The Marginal Cost of Public Funds

Theory and Applications

by Bev Dahlby

The MIT Press
Cambridge, Massachusetts
London, England

© 2008 Massachusetts Institute of Technology

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from the publisher.

MIT Press books may be purchased at special quantity discounts for business or sales promotional use. For information, please e-mail special_sales@mitpress.mit.edu or write to Special Sales Department, The MIT Press, 55 Hayward Street, Cambridge, MA 02142.

This book was set in Times New Roman on 3B2 by Asco Typesetters, Hong Kong, and was printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data
Dahlby, B.
The marginal cost of public funds : theory and applications / Bev Dahlby.
p. cm.
Includes bibliographical references and index.
ISBN 978-0-262-04250-5 (hbk. : alk. paper)
1. Expenditures, Public—Cost effectiveness. I. Title.
HJ7461.D34 2008
336.3′9—dc22 2007032264

10 9 8 7 6 5 4 3 2 1

Index

Numbers in italics refer to tables and figures.

Addiction/self-control problems and taxes, 75–77, 95–96
Ad valorem taxes, 70–73, 74, 249, 266
Africa, *81*
Ahmad, E., *79*, 92, 245
Ahmad, S., *137*
Aiyagari, S. R., 238
Alcohol
 calculation of marginal cost of public funds and taxes on, 99–102
 market distortions, 97–98, 111
 smuggling, 98
 taxes, 75, 89–91, 93, 106–11
Alternative foreign income tax systems, 190–97, *198*
Anderson, J., 47
Ardagna, S., 238
Atkinson, A., 23, 43, 171, 179, 180
Atkinson-Stern condition, 23–24, 43–44, 135, 150–59
Auerbach, A., 44, 197, 199, 201
Auriol, E., *81*
Australia, *137*, *200*, 241, 255, 273
 equalization grant system, 282–89

Ballard, C., 44, 45, 65, *80*, *137*, *200*
Bangladesh, *79*, *81*
Barro, R., 209, 217
Baylor, M., *80*, *137*, 199, *200*
Beausejour, L., *80*, *137*, *200*
Belgium, *79*
Bernheim, B., 199
Besley, T., 78
Bessho, S., 114, 126
Bielinska-Kwapisz, A., 101, 105
Binswanger, H., 157
Bloom, N., 280
Blundell, R., 92
Boadway, R., 246, 257
Bond, K., *137*
Bovenberg, A., 65
Bowen, W., 206–207
Brennan, G., 135
Breton, A., 244–45
Browning, E., 43, 44, 45, *137*
Brule, A., 189
Brülhart, M., 272
Brunei, 87
Buchanan, J., 135, 206–207
Bucovetsky, S., 290
Buettner, T., 289

Cambodia, 87
Cameroon, *79*, *81*
Campbell, H., 43, *80*, *137*
Canada, 91, 273
 corporate income tax revenues in, 246
 equalization grants, 241, 255
 foreign tax credit system, 194
 marginal cost of public funds from public sector borrowing in, 233–37
 marginal distortionary cost of taxes on labor income in, *137*, *139*
 marginal distortionary cost of taxes on return to capital, *200*
 marginal distortionary cost of taxing commodities in, *79*, *80*
 marginal effective tax rate in, 189
 optimal capital tax rates in, 173
 public debt to capital ratio, 210–11
 tax incentives for R&D, 276–82
Capital
 crowding-out effect on, 207–208
 elasticity of demand for, 267
 foreign tax credit system, 192–97
 marginal cost of public funds from taxing return to, 184–89
 marginal distortionary cost from taxing return to, 199–202
 mobility between subnational governments, 248–52
 optimal tax rates on, 171–80
 ratio, sustainable debt to, 210–11
 switching to consumption tax from tax on, 181–84

