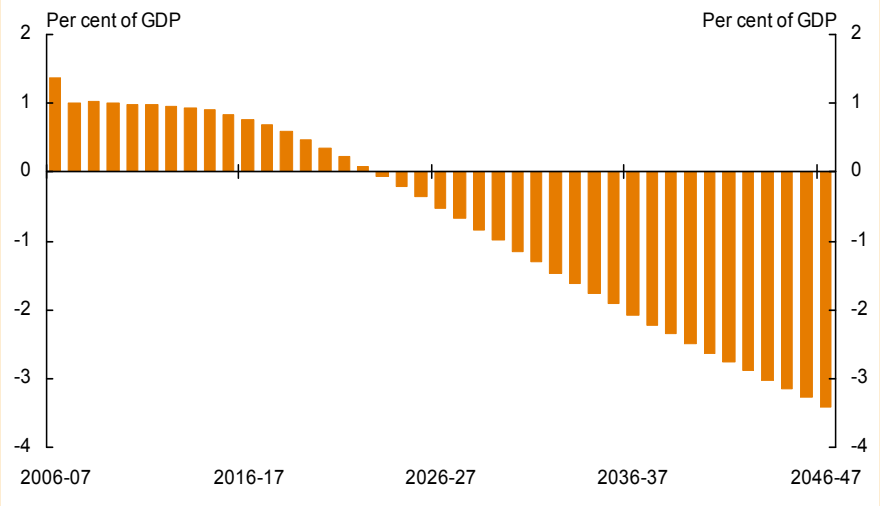
Projected gap between Commonwealth revenue and outlays in Australia



Source: Treasury Intergenerational Report 2007 (www.treasury.gov.au/igr)

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Using microsimulation models in policy process

What are microsimulation models?

- **Based on microdata sets**
  - Records of individual people or households
  - Usually large – thousands of records
    - Sample surveys (Australian Bureau of Statistics), or
    - Administrative data
- **Allow detailed assessment of impact of change**
  - On individuals
  - On groups of individuals
  - On whole population
  - On government budgets

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Static tax-transfer models

Static models widely used across developed world

- **Static tax-transfer models show *morning after* impact of a policy change**
- **EUROMOD for EU15 (and soon 25)**
- **TRIM model in US (http://trim3.urban.org/)**
- **SPSD/M for Canada**
- **LOTTE for Norway**
- **GLADHISPANIA for Spain**
  - See Gupta and Harding (2007) for summaries of 22 microsimulation models in use across the world

STINMOD – Australian model

- **Static microsimulation model replicating rules of the Australian tax, social security, & family payments systems**
- **'Day after' impact, no behavioural change**
- **Developed by NATSEM, first release STINMOD 94, latest is STINMOD 08**
- **Shows impact of possible policy changes**
  - Fiscal (revenue and expenditure)
  - Distributional (winners and losers)
  - Effective marginal tax rates (EMTRs)

