



JOHN CREEDY

Tax and Transfer Tensions

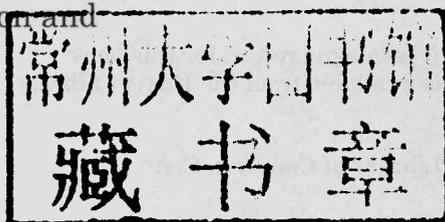
Designing Direct
Tax Structures

Tax and Transfer Tensions

Designing Direct Tax Structures

John Creedy

Victoria University of Wellington and
New Zealand Treasury



Edward Elgar

Cheltenham, UK • Northampton, MA, USA

© John Creedy 2011

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical or photocopying, recording, or otherwise without the prior permission of the publisher.

Published by
Edward Elgar Publishing Limited
The Lypiatts
15 Lansdown Road
Cheltenham
Glos GL50 2JA
UK

Edward Elgar Publishing, Inc.
William Pratt House
9 Dewey Court
Northampton
Massachusetts 01060
USA

A catalogue record for this book
is available from the British Library

Library of Congress Control Number: 2011931014



ISBN 978 0 85793 752 0

Printed and bound by MPG Books Group, UK

Tax and Transfer Tensions

Acknowledgements

This book makes use of revised and rearranged forms of several previously published papers, in addition to unpublished papers. The published papers are Creedy (2005, 2007, 2008, 2009, 2010a, 2010b, 2010c, 2010d, 2011), Creedy and Gemmell (2007), Creedy and Hérault (2011) and Creedy and Moslehi (2011). I am grateful for permission to use these papers here, and should again like to thank the referees for their constructive comments on earlier versions.

Contents

<i>List of Tables</i>	xi
<i>List of Figures</i>	xiii
<i>Acknowledgements</i>	xv
I Introduction	
1 Introduction and Outline	3
II Theory and Policy	
2 Tax and Transfer Tensions	9
2.1 Elements of the Problem	11
2.1.1 Some Initial Considerations	11
2.1.2 Alternative Basic Aims	12
2.1.3 Constraints on Policy Choices	14
2.1.4 Conceptual Choices	16
2.1.5 Measurement and Modelling Problems	18
2.2 Some Simplified Comparisons	20
2.2.1 The Rate Structure	21
2.2.2 The Basic Income–Flat Tax	22
2.2.3 Means-Tested Benefits	25
2.3 Conclusion	28
3 Income Tax Structure: Theory and Policy	31
3.1 A Rule of Thumb	36
3.2 The Linear Income Tax	39
3.3 Optimal Tax Structures	47

3.4	Marginal Income Tax Reform	51
3.5	Redistribution and Progressivity	56
3.6	Welfare and a Top Marginal Rate	59
3.7	Conclusions	62
III Tax Functions and Choices		
4	The Linear Tax Function	67
4.1	The Tax System	70
4.1.1	Individuals	70
4.1.2	The Government's Budget Constraint	70
4.2	Individual Behaviour	72
4.2.1	Utility Maximisation	73
4.2.2	Individual Tax Preferences	73
4.3	Majority Choice of Tax Rate	76
4.3.1	Individual Ranks	76
4.3.2	The Median Voter	78
4.3.3	Illustrative Examples	79
4.4	Optimal Taxation	83
4.4.1	A Social Welfare Function	83
4.4.2	Illustrative Examples	85
4.5	Conclusions	88
5	Choosing a Linear Income Tax Rate	89
5.1	Cobb–Douglas Preferences	91
5.2	Majority Voting over the Tax Rate	92
5.3	A General Evaluation Function	93
5.3.1	Indifference Curves	94
5.3.2	The Solution	95
5.4	The Optimal Tax	96
5.4.1	A Social Welfare Function	96
5.4.2	Some Comparisons	98
5.4.3	The Use of Money Metric Utility	100
5.5	Stochastic Voting	103
5.5.1	The Basic Model	103
5.5.2	Case 1: Additive Support Function	108
5.5.3	Case 2: Multiplicative Support Function	108
5.6	Conclusions	109
6	A Loglinear Tax Function	111
6.1	A Loglinear Tax Function	112