Carter Commission, 194
Caselli, F., 238
Cassing, J., 257
Chandoevwit, W., 87
Chennells, L. A., 107
Cnossen, S., 97
Cobb-Douglas production function, 172, 188–89, 210, 215–16, 219
Commodities
 addiction/self-control problems and, 75–77
 environmental externalities and, 63–65
 imperfect competition and, 66
 marginal distortionary cost of taxing, 78–82
 monopoly and, 67–70
 multiple tax bases and, 55–57
 optimal taxation, 58–62
 smuggling, 53, 77–78, 98
 taxes imposed on different, 51–52
 taxes in Thailand, 87–88
Compensated demand function, 14, 17, 48
Compensating variation (CV), 11, 16
Competition
 imperfect, 52–53, 66, 97–98
 monopoly and, 67–70
 perfect, 48–49
Consumer surplus (CS), 11, 18
 based measure of excess burden, 33
Consumption
 income opportunity curve and, 161–62, 167–70
 private, 223–24
 taxes, 35–36, 89–91, 174–84
Cooley, T., 237
Corlett and Hague rule, 52, 60–62, 171, 176–77
Corporate income tax (CIT), 173–74, 189–99
 foreign tax credit system and, 192–95
 marginal cost of public funds for, 190–99
 wage tax rates and optimal, 198–99
Cost–benefit analysis, 46–47, 150–59
Cournot duopoly, 73
Coyne, Andrew, 243, 244
Cragg, M., *79*
Creedy, J., 136
Cross-border shopping model, 275, 290–302
Croushore, D., *137*
Crowding out effect of public debt, 207–208, 216–17

Dahlby, B., 87, 113, *137*, 257, 280
 on Australian equalization grant system, 275, 282, 289
 on equalization grants, 255, 275
 on fiscal imbalances, 242, 246, 247
 on labor income, 121
 on vertical tax externalities, 258–59
Damus, S., 194, 202
Dasgupta, P., 43
Davis, R., 206–207
Deadweight losses, 43–44
Deaton, A., 90
Decoster, A., 62, *79*, 92
Deduction system, foreign investment, 196–97
Delipalla, S., 74, 82, 88, 108, 111
Demand
 capital, 267
 compensated, 14, 17, 48
 elasticity, 29–30, 36–37, 74, 90, 109–11, 116, 119–21, 267
 household ordinary, 38–39
 labor, 109, 116, 119–21
 and supply curves and MCF, 28–30
Denmark, 129
Desai, M., 197
Devarajan, S., *79*, *81*
Diamond, P., 43, 136
 on public debt, 205, 208, 209, 211, 212–14
Diewert, E., *79*, *80*, *81*, *137*, *200*
Dilnot, A., 107
Direct fiscal externalities, 242–43
Disposable income, 57
Distortion, market, 97–98, 111
 unemployment and, 148–50
Distortionary taxes, 12, 78–82, 136
 effect, 225
 public debt financed by, 214–17
Distributional preferences in marginal cost of public funds, 38–42
Double dividends, 63

Ebrahimi, A., 92
Elasticity
 commodity demand, 29–30, 36–37, 74, 90, 109–11
 inverse, 60
 labor demand, 109, 116, 119–21, 257–63
 labor supply, 116–19, 123, 125–26
 marginal utility of income, 36–37
 price, 90–91, 109–11
 of taxable income and marginal cost of public funds, 130–32
Electricity taxes, 91–92
Elmendorf, D., 205, 214
Endogenous growth model
 AK model, 221–26
 marginal cost of public funds in, 226–29
Enforcement tax, 143, 150–59
Engen, E., 238
Environmental externalities, 63–65, 93–95
Equalization grants, 241–42, 273–74
 Australian system, 282–89
 correcting horizontal expenditure externalities, 253–54
 correcting horizontal tax externalities, 254–55, 289–302
 federation with net, 295–96
 optimal, 255–57
 simulation model of effects of, 297–302

Equivalent variation (EV), 11, 14–15, 48
Erbil, C., 47, *80*, *81*
Evasion, tax, 118–19, 153
Excess burden of taxation
 compensated demand curve, 14, 17
 consumer surplus and, 11, 18
 gain from tax reform and, 18–22
 marginal, 12
 measuring, 13–18, 43
 relationship to marginal cost of public funds, 31–33
Excise taxes, Thailand
 marginal cost of public funds calculation and, 99–102
 marginal cost of public funds for, 88–89
 parameter values, 89–98
 price elasticity and, 90–92
 as sin taxes, 95–96
 social marginal cost of public funds calculation and, 102–104
Excise taxes, United Kingdom
 marginal cost of public funds for, 87–88, 105
 parameter values, 106–11
Exemption systems, foreign investment, 195–96
Expenditures. *See* Public expenditures
Externalities
 environmental, 63–65, 93–95
 horizontal and vertical tax, 263–73
 horizontal fiscal, 242–52
 horizontal tax, 254–55
 marginal cost of public funds with, 63–66
 public expenditure, 65–66, 253–54
 vertical fiscal, 242–47, 257–63