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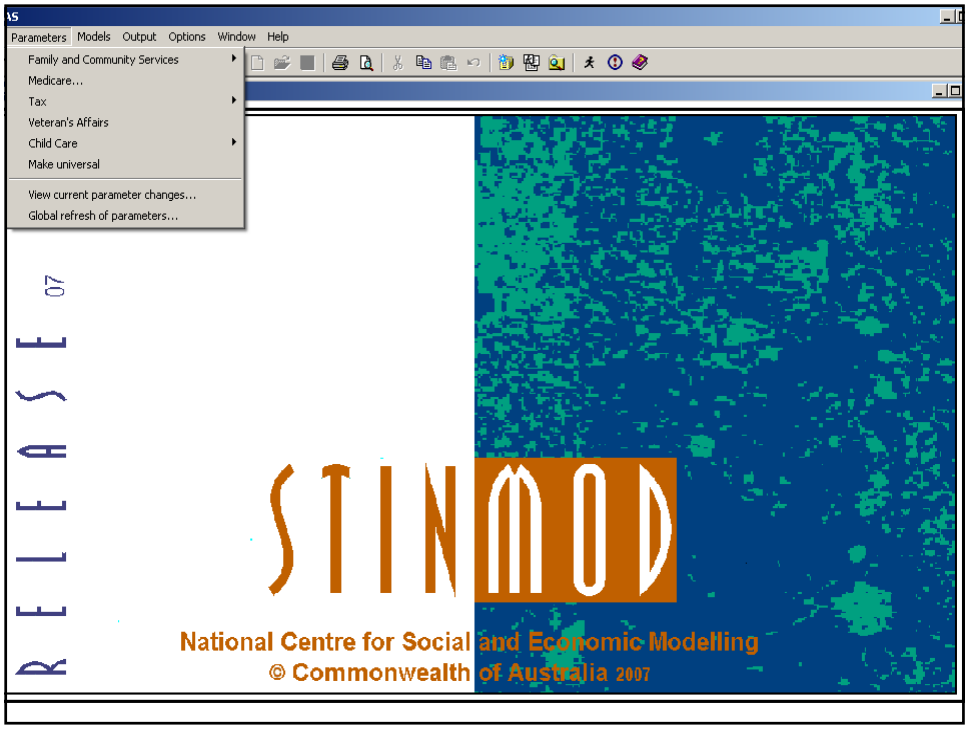