6.1.1	Progressive Taxes and Transfers	112
6.1.2	The Government Budget Constraint.	114
6.2	Individual Maximisation	116
6.2.1	Labour Supply and Earnings	116
6.2.2	The Indirect Utility Function	118
6.3	Majority Voting.	119
6.4	A Social Welfare Function	122
6.5	Conclusions	124
7	A Tax-Free Threshold	127
7.1	Early Views on Income Taxation	129
7.2	Comparison of Alternative Structures.	133
7.2.1	Income Tax Only	134
7.2.2	Basic Income—Flat Tax System	137
7.2.3	Income Tax with a Minimum Income Guarantee	139
7.2.4	A Modified Minimum Income Guarantee	142
7.3	Conclusions	146
8	In-Work Payment With Hours Threshold	149
8.1	The Tax and Transfer System	151
8.1.1	Budget Constraints.	152
8.1.2	Labour Supply	157
8.2	The Modelling Procedure.	161
8.2.1	Utility Functions	162
8.2.2	Evaluation Procedure	164
8.3	Simulation Analysis	166
8.3.1	Parameter Values	166
8.3.2	Some Results	167
8.4	Conclusions	171
9	Welfare-Improving Tax Reforms	175
9.1	Optimal Taxation and Tax Reform	179
9.1.1	Optimal Structures.	179
9.1.2	Tax Reform	181
9.2	Computation of the Welfare Metric	184
9.3	Simulation Results	187
9.3.1	Aggregate Effects	190
9.3.2	Income Tax Reforms	191
9.3.3	The Use of Net Income	196
9.3.4	Changes to Income Thresholds	198
9.4	Actual Tax Policy Changes.	199

9.5	Conclusions	201
10	The Elasticity of Marginal Valuation	203
10.1	Social Evaluations: A Single Period	205
10.1.1	The Welfare Function	206
10.1.2	The Elasticity of Marginal Valuation	207
10.1.3	Choice of Values	208
10.2	Multi-period Contexts	210
10.2.1	A Single Individual	210
10.2.2	Social Evaluations	213
10.3	Taxation and Equal Absolute Sacrifice	215
10.4	Conclusions	218
IV	Tax Revenue	
11	Fiscal Drag and Revenue Elasticities	223
11.1	Income Tax Revenue Elasticities	224
11.1.1	Individual Revenue Elasticities	224
11.1.2	The Aggregate Revenue Elasticity	225
11.2	The Multi-step Income Tax Function	227
11.3	Estimates for Income Taxes in the UK	229
11.4	Consumption Tax Revenue Elasticities	232
11.4.1	Individual Revenue Elasticities	233
11.4.2	The Aggregate Consumption Tax Revenue Elasticity	235
11.4.3	Empirical Estimates for the UK	236
11.5	Conclusions	240
12	The Elasticity of Taxable Income	243
12.1	A Structural Approach	244
12.1.1	The Standard Labour Supply Model	245
12.1.2	Under-reporting of Income	246
12.2	A Reduced-Form Approach	247
12.3	A Top Marginal Income Tax Rate	250
12.4	Welfare Changes	253
12.4.1	A Top Marginal Rate	253
12.4.2	All Tax Brackets	258
12.5	Estimation Methods	262
12.5.1	Policy Changes	263
12.5.2	Fiscal Drag and Marginal Rate Changes	265
12.6	Conclusions	267

