Contents

List of Tables		VII	
List of Figures		xiii	
Preface		xvii	
1	Intro	oduction	1
2	Taxa	ition of Income from Capital	21
	2.1	Cost of Capital	23
	2.2	Capital as a Factor of Production	26
	2.3	Rates of Return	29
	2.4	Capital Income Taxation	32
	2.5	Households	34
	2.6	Noncorporate Business	37
	2.7	Corporate Business	41
	2.8	Alternative Approaches	45
3	U.S.	Tax System	49
	3.1	Tax Rates	51
	3.2	Distribution of Assets	60
	3.3	Vintage Price Functions	72
	3.4	Capital Cost Recovery	82
	3.5	Financial Structure	92
	3.6	Alternative Approaches	96
	App	endix	101
4	Effe	ctive Tax Rates	125
	4.1	Economic Impact of U.S. Tax Law	127
	4.2	Effective Tax Rates	132
	4.3	Differences in Effective Tax Rates	154
	4.4	Alternative Approaches	162
5	Dyn	amic General Equilibrium Model	167
	5.1	Commodities	169
	5.2	Producer Behavior	172

vi Contents

	5.3	Consumer Behavior	176
	5.4	Government and Rest of the World	181
	5.5	Market Equilibrium	193
6	Fetin	nating the Parameters	199
U	6.1	Consumer Behavior	201
	6.2	Producer Behavior	213
	6.3	Elasticities	223
	6.4	Other Parameters	231
		endix	235
7		omic Impact of Tax Reform	247
′	7.1	Perfect Foresight Dynamics	249
	7.2	Comparison of Welfare Levels	251
	7.3	Computational Algorithm	254
	7.4	Welfare Effects of Tax Reform	266
	7.5	Efficiency Costs of Taxation	280
	7.6	Efficiency Costs under the 1996 Tax Law	285
	7.7	Alternative Approaches	293
		endix	306
8		damental Tax Reform	317
Ŭ	8.1	Tax Reform Proposals	321
	8.2	Modeling the Tax Reform Proposals	324
	8.3	Welfare Impacts of Fundamental Tax Reform	332
	8.4	Equivalence of Consumption and Labor Income	
		Taxes	353
	8.5	Efficiency Costs of Taxation	365
	8.6	Alternative Approaches	375
	App	pendix	386
9	Maı	ginal Cost of Public Spending	409
	9.1	Determinants of the MCS	411
	9.2	Dynamic General Equilibrium Model	413
	9.3	Estimation of the MCS	415
	9.4	MCS under the 1996 Tax Law	417
	9.5	MCS under Fundamental Tax Reform	424
	9.6	Welfare Impact of the End of the Cold War	427
	9.7	Alternative Approaches	440
R	eferer	nces	447
Iı	ndex		465

List of Tables

3.1	Corporate income tax rates	52
3.2	Distribution of adjusted gross income (AGI), 1995 (%, millions of	
	dollars)	54
3.3	Distribution of AGI, wages and salaries, interest, and dividends,	
	1995 (millions of dollars)	55
3.4	Average marginal tax rates on interest and dividends	56
3.5	Ownership distribution of corporate equity (billions of dollars)	60
3.6	Ownership distribution of corporate net debt (billions of dollars)	62
3.7	Ownership distribution of noncorporate net debt (billions of	
	dollars)	64
3.8	Ownership distribution of government securities (billions of	
	dollars)	66
3.9	Ownership distribution of household net debt (billions of	
	dollars)	68
3.10	Average marginal tax rates on household income	70
3.11	Average marginal tax rates on equity income	73
3.12	Average marginal tax rates on capital gains	74
3.13	Average marginal tax rates on interest income	75
3.14	Property tax rates	77
3.15	Economic depreciation rates: Business assets	86
3.16	Economic depreciation rates: Consumer durables	87
3.17	Present value of capital consumption allowances (z)	90
3.18	Investment tax credits (k)	92
3.19	After-tax corporate profits and dividend payments	95
3.20	Debt/asset ratios	97
A3.1	Ownership composition of corporate equity	101
A3.2	Household ownership distribution of corporate equity (billions	
	of dollars)	102
A3.3	Ownership composition of corporate net debt	103