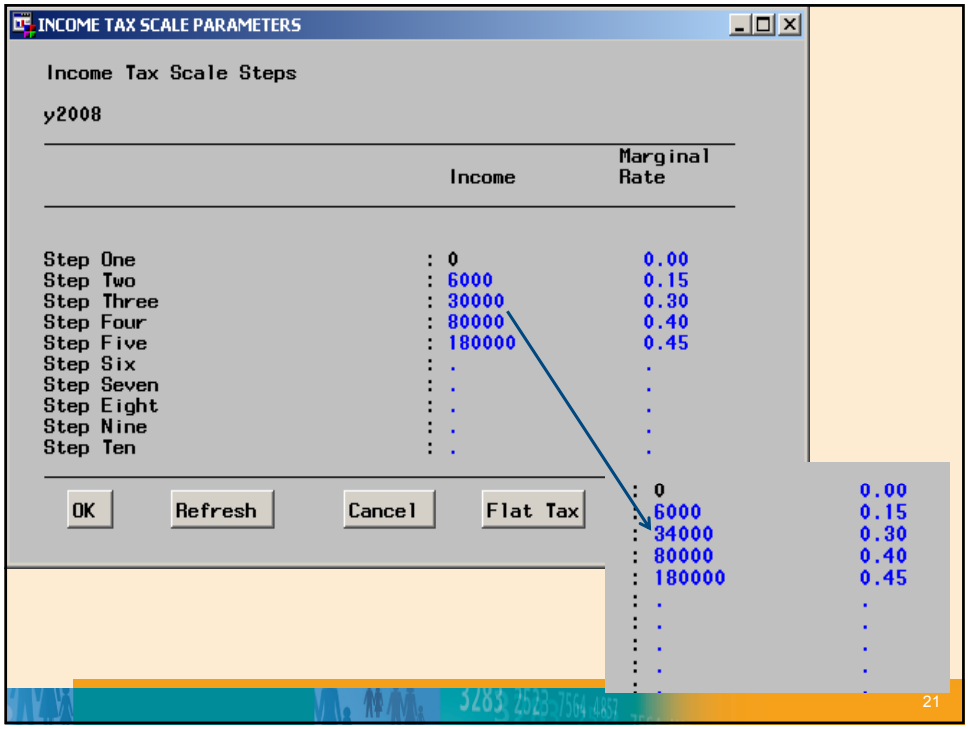
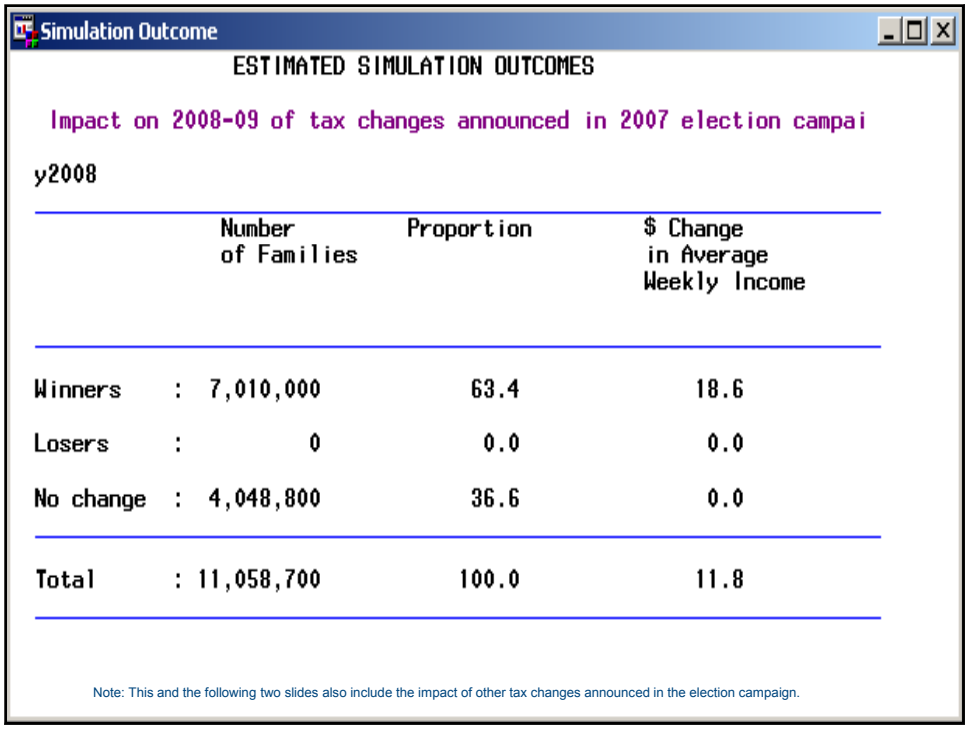
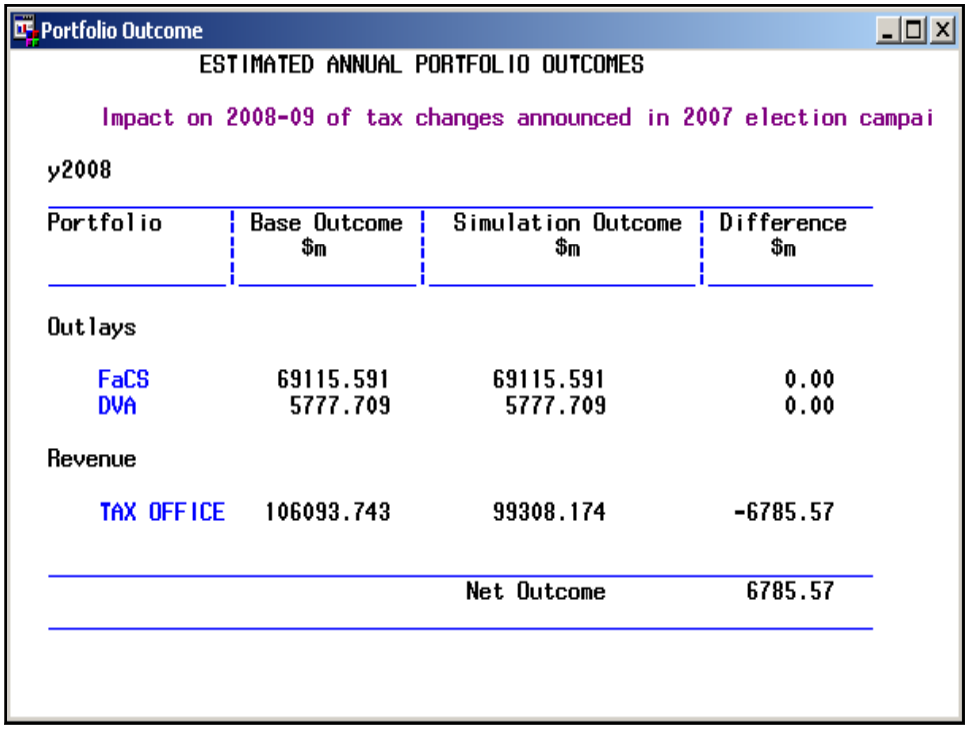