Federation/federalism. *See also* State governments
 with gross equalization grant system, 296–97
 with net equalization grant system, 295–96
 unitary state, 293–294
 without intergovernmental transfers, 294–95
Feldstein, Martin, 1, 114, 130–31, *137*, 171, 181
Findlay, C., *137*
Fiscal externalities. *See* Horizontal fiscal imbalances
Fiscal imbalances. *See* Vertical fiscal imbalances
Flat tax, optimal, 143–44, 159–60
 computing, 167–70
 conditions for, 160–67
Flowers, M., 257
Foley, F., 197
Forbes, Steve, 143
Foreign income tax, 190–91
 deduction system, 196–97
 exemption system, 195–96
 foreign tax credits in, 191–95
 optimal corporate income tax and, 198–99
Fortin, B., 136, *137*, 158
Free trade, marginal cost of public funds for tariff and gain from, 33–38
Fuel taxes, 91–93, 103–105, 106–11
Fuest, C., 202
Fullerton, D., 44, 45, *138*, *200*

Gain from revenue-neutral tax reform, 18–22
Galbraith, J., 91
Gasoline taxes, 91–93
Germany, 210, 241, 255, 289
Goolsbee, A., 131
Gordon, R., 197, 202, 245
Governments. *See* Federation/federalism; State governments
Grants, intergovernmental. *See* Intergovernmental grants
Green taxes, 63–65
Griliches, Z., 279
Grisley, W., 157
Gronberg, T., 45
Gross domestic product, 235–37
Gross equalization grant system, 296–97
Grossman, M., 93
Gruber, J., 91, 96, 131, 136, *138*, 246

Hall, B., 279
Hall, G., 280
Hall, R., 237–38
Hansson, I., *138*, 257
Harberger, A., 40, 43
Hartman, D., 196
Hassett, K., 197
Hayahi, M., 114, 126
Hayakawa, T., 238
Heady, C., 92
Henderson, Y., *138*, *200*
Hettich, W., 245
High- vs. low-wage earners, 140–41
Hillman, A., 257
Hines, J., 44, 197, 199, 202
Hobson, P., 194, 202
Horizontal expenditure externalities, 253–54
Horizontal fiscal imbalances, 247. *See also* Vertical fiscal imbalances
 combined with vertical imbalances, 263–73, 289–302
 equalization grants and, 254–55, 289–302
 externalities, 254–55
Hubbard, R., 238
Huber, B., 202
Huizinga, H., 172

Imbalances, fiscal. *See* Horizontal fiscal imbalances; Vertical fiscal imbalances
Immervoll, H., 129
Imperfect competition, 52–53, 66, 97–98
Incentives, tax
 Australian equalization grant system, 282–89
 R&D, 275, 276–82
India, *79*

Indifference curves, 15
Indirect fiscal externalities, 242–43
Indonesia, *79*, *81*
Intergovernmental grants, 273–74. *See also* State governments
 correcting horizontal expenditure externalities, 253–54
 correcting horizontal tax externalities, 254–55
 federation without, 294–95
 optimal equalization grants, 255–57
Inverse elasticity rule, 60
Involuntary unemployment, 144–50
Ireland, *80*

Jametti, M., 272
Japan, 126, 189
Jewitt, I., 78
Johnson, W., 257
Jones, C., 44–45
Jones, R., *137*
Jones, S., 149
Jong-wook, Lee, 95
Jorgenson, D., *81*, *138*, *200*
Judd, K., *138*, 199, *201*

Kaiserman, M., 91
Kanbur, R., 275, 290
Kaplow, L., 46
Keen, M., 82, 172, 267
 on cost–benefit analysis, 47
 cross-border shopping model, 275, 290
 on fiscal imbalances, 242, 257, 263, 265, 272
Keynesian orthodoxy, 206–209
Kleven, H., 114, 127, 128–29, *138*
Kopf, D., 206–207
Köszegi, B., 96
Kotlikoff, L., 201
Kotsogiannis, C., 242, 257, 263, 265, 267, 272
Kreiner, C., 114, 127, 128–29, *138*
Krieger, S., 237–38
Kydland, F., 221