13 Changes in Income Tax Revenue	271
13.1 Relationships Among Elasticities	273
13.1.1 Endogenous Allowances	278
13.2 Aggregate Revenue	280
13.2.1 Components of Total Revenue	280
13.2.2 Changes in Aggregate Revenue	282
13.2.3 Comparison with Earlier Results	284
13.2.4 Illustrative Examples	285
13.3 Changes in Income Thresholds	289
13.4 Conclusions	292
14 Tax Revenue and Lorenz Curves	295
14.1 A Tax-Free Threshold	296
14.1.1 Diagrammatic Illustration	297
14.2 A Multi-step Tax Function	302
14.3 Conclusions	306
V Tax Reviews	
15 The NZ Tax Working Group	309
15.1 New Zealand Taxes and Reforms	310
15.2 Evaluating Tax Structures	312
15.2.1 Basic Tax Principles	312
15.2.2 The Tax Base	313
15.2.3 Rules of Thumb	314
15.3 Precision Regarding Concepts	315
15.3.1 Taxes and Elasticities	316
15.4 Some Next Steps	317
15.5 Conclusions	319
16 The IFS and Tax Design	321
16.1 Comparisons with Other Reviews	322
16.2 The Contrast with the Meade Report	327
16.3 The Style of Exposition	328
16.4 Theory and Practice	332
16.5 Conclusions	334
<i>Bibliography</i>	335
<i>Index</i>	357

List of Tables

3.1	Hypothetical Tax Structure	54
3.2	Marginal Tax Reforms: Singles	56
3.3	Marginal Tax Reforms: Couples.	56
3.4	New Zealand Income Tax Structures	57
3.5	2006–7 Tax Structure	58
3.6	2008–9 Tax Structure	59
3.7	Examples of Single Individuals	61
3.8	Examples of Couples with Children.	61
5.1	Simulated and Approximate Optimal Tax Rates.	99
9.1	The Australian Income Tax 2003/2004	190
9.2	Aggregate Effects of Increases and Decreases in Income Tax Rates	191
9.3	Values of $ \frac{\Delta W}{\Delta R} $ Using Money Metric Utility	192
9.4	Atkinson's Index Based on Money Metric Utility and Net Income: Changes in Per Cent.	193
9.5	Values of $ \frac{\Delta W}{\Delta R} $ Using Net Income.	197
9.6	Values of $ \frac{\Delta W}{\Delta R} $ Using Money Metric Utility: Income Threshold Changes (Equivalence Scale Parameter $\alpha = 0.8$).	198
9.7	The Australian Income Tax 2009/2010	200
11.1	A Multi-step Tax Function	228
12.1	Marginal Welfare Cost of Top Marginal Tax Rate	256
12.2	Marginal Welfare Cost for Tax Brackets	261
12.3	Fiscal Drag and Bias in Estimation of Elasticity η	267
13.1	The Distribution of Taxable Income in New Zealand: 2008/09 Tax Year	286