INCOME TAX SCALE PARAMETERS
Income Tax Scale Steps
y2008
Income
Marginal Rate
Step One : 0 0.00
Step Two : 6000 0.15
Step Three : 30000 0.30
Step Four : 80000 0.40
Step Five : 180000 0.45
Step Six : . .
Step Seven : . .
Step Eight : . .
Step Nine : . .
Step Ten : . .
OK
Refresh
Cancel
Flat Tax
: 0 0.00
: 6000 0.15
: 34000 0.30
: 80000 0.40
: 180000 0.45
21


Simulation Outcome
ESTIMATED SIMULATION OUTCOMES
Impact on 2008-09 of tax changes announced in 2007 election campai
y2008
Number of Families
Proportion
$ Change in Average Weekly Income
Winners : 7,010,000 63.4 18.6
Losers : 0 0.0 0.0
No change : 4,048,800 36.6 0.0
Total : 11,058,700 100.0 11.8
Note: This and the following two slides also include the impact of other tax changes announced in the election campaign.



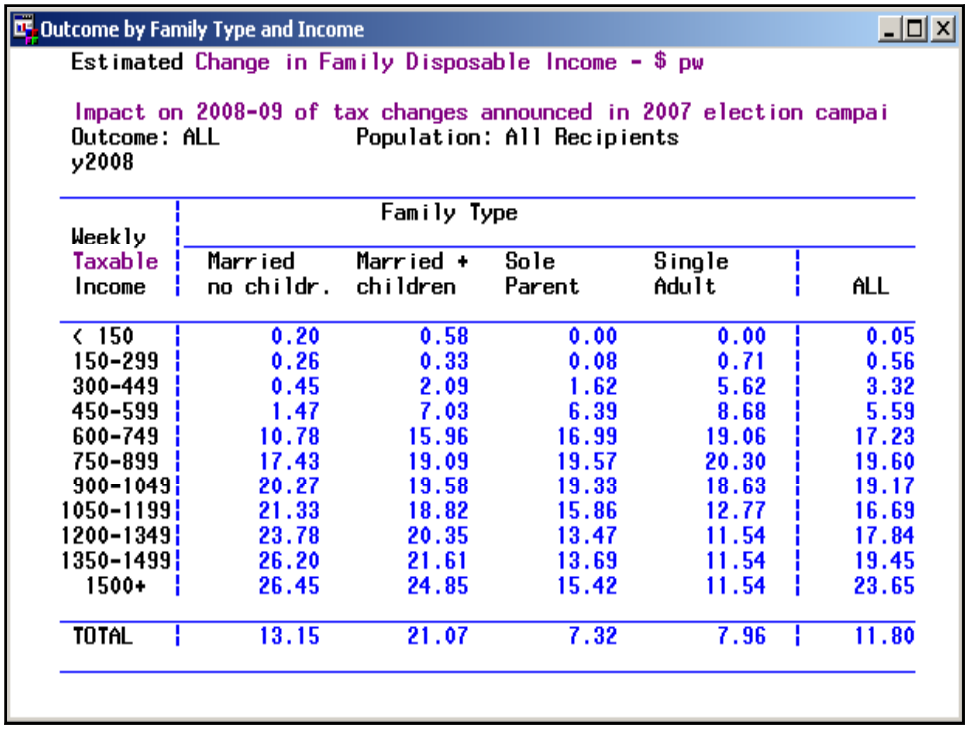
Portfolio Outcome

ESTIMATED ANNUAL PORTFOLIO OUTCOMES

Impact on 2008-09 of tax changes announced in 2007 election campai

y2008

Portfolio	Base Outcome $m	Simulation Outcome $m	Difference $m
Outlays			
FaCS	69115.591	69115.591	0.00
DVA	5777.709	5777.709	0.00
Revenue			
TAX OFFICE	106093.743	99308.174	-6785.57
		Net Outcome	6785.57