Labor demand elasticity, 109, 116, 119–21
 vertical fiscal externalities and, 257–63
Labor income
 consumption-income opportunity curve and, 161–62, 167–70
 elasticity, 130–32
 high- vs. low-wage earner, 140–41
 and incorporating labor force participation effects in MCF, 126–29
 involuntary unemployment and, 144–50
 labor demand elasticity and, 109, 116, 119–21
 labor supply elasticity and, 116–19, 123, 125–26
 marginal cost of public funds for proportional tax on, 115–21
 marginal distortionary cost of taxing, 136
 marginal utility of, 36–37, 182–83
 personal, 57
 progressive wage taxes and, 121–26
 proportional wage taxes and, 115–21
 social marginal cost of public funds and, 113–14
 tax enforcement programs, 143, 150–59
Labor supply elasticity, 46, 116–19, 123, 125–26, 179–80
Lacroix, G., 136, *137*, 158
Laffer curve
 marginal cost of public funds and, 25–26, 34, 51, 54, 136, 227
 tax rates and revenue and, 257–58
Lagrange multiplier, 218–19, 230
Lane, T., 238
Lawrence, D., *79*, *80*, *81*, *137*, *200*
Leechor,C., 196
Lerner, Abba, 206
Leviathan model, 135–36
Ligthart, J., 47
Lin, S., 238
Liu, L., 45, 46–47, 227
Lucas, R., 237–38
Lump-sum taxes, 20–21, 43
 excess burden of taxation and, 15–16
 imperfect competition and, 66
 labor income and, 117
 public debt and, 209, 210

Madden, D., *80*, 92
Mankiw, N. G., 201, 205, 214, 237
Manning, W., 95
Mansfield, E., 279
Mansour, M., 189
Marginal cost of public funds (MCF). *See also* Social marginal cost of public funds (SMCF)
 alternative interpretations of, 42–47
 calculations of, 98–102, 111, 130–32
 consumer and producer surplus and, 11
 corporate income tax and, 190–99
 cost–benefit analysis and, 46–47
 deadweight losses and, 43–44
 demand and supply curves and, 28–30
 in different levels of government, 242–47
 distributional preferences and, 38–42
 effects of equalization grants on, 297–302
 elasticity of taxable income and, 130–32
 endogenous growth model, 221–37
 environmental externalities and, 63–65
 excess burden of taxation and, 11–22
 excise taxes in Thailand, 88–105
 with externalities, 63–66
 gain from tax reform and, 24–28
 imperfect competition and, 52–53, 66
 involuntary unemployment and, 144–50
 labor force participation effects on, 126–29
 Laffer curve and, 25–26, 34, 51, 54, 136, 227
 Leviathan model and, 135–36
 measurement, 45–46

median voter model, 132–33
in models of political choice, 132–36
monopoly and, 67–73, 82–83
with multiple tax bases, 55–57
oligopoly and, 73–74
optimal commodity taxation and, 58–62
optimal taxation and public expenditures and, 22–24
payroll taxes and, 144–50
present value of net revenue stream and, 227–29
probabilistic voting model and, 133–35
for proportional tax on labor income, 115–21
from public debt, 209–17
public expenditure externalities and, 65–66
from public sector borrowing, 233–37
R&D funds and, 276–82
relationship to marginal excess burden, 31–33
smuggling and, 77–78
for tariff and gain from free trade, 33–38
from taxing return to capital in small open economy, 184–89
from taxing return to savings in small open economy, 174–84
tax rates on specific commodities and, 51–52
in Thailand, 87–105
in the United Kingdom, 87–88, 105–11
Marginal distortionary cost of taxing
commodities, 78–82
labor income, 136
return to capital, 199–202
Marginal effective tax rate (METR), 189
Marginal efficiency cost (MEC), 136
Marginal excess burden of taxation (MEB), 12, 136, 202
relationship to marginal cost of public funds, 31–33
Marginal proportional deadweight loss, 43
Marginal revenue cost of increasing welfare, 42
Marginal utility of income, 36–37, 182–83
Market distortion, 97–98, 111
unemployment and, 148–50
Martin, Paul, 243
Mayshar, J., 41, 46
MCF. *See* Marginal cost of public funds (MCF)
McGrattan, E., 235
McKenzie, K., 189
Meade, James, 206
Measurement
excess burden, 13–18, 43
gain from free trade, 33–38
gain from tax reform, 18–22
marginal cost of public funds, 45–46
Medema, S., 65
Median voter model, 132–33
Mendoza, E., 106
Mexico, 197
Mieszkowski, P., 241
Mintz, J., 196, 202, 246
Mirrlees, J., 43, 159–60
Mobile phones, 98
Mobility of capital between subnational governments, 248–52
Modigliani, Franco, 206, 207, 208, 209, 211
Monopoly, 67–70
ad valorem vs. per unit taxes and, 70–73, 82–83
Moore, J., *139*
Muellbauer, J., 90
Mullainathan, S., 96
Multiple tax bases, 55–57
Myles, G., 78