viii List of Tables

A3.4	Household ownership distribution of corporate net debt	
	(billions of dollars)	104
A3.5	Ownership composition of noncorporate net debt	105
A3.6	Household ownership distribution of noncorporate net debt	
	(billions of dollars)	106
A3.7	Ownership composition of government securities	107
A3.8	Household ownership distribution of government securities	
	(billions of dollars)	108
A3.9	Ownership composition of household net debt	109
A3.10	Household ownership distribution of household net debt	
	(billions of dollars)	110
A3.11	Capital cost recovery periods by asset class	111
A3.12	Depreciation schedule by recovery class under ACRS:	
	1981–1986	113
A3.13a	Depreciation schedules by recovery period under the	
	modified ACRS: 1987–	114
A3.13b	Depreciation schedules under modified ACRS: 1989	115
A3.14	Proportion of capital stock and investment in the lower	
	recovery class: ACRS (1981–1986)	116
A3.15	Proportion of capital stock and investment in the lower	
	recovery class: MACRS (1987–)	118
A3.16a	Capital stock composition (1996)—Producer durable	
	equipment (PDE)	120
A3.16b	Capital stock composition (1996)—Nonresidential structures	
	(NRS)	121
A3.16c	Capital stock composition (1996)—Consumer durables (CD)	122
A3.17	Composition of short-lived and long-lived assets (1996)	122
4.1	Rates of inflation and interest, discount rates, and private	
	rates of return	128
4.2	Effective tax rates on business assets	133
4.3	Effective tax rates on corporate assets	140
4.4	Effective tax rates on noncorporate assets	145
4.5	Effective tax rates on household assets	150
4.6	Effective tax rates on all private assets	152
4.7	Interasset tax wedges	155
4.8	Intersectoral tax wedges: Corporate—noncorporate	157
4.9	Intersectoral tax wedges: Corporate—household	158
4.10	Intersectoral tax wedges: Noncorporate—households	159
6.1	Allocation of full consumption: Parameter estimates	206
6.2	Allocation of full consumption: Local Cholesky values	207
6.3	Allocation of full consumption and household capital	
	services: Parameter estimates	209

List of Tables ix

Allocation of full consumption and household capital services:	
Local Cholesky values	210
Allocation of lifetime wealth, full consumption, and household	
capital services: Parameter estimates	211
Allocation of lifetime wealth, full consumption, and household	
capital services: Local Cholesky values	212
Production frontier: Parameter estimates	219
Production frontier: Local Cholesky values	220
Production frontier and the allocation of corporate and	
noncorporate capital: Parameter estimates	221
Production frontier and the allocation of corporate and	
noncorporate capital: Local Cholesky values	223
Elasticities of consumer behavior	225
Elasticities of producer behavior	230
Non-tax parameters	232
Instrumental variables	235
Capital stock: Corporate	237
Capital stock: Noncorporate	238
Capital stock: Households	239
Capital services: Corporate	240
Capital services: Noncorporate	241
Capital services: Households	242
Time endowment and leisure (in natural units)	243
Labor inputs (in natural units)	244
Consumption and investment goods	245
Full consumption, nominal rate of return on private wealth,	
and technical change	246
Inflation and tax rates (1996)	268
Adjusted gross income and wages and salaries	270
Tax generated at all rates by marginal tax rate (unit: %, billions	
of dollars)	271
Present value of capital consumption allowances (1996)	271
Welfare effects of inflation under the 1996 law (billions of 1997	
dollars)	273
Steady state of the base case (rate of inflation: 4%)	274
Elimination of interasset and intersectoral tax wedges (rate of	
inflation: 4%)	275
Welfare effects of tax distortion: 1996 tax law (billions of 1997	
dollars)	277
Welfare cost of labor tax progressivity under efficient capital	
allocation (billions of 1997 dollars)	281
Efficiency cost of taxation in the United States: 1996 Tax Law	287
	Local Cholesky values Allocation of lifetime wealth, full consumption, and household capital services: Parameter estimates Allocation of lifetime wealth, full consumption, and household capital services: Local Cholesky values Production frontier: Parameter estimates Production frontier: Local Cholesky values Production frontier and the allocation of corporate and noncorporate capital: Parameter estimates Production frontier and the allocation of corporate and noncorporate capital: Local Cholesky values Elasticities of consumer behavior Elasticities of producer behavior Non-tax parameters Instrumental variables Capital stock: Corporate Capital stock: Noncorporate Capital stock: Noncorporate Capital services: Corporate Capital services: Corporate Capital services: Households Time endowment and leisure (in natural units) Labor inputs (in natural units) Consumption and investment goods Full consumption, nominal rate of return on private wealth, and technical change Inflation and tax rates (1996) Adjusted gross income and wages and salaries Tax generated at all rates by marginal tax rate (unit: %, billions of dollars) Present value of capital consumption allowances (1996) Welfare effects of inflation under the 1996 law (billions of 1997 dollars) Steady state of the base case (rate of inflation: 4%) Welfare effects of tax distortion: 1996 tax law (billions of 1997 dollars) Welfare cost of labor tax progressivity under efficient capital allocation (billions of 1997 dollars)