Outcome by Family Type and Income

Estimated Change in Family Disposable Income - $ pw

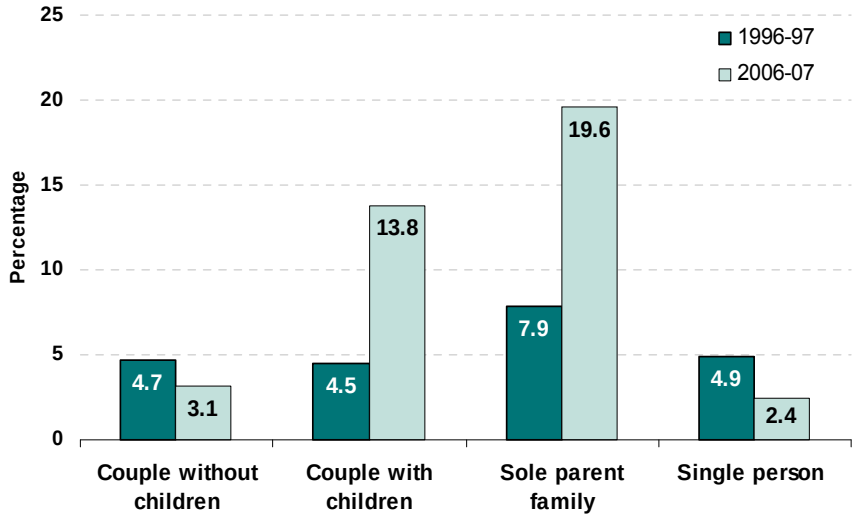
Impact on 2008-09 of tax changes announced in 2007 election campai
Outcome: ALL Population: All Recipients
y2008

Weekly Taxable Income	Family Type: Married no childr.	Married + children	Sole Parent	Single Adult	ALL
< 150	0.20	0.58	0.00	0.00	0.05
150-299	0.26	0.33	0.08	0.71	0.56
300-449	0.45	2.09	1.62	5.62	3.32
450-599	1.47	7.03	6.39	8.68	5.59
600-749	10.78	15.96	16.99	19.06	17.23
750-899	17.43	19.09	19.57	20.30	19.60
900-1049	20.27	19.58	19.33	18.63	19.17
1050-1199	21.33	18.82	15.86	12.77	16.69
1200-1349	23.78	20.35	13.47	11.54	17.84
1350-1499	26.20	21.61	13.69	11.54	19.45
1500+	26.45	24.85	15.42	11.54	23.65
TOTAL	13.15	21.07	7.32	7.96	11.80

Trends in effective marginal tax rates (EMTRs)

- With ageing population and labour shortages, EMTRs are a major policy issue
- Australia wants to reduce work disincentives – issue being considered in current Treasury Tax Review
- EMTRs measure the proportion of an additional dollar of earnings that is lost to both income tax and the reduction of income-tested government benefits (e.g. Newstart, Aged Pension, Family Tax Benefit (FTB)
- Australian system highly means-tested:
  - In 2006-07, 7.1 % of working-age Australians (910,000 people) faced EMTRs of 50c in the dollar or more.
  - Up from 4.8% in 1996-97

Proportion of each family type with high EMTRs



Note: 'High' EMTRs defined here as > 50 %. Source: Harding et al, 2006

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Health microsimulation models

NATSEM developing many health models

- MediSim – model of Australia's Pharmaceutical Benefits Scheme
- HealthMod – cost and use of doctors (Medicare)
- HospMod – cost and use of public and private hospitals
- Diabetes model – long-term costs and benefits of diabetes prevention and management strategies
- DYNOPTA – optimising ageing and compressing morbidity – dynamic model of 45+ yr olds
- NHMRC Economics and Financing of Health project
  - With Monash Uni
  - Linking MONASH macro model to NATSEM's micro models

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Dynamic models: simulating the future

History

- Treasury Intergenerational Report highlighted policy changes coming
- Model required to look at equity issues
  - Modelling underlying the IGR is at an aggregated level
  - New modelling capacity required to assess:
    - the distributional impact of future changes
    - the inter-generational redistributive impacts
    - the likely capacity to pay of different groups
- Dynamic microsimulation provides both aggregate and distributional outcomes

The Australian Population and Policy Simulation Model (APPSIM)

- 5 year project, started in late 2005
- Funded by the ARC and 12 Commonwealth Govt agencies
- Similar to SESIM (Sweden), DESTINIE (France), MOSART (Norway), DYNACAN (Canada), PENSIM (UK)

Australian Government
Productivity Commission

Australian Bureau of Statistics

Centrelink
giving you options

Australian Government
Department of Families, Housing, Community Services and Indigenous Affairs