Nadiri, M., 279, 281
Net social gain (NSG), 152, 158–59
Newbery, M., 94
New tax responsiveness (NTR), 114, 130–31, 131
New Zealand
marginal distortionary cost of taxes on labor income, *137*
marginal distortionary cost of taxing commodities in, *79*, *80*, *81*
Nielsen, S., 172
Nonshirk constraint (NSC), 145–47

O'Donnell, O., 74, 88, 108, 111
O'Donoghue, T., 53, 75, 96
Ohanian, L., 237
Oligopoly, 73–74
Optimal equalization grants, 255–57
Optimal taxation
commodities, 58–62
corporate income tax, 198–99
flat tax, 159–70
green taxes and, 65
public expenditures and, 22–24, 217–21
on savings, 176–80
Overlapping generations model of public debt, 209–14

Pakistan, *79*
Parameter values, excise taxes, 89–98, 106–11
Parry, I., *80*, 87–88, 91, 92, 105, 107–10, 111
Participation effects, labor force, 126–29
Pattamasiriwat, D., 91
Payroll taxes, 144–50, 194–95
Perfect competition, 48–49
Personal income tax (PIT), 57
Petrol taxes. *See* Fuel taxes
Pigou, A. C., 42–43, 63
Pigou-Harberger-Browning (PHB) tradition, 45–46
Pigouvian tax rule, 52, 65
Poapongsakorn, N., *139*, 143, 155
Political choice models
Leviathan, 135–36
median voter, 132–33
probabilistic, 133–35
Prescott, E., 221

Present value of net revenue stream, 227–29
Prices
  elasticity, 90–92, 109–11
  household welfare losses and, 39
  inelasticity, 91–92
Probabilistic voting model, 133–35
Progressive wage taxes, 121–26
Proportional wage taxes, 115–21, 181
Public debt
  to capital ratio, 210–11
  crowding out effect of, 207–208, 216–17
  effect on optimal public expenditures, 229–33
  endogenous growth model, 221–37
  financed by distortionary taxation, 214–17
  marginal cost of public funds from, 209–14, 216
  marginal cost of public funds from public sector borrowing in Canada and the US, 233–37
  overlapping generations model, 209–14
  postwar debates on burden of, 206–209
  tax smoothing and, 217–21
Public expenditures
  effect of public debt on optimal, 229–33
  expenditure function, 14
  externalities, 65–66, 93–95, 253–54
  gross domestic product and, 235–37
  monopoly and, 67–73
  optimal, 229–33
  optimal taxation and, 22–24, 217–21

Rabin, M., 53, 75, 96
Ramsey rule
  commodity taxes and, 52, 58, 59–60, 62, 78
  in federations, 276, 294, 301
  taxing return to capital and, 177
Rankin, N., 210
Razin, A., 106
R&D, 275
  Canadian tax incentives for, 276–82
Reform, tax
  distributional concerns and, 40–42
  marginal cost of public funds and, 24–28
  measuring gain from, 18–22
  supply and demand curves and, 28–30
  tariff, 47
  tax rate changes in, 26–27
Representative tax system (RTS), 283, 296–300
Return to capital, taxing, 184–89
Return to savings, taxing, 174–84
  optimal rate of, 176–80
  switching to consumption tax from, 181–84
Revenue-neutral tax reform, 18–22, 24–28
Ricardian equivalence effect, 205, 209, 214, 221, 225–26
Risk aversion, 153
Roback, N., 107
Roffia, B., 210
Roy's theorem, 21, 123–24
Ruggeri, G., 136, *139*