x List of Tables

7.11	Transition paths of labor income tax rates under efficient	
	capital allocation	292
7.12a	Efficiency cost of taxation: Efficient capital allocation with	
	progressive labor income tax and additive labor tax adjustment	294
7.12b	Efficiency cost of taxation: Efficient capital allocation with	
	progressive labor income tax and proportional labor tax	
	adjustment	296
7.12c	Efficiency cost of taxation: Efficient capital allocation with	
	proportional labor income tax and additive labor tax	
	adjustment	298
7.13	Efficiency costs of taxation: Comparison with other studies	301
7.14	Comparison with Ballard-Shoven-Whalley	302
A7.1	Dynamic paths of variables controlled across simulations	
	(billions of units)	306
A7.2	Dynamic paths of selected variables: Base case (billions of units)	307
8.1	Tax parameters of fundamental tax reform proposals—Lump	
	sum tax adjustment, central cases	333
8.2a	Welfare effects of fundamental tax reform—Flat tax (billions of	
	1997 dollars)	334
8.2b	Welfare effects of fundamental tax reform—National Retail	
	Sales Tax (billions of 1997 dollars)	334
8.3	Transition paths of tax rates: Flat taxes ($t_C = t_C^a = t_I = 0.058$)	337
8.4	Transition paths of tax rates: National retail sales tax	341
8.5a	Investment in the corporate sector (billions of dollars)	346
8.5b	Investment in the noncorporate sector (billions of dollars)	347
8.6a	Unused depreciation allowances on capital stock of 1996:	
	Corporate (billions of dollars)	349
8.6b	Unused depreciation allowances on capital stock of 1996:	
	Noncorporate (billions of dollars)	351
8.7	Welfare effects of continued deduction of depreciation	
	allowances and property taxes under the Flat Tax (billions of	
	1997 dollars)	354
8.8	Variation of economic variables during transition	360
8.9	Relative prices under the flat taxes—steady state	364
8.10	Efficiency cost of taxation under reform proposals—Hall-	
	Rabushka with flat tax adjustment	367
8.11	Efficiency cost of taxation under reform proposals—Armey-	
	Shelby with flat tax adjustment	368

List of Tables xi

8.12a	Efficiency cost of taxation under reform proposals—Plan 1, NRST: Progressive Sales Tax, No Labor Income Tax with sales	
	tax adjustment	369
8.12b	Efficiency cost of taxation under reform proposals—Plan 2,	
	NRST: Flat Sales tax, no Labor Income Tax with sales tax	
	adjustment	370
8.12c	Efficiency cost of taxation under reform proposals—Plan 4: Flat Sales Tax and Flat Labor Income Tax with sales tax and labor	
	income tax adjustment	371
8.12d	Efficiency cost of taxation under reform proposals—Plan 5:	
	Progressive Sales Tax and Flat Labor Income Tax with sales tax and labor income tax adjustment	372
8.12e	Efficiency cost of taxation under reform proposals—Plan 7: Flat	
	Labor Income Tax and No Sales Tax, with labor income tax	
	adjustment	373
8.13	Transition to consumption tax: Welfare effects and long-run	
	resource allocation in alternative models. Percentage changes	
	from the base case	377
8.14	Long-run effects of transition relief under flat tax: Auerbach-	
	Kotlikoff vs. Jorgenson-Yun. Percentage changes from the base case	383
8.15	Transition to proportional wage taxes: Fullerton-Rogers vs.	505
0.13	Jorgenson-Yun (Long-Run). Percentage changes from the base	
	case	384
A8.1	Steady-state tax parameters under alternative policies	388
A8.2	Steady-state resource allocation under alternative policies	391
A8.3	Dynamic paths of selected variables: Hall-Rabushka (billions of	
1 10.5	dollars)	394
A8.4	Dynamic paths of selected variables: Armey-Shelby (billions of	
110.4	units)	395
A8.5	Dynamic paths of selected variables: NRST Plan 1 (Progressive	
110.0	NRST) (billions of units)	397
A8.6	Dynamic paths of selected variables: NRST Plan 2 (Flat NRST)	
110.0	(billions of dollars)	398
A8.7	Dynamic paths of full consumption (billions of units)	400
A8.8	Dynamic paths of labor supply (billions of units)	401
A8.9	Dynamic paths of total capital stock (billions of units)	403
A8.10	Dynamic paths of real private rate of return, all assets	404
9.1	Marginal cost of public spending (1996 tax law)	418
9.2	Resource allocation in the steady states (1996 tax law)	421