Australian Government
Department of the Prime Minister and Cabinet

Australian Government
The Treasury

Australian Government
Department of Immigration and Citizenship

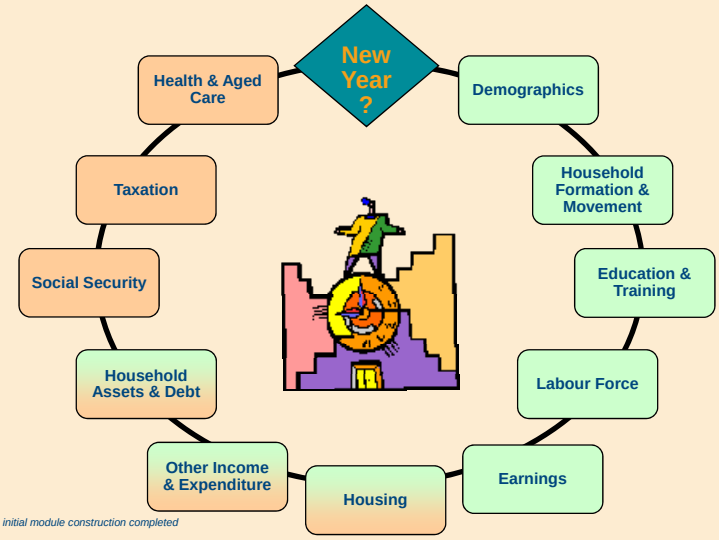
Australian Government
Department of Health and Ageing

Australian Government
Department of Innovation, Industry, Science and Research

Australian Government
Department of Finance and Deregulation

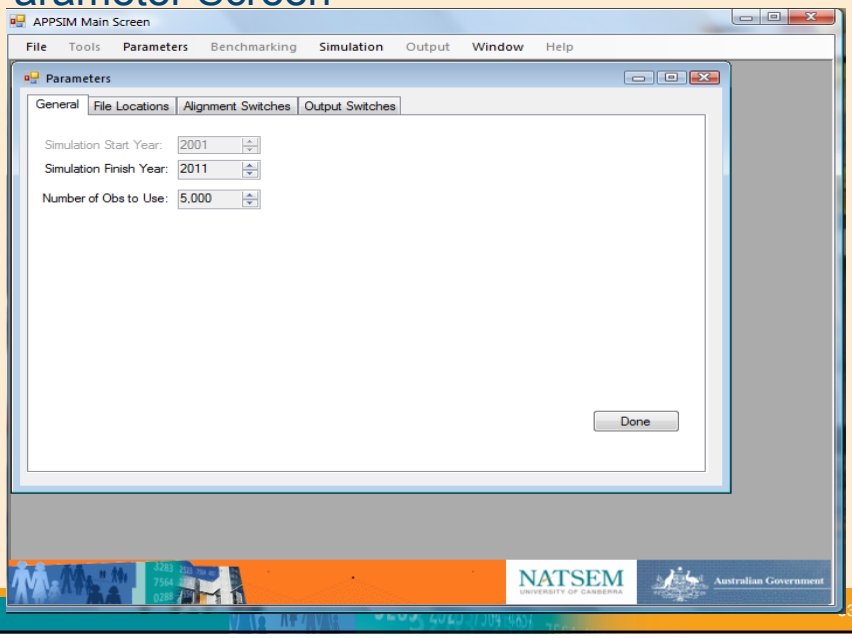
Australian Government
Department of Education, Employment and Workplace Relations

Processes to be modelled within APPSIM

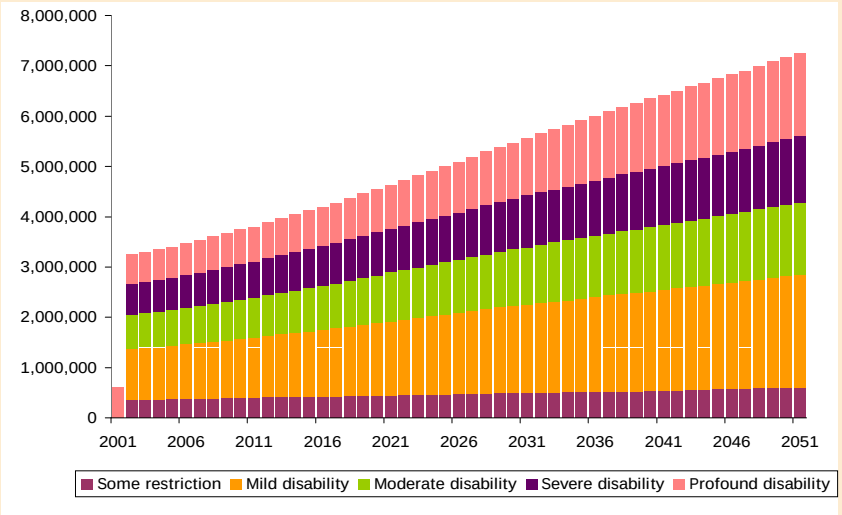


Green shading denotes initial module construction completed or well underway

Parameter Screen



APPSIM Sample Output – Disability Status



NOT FOR QUOTATION, Experimental projection output only, APPSIM still under development, December 2008