Saez, E., 131, 136, *138*, 160, 246
Saint-Paul, G., 238
Samuelson condition, 24, 43
Sandmo, A., 46, 171, 179, 180
Sarntisart, I., 90, 91, 98
Savings
  economy growth rate and, 224–25
  labor supply and, 179–80
  optimal tax rate on, 176–80
  taxing return to, 174–84
Scarth, W., 238
Schmitz, J., Jr., 235
Schokkaert, E., 62, *79*, 92
Sen, A., 91
Shah, A., 197
Shapiro, C., 143, 144
Shirking, 145–47
Shome, P., 136
Shoven, J., 44, *80*, *137*, *200*
Sillers, D., 157
Simulation models
  of effects of equalization grants, 297–302
  of vertical fiscal imbalance, 268–73
Skeath, S., 78
Slemrod, J., 136, 160, 197
Slutsky condition, 32, 58, 110
Small, K., 91
Smart, M., 97, 246, 289, 290
Smith, S., 93, 95, 96
Smoothing, tax, 217–21
Smuggling, 53, 77–78, 98
Snoddon, T., 289
Social marginal cost of public funds (SMCF), 12–13, 22–24, 39. *See also* Marginal cost of public funds (MCF)
  calculation of, 102–104
  commodity taxes, 62
  cost–benefit analysis and tax enforcement programs, 150–59
  flat tax and, 160, 162
  labor force participation and, 128
  labor income and, 113–14
  net social gain and, 152, 158–59
  progressive wage tax and, 121–26
  proportional wage tax and, 115–21
  tax enforcement programs and, 152–59
  taxes on capital and, 252
Social welfare function, 163–67, 185–86
Stabile, M., 91
State governments. *See also* Federation/federalism
  cross-border shopping model, 275, 290–302
  equalization grants and, 282–89
  fiscal externalities and fiscal imbalances between federal and, 242–47
  horizontal and vertical fiscal imbalances in, 263–65, 289–302
  intergovernmental grants and, 253–57
  marginal cost of public funds for, 265–68

simulation model of vertical fiscal imbalance, 268–73
unitary, 293–94
vertical fiscal externalities and, 257–63
Stern, N., 23, 43, *79*, 92, 167, 245
Stiglitz, J., 43, 143, 144
Stiglitz-Dasgupta-Atkinson-Stern (SDAS) approach, 45–46
Stokey, N., 237–38
Stuart, C., 44, *138*, *139*, 257
Subnational governments
horizontal fiscal externalities in, 248–52
intergovernmental grants and, 253–57
Summers, L., 201
Supply
and demand curves and MCF, 28–30
labor, 116–19, 123, 125–26, 179–80
Sweden, *138*
Switzerland, 272

