Inequality, Welfare, Household Composition and Prices
A Comparative Study on Australian and Canadian Data

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Declaration

This thesis contains no material which has been accepted for the award of any other higher degree or graduate diploma in any university, and, to the best of my knowledge and belief, contains no material previously published or written by another person, except when due reference is made in the text of the thesis.

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Paul Andrew Blacklow
June 2002

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The Australian price and 1998-99 Household Expenditure Survey data were made available through the agreement between the Australian Bureau of Statistics (ABS) and the Australian Vice-Chancellors' Committee (AVCC). All survey data used in this thesis was confidentialised by the appropriate statistical agency before being obtained.

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Abstract

This thesis examines and compares the nature, magnitude and movement in the inequality of income and expenditure of Australian households from 1975-76 to 1998-99 and Canadian households from 1978 to 1992. The inequality of welfare impacts on an individual’s feelings of belonging and participation in society and the level of social division within it. It may have such tangible effects as political unrest and increased crime. This raises the issue of, what is happening to the inequality of welfare and how to measure household welfare and inequality?

The thesis considers the normative judgements made in measuring the inequality, desirable properties of inequality indices and the appropriate variable to represent household welfare. It finds in favour of expenditure as a more appropriate measure of a household’s living standards than income and that equivalence scales and cost of living indices should be used to account for variation in household composition and prices.

The majority of past studies of Australian and Canadian inequality report an increase in income inequality throughout the latter half of the 20th century. However, the timing and size of increase is dependent upon the inequality indices, equivalence scales and sample selection used in each study. While many studies have focussed on the distribution of income, few have considered the inequality of expenditure or the explicit role of prices in inequality movements via a cost of living index. The thesis specifies a demographically extended complete demand system and uses household survey and price data to obtain estimates of its parameters to construct and compare alternate equivalence scales and demographically varying cost of living indices.
The independence of the equivalence scale to reference utility was found not to hold suggesting that welfare comparisons between households of varying demographic types will be dependent on the specification of the household cost function. While the estimated price elasticities vary significantly across households, prices of commodity groups have moved such that the change in the cost of living over time is relatively uniform across households.

The thesis finds that the real adult equivalent disposable income inequality of households has been rising in Australia consistently from 1975-76 to 1998-99, while real adult equivalent expenditure inequality recorded a fall over the period as a whole. In contrast, the inequality of Canadian household real adult equivalent disposable income and expenditure, have moved together, rising from 1978 to 1986 before falling in 1992. Australia has a higher magnitude of inequality in the distribution of household equivalent expenditure compared to Canada. The decline in the inequality of accommodation expenditure has been significant for Australia and Canada in offsetting the rise in inequality of expenditure on food and alcohol and tobacco. The rise in wage inequality and to a lesser extent investment income inequality, have largely accounted for the rise in gross income inequality in both countries.

The thesis finds that the movement in Australian inequality is not overly sensitive to equivalence scale specification, although Engel, OECD and per capita scaled welfare tend to exaggerate the movement when compared to demand system based scales. In Canada from 1982 to 1986 changes in household composition resulted in significant difference in the movement of inequality estimates for different equivalence scales. The Engel, OECD and per capita based estimates showed a fall in inequality in contrast to the demand system based scales. The magnitude and the movement in inequality for both countries are insensitive to the
specification of price indices. Excluding observations from the original sample can have extreme consequences on the reported magnitude and trend in inequality.

By exploiting the additive decomposability property of inequality, the employment status and education level of the household head for Australia and Canada respectively, were found to have a large effect on the magnitude and movement in inequality. Age of the household head and the demographic type of the household were found to explain less than a sixth of the magnitude and trend in household inequality for both Australia and Canada.

To summarise, this thesis makes the following contributions:

**Methodological**

i) It considers the normative judgements made in measuring inequality, the desirable properties of inequality indices and the appropriate variable to use to represent household welfare.

ii) It accounts for differences amongst the demographic composition of households by using equivalence scales based upon an explicitly defined demographic extended demand system.

iii) It accounts for price movements by developing a cost of living index based upon an explicitly defined demographic household cost function and complete demand system.

**Empirical**

i) Real adult equivalent disposable income inequality of households has been rising in Australia consistently from 1975-76 to 1998-99, while real adult equivalent expenditure inequality recorded a fall over the period as a whole.

ii) In contrast Canadian household real adult equivalent disposable income and expenditure inequality have moved together, rising from 1978 to 1986 before falling in 1992.

iii) The movement in Australian and Canadian inequality is not overly sensitive to different demand system based scales but Engel, OECD and per capita scaled estimates tend to exaggerate the movement of Australian inequality and report movements in Canadian inequality from 1982-1986 reverse to the demand system based scales.
iv) The magnitude and the movement in inequality for both countries are not very sensitive to the specification of price indices. However there is evidence that regional price movements in Canada have helped to offset inequality, while allowing for differing price impacts across households using the CLI reduces this effect. For Australia price movements appear to have reduced the fall in expenditure inequality and increased the rise in income inequality slightly.

v) Excluding observations from the original sample can have extreme consequences on the reported magnitude and trend in inequality.

vi) Employment status and education level of the household head for Australia and Canada respectively, were found to have a large effect on the magnitude and movement in inequality. Greater than, what could be explained by decomposing by age of the household head or the demographic type of the household.
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