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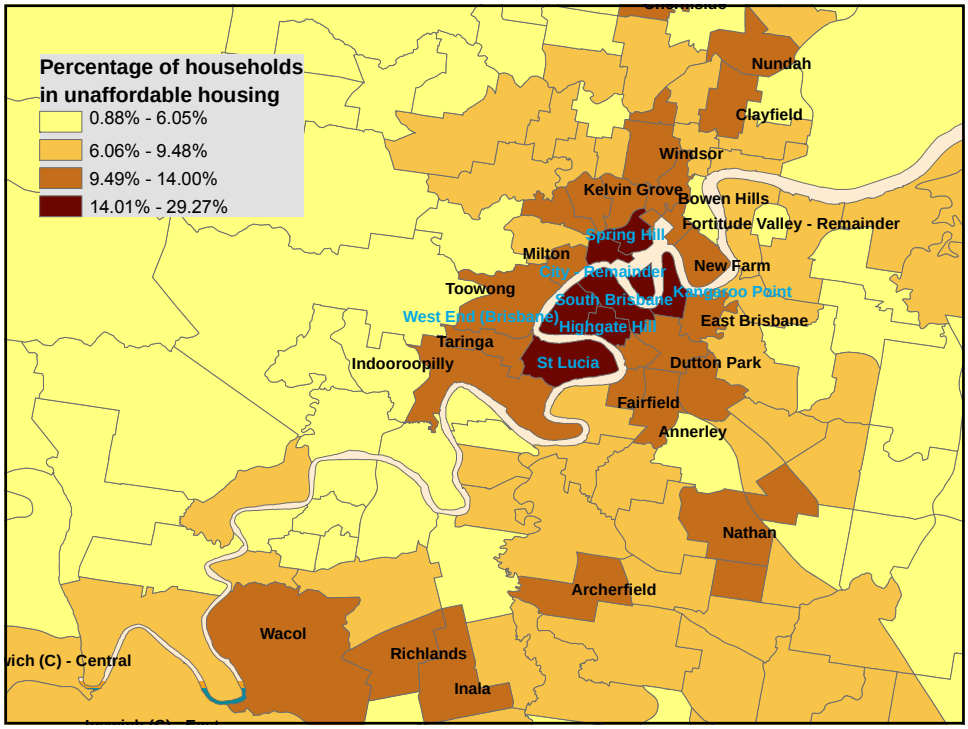
Spatial microsimulation models

Spatial Microdata and Microsimulation

- **Combine the information-rich ABS survey data with the geographically disaggregated Census data**
- **Using 'spatial microsimulation' to create detailed unit record data for small areas (synthetic spatial microdata)**

Application 1: Analysis of Specific Population Sub-Groups

- Allows – for small areas:
  - identification and analysis of specific socio-demographic groups and characteristics
  - analysis at various population levels: e.g. persons, income units, households
- Examples – children in low income families; children in jobless families; unskilled youth, those in housing stress



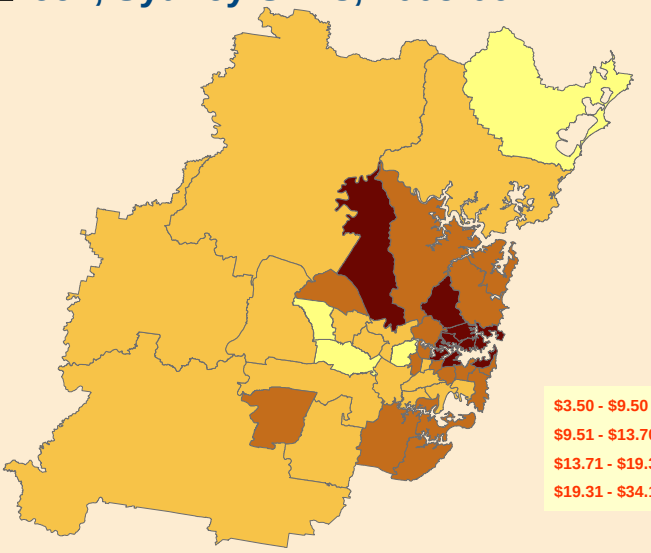
Application 2: Predict spatial impact of a policy change