13.2 The New Zealand Income Tax Structure Before and After the 2010 Budget 287

List of Tables

1.1 Hypothetical Tax Structure 287

1.2 Marginal Tax Rates 287

1.3 Marginal Tax Rates 287

1.4 New Zealand Income Tax Rates 287

1.5 1997-1998 Income 287

1.6 1998-9 Tax Returns 287

1.7 Taxation of Single Individuals 287

1.8 Taxation of Couples with Children 287

1.9 Taxation and Approximate Optimal Tax Rates 287

1.10 The Australian Income Tax 2001/2002 287

1.11 Aggregate Effects of Increases and Decreases in Income Tax Rates 287

1.12 Values of $\frac{\partial \ln W}{\partial \ln Y}$ Using Various Models 287

1.13 Returns Policy Based on Mean-Var Risk-Utility and the Income Changes in Per Capita 287

1.14 Values of $\frac{\partial \ln W}{\partial \ln Y}$ Using Various Models 287

1.15 Values of $\frac{\partial \ln W}{\partial \ln Y}$ Using Various Models 287

1.16 Changes in the Social Welfare Function ΔW 287

1.17 The Australian Income Tax 2001/2002 287

1.18 A Multi-step Tax Function 287

1.19 Marginal Welfare Loss of the Marginal Tax Rate 287

1.20 Marginal Welfare Loss for Tax Progressivity 287

1.21 Social Policy and How to Estimate of Elasticity 287

1.22 The Distribution of Taxable Income in New Zealand: 2000/01 287

List of Figures

2.1	A General Tax Function	21
2.2	The Basic Income and Flat Tax (BI-FT)	22
2.3	Marginal and Average Tax Rates with BI-FT	23
2.4	Target Inefficiency of Transfers	24
2.5	A Minimum Income Guarantee	25
2.6	Marginal and Average Tax Rates with MIG	26
2.7	A Modified Minimum Income Guarantee	27
3.1	The Government's Budget Constraint	42
3.2	Maximum Tax Rate	49
3.3	Tax Rate on Top Income	49
4.1	Average and Marginal Tax Rates in the Linear Income Tax Structure	71
4.2	The Government Budget Constraint	72
4.3	Hierarchical Adherence with Single Crossing Indifference Curves	77
4.4	Mean Earnings	80
4.5	Government Budget Constraint	81
4.6	Median Voter Outcomes	82
4.7	Inequality of Net Income and Gross Earnings	87
4.8	Change in Inequality of Wages	87
5.1	A Rectangular Distribution	104
6.1	The Loglinear Tax Function	113
6.2	Variation in $f(\tau)$ with τ for Alternative α	122
7.1	Marginal and Average Tax Rates with a Tax-Free Threshold	135
7.2	Tax Rates in the Linear Tax Structure	138
7.3	A Minimum Income Guarantee	139

7.4	An Alternative Reform.	141
7.5	A Modified Minimum Income Guarantee.	143
7.6	The Modified MIG Without a Tax-Free Threshold.	145
8.1	Budget Constraints For Two Wage Rates.	154
8.2	A Budget Constraint With $a/w < h_1$	157
8.3	A Possible Labour Supply Function.	159
8.4	Labour Supply With High Abatement Rates.	159
8.5	Labour Supply With High Hours Threshold.	160
8.6	Social Welfare And The Discontinuity.	168
8.7	Social Welfare And The Hours Threshold.	168
8.8	Labour Supply Curves.	169
8.9	Inequality and The Discontinuity.	171
8.10	Inequality of Net Income and The Hours Threshold.	171
10.1	Time Preference.	212
10.2	Marginal and Average Tax Rates: Equal Absolute Sacrifice.	218
11.1	Marginal and Average Tax Rates.	229
11.2	Tax Revenue Elasticity.	230
11.3	Elasticity of Allowances: UK.	231
11.4	Income Tax Revenue Elasticities: UK.	232
11.5	Aggregate Budget Shares for Standard and Zero-rate VAT.	238
11.6	Consumption Tax Revenue Elasticities.	239
13.1	Revenue-Increasing Elasticity Combinations.	278
13.2	Elasticity of Total Tax Revenue wrt Tax Rates: Pre-2010 Budget.	288
13.3	Elasticity of Total Tax Revenue wrt Tax Rates: Post-2010 Budget.	288
14.1	Tax Revenue and the Lorenz Curve.	298
14.2	An Increase in Inequality: Fixed Mean Income.	299
14.3	Tax Revenue and Mean-Preserving Spread.	300
14.4	Components of $G(\alpha)$	301
14.5	$G(\alpha)$ as the Sum of Two Distances.	302
14.6	Multi-rate Thresholds and Rates.	304
14.7	The Multi-step Tax Function.	305

Part I

Introduction

Chapter 1

Introduction and Outline

This book is concerned with the thorny question of tax design. Its emphasis is on the issues and problems involved in choosing a tax and transfer structure. Rather than examining the details of particular systems or countries, the following chapters discuss broad problems which can be illustrated using relatively simple models.¹ However, it is well known that even the simplest possible tax structure – a basic untaxed and unconditional transfer payment combined with a proportional tax in a population where individuals differ only in their income-earning ability – presents substantial complexities.

Part II of the book is concerned with the link between economic theory and tax policy. Chapter 2, from which the title of the book is taken, discusses the question of why it is so difficult to design a tax and transfer structure which receives widespread support. It considers the numerous elements involved, such as the information needed, the modelling problems, the constraints on choices and, above all, the range of objectives and value judgements held by different judges. The crucial role of value judgements plays a substantial part in subsequent chapters. The link between economic theory and tax policy is examined further in chapter 3, stressing that there is

¹For detailed examinations of particular tax structures, a valuable role can be played by behavioural tax microsimulation models. These have been discussed in other books by the author and colleagues; see Creedy *et al.* (2002), Creedy and Kalb (2006) and Buddelmeyer, Creedy and Kalb (2007).