Tanzi, V., 136
Tariffs, 33–38
reform, 47
Taxes. *See also* Excise taxes
addiction/self-control problems and, 75–77, 95–96
ad valorem vs. per unit, 70–73, 74, 249, 266
alcohol, 75, 89–91, 93, 106–11
bases, multiple, 55–57
on capital, 171–74
consumption, 35–36, 181–84
corporate income, 173–74, 189–99
direct vs. indirect externalities, 242–43
enforcement programs, 143, 150–59
equalization grants and, 241–42, 253–55, 273–74, 282–302
evasion of, 118–19, 153
excess burden of, 13–22, 31–33
externalities, horizontal, 254–55
flat, 143–44, 159–70
foreign income, 190–97
fuel and electricity, 91–93, 103–105, 106–11
green, 63–65
incentive effects of equalization grants, 282–89
incentives for R&D, 276–82
lump-sum, 15–16, 20, 21, 43, 66, 117, 209, 210
marginal distortionary cost of, 12, 78–82, 136
marginal excess burden of, 12, 31–33, 136, 202
monopoly and, 67–70, 82–83
new tax responsiveness and, 114, 130–31
oligopoly and, 73–74
optimal commodity, 58–62
optimal equalization grants and, 255–57
payroll, 144–150, 194–95
personal income, 57
progressive wage, 121–26
proportional wage, 115–21, 181
public debt financed by distortionary, 214–17
public expenditures and optimal, 22–24, 217–21
rate changes, 26–27
reform, 18–22, 24–28, 47
representative tax system, 283, 296–97, 296–300
return to capital, 184–89
return to savings, 174–84
on savings, 174–80
shifting under perfect competition, 48–49
smoothing, 217–21
smuggling and, 77–78
social welfare function and, 163–67
on specific commodities, 51–52
tobacco, 72–73, 74, 75, 88, 89–91, 93, 94, 106–11
value added, 99–102, 107
vertical fiscal imbalance and, 242–47, 257–63
wage, 115–21, 121–26, 181, 198–99
Tesar, L., 106
Thailand
commodity taxes in, 87–88
cost–benefit analysis of taxpayer survey in, 150–59
environmental externalities in, 93–94
imperfect competition in, 97–98
marginal cost of public funds in, 88–105
marginal distortionary cost of taxes on labor income in, *139*
market distortions in, 97–98
net social gain in, 152, 158–59
parameter values in MCF, 89–98
tax enforcement program, 143, 150–59
Thai Tobacco Monopoly (TTM), 97–98
Thirsk, W., *139*, 194, 202
Tobacco
calculation of marginal cost of public funds and taxes on, 99–102
market distortion, 97–98, 111
smuggling, 98
taxes, 72–73, 74, 75, 88, 89–91, 93, 94, 106–11
Trandel, G., 78
Tremblay, J.-F., 246
Tuomala, M., 136
Turnovsky, S., 238

Unemployment
involuntary, 144–50
marginal cost of public funds and, 126–29
Unitary state government, 293–94
United Kingdom, the, *80*, 87
computation of marginal cost of public funds in, 111
double taxation in, 189
excise taxes in, 72–73, 74, 87–88, 93, 94, 96, 105–111
labor income taxes in, 129
marginal cost of public funds in, 87–88, 105
market distortions in, 111
parameter values in MCF, 106–11

United States, the, 93
  double taxation in, 189
  elasticity of taxable income in, 246
  marginal cost of public funds from public sector borrowing in, 233–37
  marginal distortionary cost of taxes on labor income in, *137*, *138*
  marginal distortionary cost of taxes on return to capital, *200*
  marginal distortionary cost of taxing commodities in, *80*, *81*
Unit taxes, 70–73, 82–83
Usher, D., 119

Value-added taxes (VAT), 99–102, 107
Van der Ploeg, F., 238
Van Reenen, J., 280
Vertical fiscal imbalances. *See also* Horizontal fiscal imbalances
  alternative definition of, 245–47
  combined with horizontal imbalances, 263–73, 289–302
  conventional definition of, 243–45
  equalization grants and, 289–302
  externalities, 242–47, 257–63
  simulation model, 268–73
  wage rate taxes and, 257–63
Vickrey, William, 206, 207–208
Von Neumann-Morganstern utility function, 153

Wade, S., 91
Wage rates
  distribution of, 167–68
  high vs. low, 140–41
  optimal flat tax and, 160–70
  tax rates and vertical externalities, 257–63
Wage taxes
  optimal corporate income tax and, 198–99
  progressive, 121–26
  proportional, 115–21, 181
  vertical externalities and, 257–63
Walker, I., 92
Warlters, M., *81*
Warren, N., 275, 282, 287, 289
Weinzierl, M., 201
West, S., *80*, 92, 105
Whalley, J., 44, *80*, *137*, *200*
Wildasin, D., 241, 245
Williams, R., III, *80*, 92, 105
Wilson, J.
  on cost–benefit analysis, 46
  on equalization grants, 255
  on fiscal imbalances, 241–42, 246–47
  on public debt, 202
  on vertical tax externalities, 258–59
Winer, S., 245

Yitzhaki, S., 41, 136
Young, D., 101, 105
Yun, K., *81*, *138*, *200*

Zak, P., 238
Zodrow, G., 241