- **Spatial microdata now linked with NATSEM's existing microsimulation models to model the immediate distributional/revenue impact of a policy change**
  - link synthetic spatial output to STINMOD and model changes to the tax and transfer system for small geographic areas
  - Currently modelling changes in Commonwealth Rent Assistance, income tax, social security and family payments
    - spatialMSM and HOUSEMOD models

Where did the $5bn of 2005-06 tax cuts go?

2004-05		2005-06	
Tax threshold	Tax rate	Tax threshold	Tax rate
$6,000	0.17	$6,000	0.15
$21,600	0.3	$21,600	0.3
$58,000	0.42	$63,000	0.42
$70,000	0.47	$95,000	0.47

Estimated average tax cut per household per week, Sydney SLAs, 2005-06



$3.50 - $9.50 pw (lightest)
$9.51 - $13.70
$13.71 - $19.30
$19.31 - $34.10 pw (darkest)

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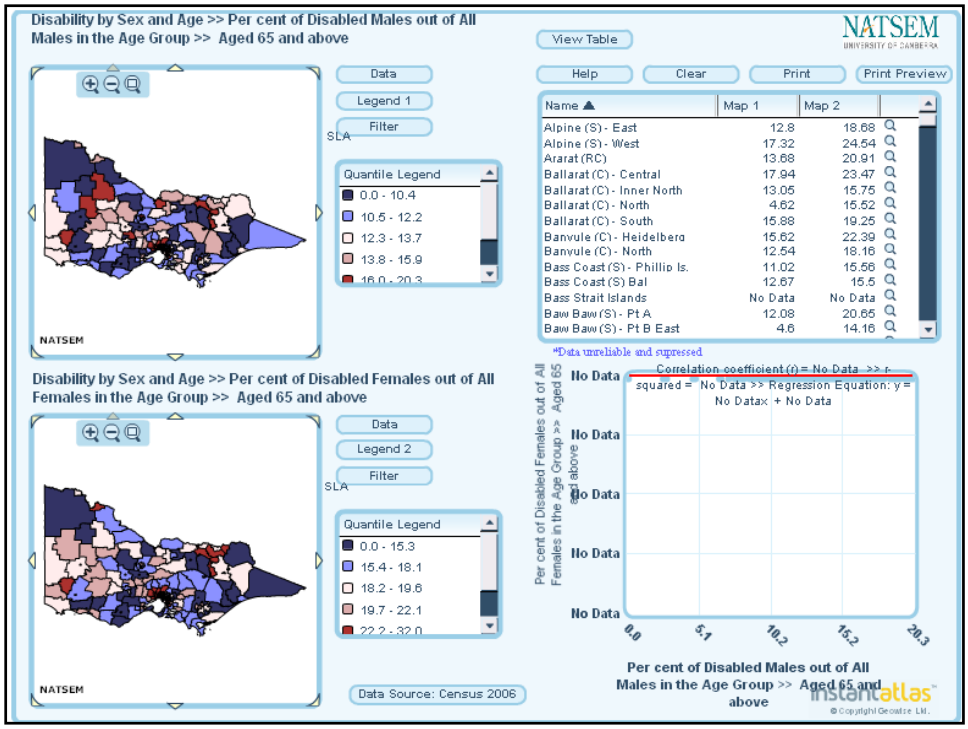

Evidence based policy making

- Growing demand for quantitative decision support tools
- Not good enough today to do 'back of the envelope' estimates of impact of policy change
- Log on to www.natsem.canberra.edu.au and join our free email update list
  - 2nd General conference of International Microsimulation Association, Ottawa, June 2009 http://www.statcan.gc.ca/conferences/ima-aim2009/index-eng.htm
  - International Microsimulation Association (free to join) - http://www.microsimulation.org/

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+ see the papers describing the construction of APPSIM at the Working Paper section of the NATSEM website – www.natsem.canberra.edu.au

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