xii List of Tables

9.3	Marginal cost of public spending under tax reform proposals—	
	Hall-Rabushka with flat tax adjustment	425
9.4	Marginal cost of public spending under tax reform proposals—	
	Armey-Shelby with flat tax adjustment	425
9.5a	Marginal cost of public spending under tax reform proposals—	
	Plan 1, NRST: Progressive Sales Tax and no Labor Income Tax	
	with sales tax adjustment	428
9.5b	Marginal cost of public spending under tax reform proposals—	
	Plan 2, NRST: Flat Sales Tax and No Labor Income Tax with	
	sales tax adjustment	428
9.5c	Marginal cost of public spending under tax reform proposals—	
	Plan 4, NRST: Flat Sales Tax and Flat Labor Income Tax with	
	sales tax and labor income tax adjustment	429
9.5d	Marginal cost of public spending under tax reform proposals—	
	Plan 5, NRST: Progressive Sales Tax and Flat Labor Income Tax	
	with sales tax and labor income tax adjustment	429
9.6	Defense spending and the U.S. economy (billions of dollars)	434
9.7	Inputs for projection of defense spending	436
9.8	Projected defense spending and its composition	438
9.9	Welfare effects of the reduction in defense spending (billions of	
	1991 dollars)	438
9.10	Comparison with other studies	441
9.11	Detailed comparison with BSW and Fullerton and Henderson	443

List of Figures

3.1	Corporate income tax rates	53
3.2	Average marginal tax rates on interest and dividends	57
3.3	Ownership distribution of corporate equity	6
3.4	Ownership distribution of corporate net debt	63
3.5	Ownership distribution of noncorporate net debt	65
3.6	Ownership distribution of government securities	67
3.7	Ownership distribution of household net debt	69
3.8	Average marginal tax rates on household income	7
3.9	Average marginal tax rates on equity income	73
3.10	Average marginal tax rates on capital gains	75
3.11	Average marginal tax rates on interest income	76
3.12	Property tax rates	78
3.13	Corporate dividend pay-out ratio (α)	96
3.14	Debt/asset ratios	98
A3.1	Composition of capital stock: Short-lived assets	123
A3.2	Composition of capital stock: Long-lived assets	123
4.1a	Nominal interest rate and inflation in the price of asset	130
4.1b	Discount rates for investment income	130
4.1c	Private rates of return	131
4.2a	Social rates of return on business assets ($\sigma^b - \pi$): PDE, NRS, RS,	
	ND	13ϵ
4.2b	Social rates of return on business assets ($\sigma^h - \pi$): S, L, A	13ϵ
4.2c	Effective tax rates on business assets (e^b): PDE, NRS, RS, ND	137
4.2d	Effective tax rates on business assets (e^h): S, L, A	137
4.3a	Social rates of return on corporate assets ($\sigma^q - \pi$): PDE, NRS, RS,	
	ND	143
4.3b	Social rates of return on corporate assets $(\sigma^b - \pi)$: S, L, A	143

4.3c	Effective tax rates on corporate assets (e^q): PDE, NRS, RS, ND	144
	Effective tax rates on corporate assets (e^q) : S, L. A	144
4.4a	Social rates of return on noncorporate assets ($\sigma^m - \pi$): PDE,	
	NRS, RS, ND	148
4.4b	Social rates of return on noncorporate assets ($\sigma^m - \pi$): S, L, A	148
4.4c	Effective tax rates on noncorporate assets (e^m) : PDE, NRS, RS,	
	ND	149
4.4d	Effective tax rates on noncorporate assets (e^m) : S, L, A	149
4.5a	Social rates of return on household assets $(\sigma^h - \pi)$	151
4.5b	Effective tax rates on household assets (e^h)	151
4.6a	Social rates of return on all private assets $(\sigma^a - \pi)$	153
4.6b	Effective tax rates on all private assets (e^a)	153
4.7a	Interasset tax wedge: Corporate	156
4.7b	Interasset tax wedge: Noncorporate	156
4.8	Intersectoral tax wedges: Corporate—noncorporate	160
4.9	Intersectoral tax wedges: Corporate—household	160
4.10	Intersectoral tax wedges: Noncorporate—household	161
7.1	Transition path under perfect foresight	249
7.2	Efficiency cost of taxation	282
7.3	Efficiency cost of taxation in the United States: 1996 Tax Law	289
7.4	Transition paths of labor income tax rates under efficient	
	capital allocation	293
7.5	Marginal efficiency cost of taxation in the United States	300
7.6	Average efficiency cost of taxation in the United States	300
	Social rates of return: Base case	308
A7.1b	Social rates of return. No interasset wedges: Corporate and	
	noncorporate sectors	309
A7.1c	Social rates of return. No intersector wedges: Corporate and	
	noncorporate sectors	309
A7.1d	Social rates of return. No intersector wedges: All sectors	310
A7.1e	Social rates of return. No interasset and intersector wedges:	
	All assets, corporate and noncorporate sectors	310
A7.1f	Social rates of return. No interasset and intersector wedges:	
	All assets, all sectors	311
A7.1g	Social rates of return. Corporate tax integration	311
	Effective tax rates: Base case	312
A7.2b	Effective tax rates. No interasset wedges: Corporate and	
	noncorporate sectors	312
A7.2c	Effective tax rates. No intersector wedges: Corporate and	
	noncorporate sectors	313

List of Figures xv

A7.2d	Effective tax rates. No intersector wedges: All sectors	313
A7.2e	Effective tax rates. No interasset and intersector wedges: All	
	assets, corporate and noncorporate sectors	314
A7.2f	Effective tax rates. No interasset and intersector wedges: All	
	assets, all sectors	314
A7.2g	Effective tax rates. Corporate tax integration	315
A7.3	Dynamic paths of variables controlled across simulations	315
8.1a	Transition paths of tax rates: Flat tax, Hall-Rabushka	338
8.1b	Transition paths of tax rates: Flat taxes, Armey-Shelby	338
8.2a	Transition paths of tax rates: Plans 1 and 2 of NRST	343
8.2b	Transition paths of tax rates: Plans 4, 5, and 7 of NRST	343
8.3	Unused depreciation allowances on capital stock of 1996	
	(billions of dollars)	352
8.4a	Marginal efficiency cost of flat tax: Hall-Rabushka and Armey-	
	Shelby	366
8.4b	Average efficiency cost of flat tax: Hall-Rabushka and Armey-	
	Shelby	366
8.5a	Marginal efficiency cost of flat tax: Hall-Rabushka and Armey-	
	Shelby	374
8.5b	Average efficiency cost of national retail sales tax: Plans 1, 2, 4,	
	5, and 7	374
A8.1	Dynamic paths of full consumption (billions of units)	386
A8.2	Dynamic paths of labor supply (billions of units)	386
A8.3	Dynamic paths of total capital stock (billions of units)	387
A8.4	Dynamic paths, of real private rate of return, all assets	387
9.1	Marginal cost of public spending (1996 laws): all taxes	419
9.2	Marginal cost of public spending for Flat Tax proposals: All	
	taxes, additively separable benefits	426
9.3	Marginal costs of public spending for Flat Tax proposals: All	
	taxes, perfect substitutes	426
9.4a	Marginal costs of public spending for national retail sales tax:	
	All taxes, additively separable benefits	430
9.4b	Marginal costs of public spending for national retail sales tax:	
	All taxes, perfect substitutes	430
	The share of defense spending in GDP (SDS)	435
9.6	Composition of defense spending	439