Subject Index

Activities of daily living (ADL), 255; in analysis of nursing home stay, 262–63; classification according to, 276–77; effect of severe impairment in, 17, 266, 268; Medicaid payments for different levels in, 277–78
Activities of Daily Living (ADL) Index, 279, 295
ADEA. *See* Age Discrimination in Employment Act
ADL. *See* Activities of daily living
Age of children, as factor in time provided to elderly parents, 9, 128. *See also* Elderly
Age Discrimination in Employment Act (ADEA), 59
Aging issues, developed and less developed countries, 11–14, 164–65
Altruism, 111, 203–6
Applied Management Sciences, Inc., 276

Baby boom generation, Japan: effect of actuarially fair pension system on, 243; effect of fully funded pension system on, 15, 224–25, 243; effect of pay-as-you-go pension system on 14–15, 222, 243; effect on national saving in Japan, 217, 219; effect on pension system, 207, 211, 221
Bequest motive: for saving, 10, 135–39; strategic use of, 133; test for presence of, 139–40, 158–59
Birth rate, Japan, 210
Bonds: as investment for pension accumulation, 4–5, 61–63, 66–69, 72, 75–76; relative performance of, 75–78
Budget surplus effect, Japan, 15, 220–22, 224

Channeling Demonstration. *See* National Long-term Care (Channeling) Demonstration
Children: financial transfers by parents to, 111, 123, 133; financial transfers to elderly by, 7–9, 109–11, 123, 131; time transfers to elderly by, 7–9, 109–11, 128–29, 131. *See also* Household surveys, Thailand and Côte d'Ivoire; Living standards, Thailand and Côte d'Ivoire
Cliff vesting, 52
Consumer Expenditure Survey (CES), 150
Consumption: changes with age, 150–58, 160–62; life-cycle patterns of, 139–59; marital status as factor in, 159, 162; patterns of couples vs. individual, 162
Consumption-tracks-income model (of saving behavior), 202–3

Data sources and characteristics: for analysis of living arrangements, 87; for analysis of nursing home use, 16, 254–57; of consumption (RHS), 140–41, 148–50; for earnings profiles, 64–66; for family support analysis, 8, 114–17; for life-cycle consumption, 9–10, 135–36; for Markov specification tests, 276–77; for pension wealth analysis, 62–64; for pro-

Data sources and characteristics (*continued*)
vision of time analysis, 110, 114–17; for Thailand and Côte d'Ivoire analyses, 166–67, 171–74, 198; for three models of retirement, 23–24
Defined benefit pension plan, *Fortune* 500 firms, 23–24
Demographic changes, Japan, 210–11
Departure rates, retirement, 37–42, 44, 48–49, 57–60
Discrete choice problem: components of, 79–81; in living arrangement decision, 6; structure of, 81–84. *See also* Independence of irrelevant alternatives (IIA); Likelihood functions; Simulated maximum likelihood (SML)
Dissaving behavior of elderly, 10, 135, 138–39; estimating, 139
Dynamic programming model (of retirement), 2–3, 22, 28–32; parameter estimates using, 35–37
Dynasty model (of saving behavior), 202–6

Early retirement. *See* Departure rates, retirement; Pension plans; Retirement decisions; Window plan (for early retirement)
Educational standards, Thailand and Côte d'Ivoire, 179–80, 182
Elderly: children's time spent with, 7–9, 109, 128–29; financial transfers by children to, 7–9, 109–11; income levels among, 8, 109; increase in Japan of, 210–11; poverty rates of, 8, 109; status in developed and less developed countries, 165–6. *See also* Labor supply and time provision structural models; Labor supply and time provision Tobit model
Employment factor, family support analysis, 122
Exits, nursing home: differences in, 273; modes of, 16, 265–68

Food consumption data, 140–50

Gender factor: with severe impairment in ADL, 266, 268; in time provision to elderly, 9, 122, 128
Generalized extreme-value (GEV) distributions, 82
Goals attainment model (of retirement), 60

HAAP. *See* High-average-age period
Hazard model of retirement, 33, 36
Hazard rates: as departure rates, 37–42; for different payment methods, 264–65; mortality, 136, 139–40; plots of, 258
Health insurance. *See* Insurance, government health; Insurance, private; Insurers (health insurance); Medicaid; Medicare
Health status: in consumption model with bequest motive, 161–62; in Côte d'Ivoire, 181–82; data in HRCA survey for, 88–89; as factor in support for elderly, 8–9, 122, 128; Markov model tests of reimbursement effect on, 278–94
Hebrew Rehabilitation Center for the Aged (HRCA) survey, 8, 87, 110, 114–15, 131
Heterogeneity (Markov model): controlling for, 283, 285–89; effect of uncontrolled, 289–92
High-average-age period (HAAP), 14, 207–9
Homogeneity (Markov model null hypothesis), 283, 285–89
Hospital care demand, 273
Households: income and consumption in Côte d'Ivoire, 191–92, 194–96, 199–201, 204–6; income and consumption in Thailand, 196–201, 204
Household surveys, Thailand and Côte d'Ivoire, 166–67, 171–74
HRCA. *See* Hebrew Rehabilitation Center for the Aged (HRCA) survey
HRC-NBER Child Survey, 8, 114–15, 131

IIA. *See* Independence of irrelevant alternatives
Income: effect on decisions of elderly, 109–110; as factor in time provision to elderly, 129; measurement in Thailand and Côte d'Ivoire of, 184, 186–91, 192, 194
Income redistribution, 211–12. *See also* Transfers, intergenerational
Independence of irrelevant alternatives (IIA) assumption, 6, 79–83, 92, 94–100, 105–6; in discrete choice model, 80–81; of intra- and intertemporal correlation, 6, 79–80
Inheritance, 10. *See also* Bequest motive
Insurance, government health, 251
Insurance, private: hazard rates for, 265; for long-term care, 15; model of financing by, 260; for nursing home use and exit probabilities, 17; patients compared to

Medicaid and Medicare patients, 272–73; as source of nursing home payments, 251, 254–55
Insurers (health insurance), risk averse position of, 251
Intertemporal linkages: components of living arrangement, 80; in living arrangement decision, 6–7, 82–84
Intertemporal specifications, living arrangements model, 5–6, 92, 94–96
Investment: pension accumulation strategies for, 4–5, 61–62; relation to savings of, 247

Labor force participation, Thailand and Côte d'Ivoire, 180–81
Labor market distortion, 14, 207, 212–13
Labor supply and time provision structural model, 111–14, 124–25, 127–30, 134
Labor supply and time provision Tobit model, 117–24, 128–34
LCH. *See* life-cycle hypothesis (LCH) of consumption
LDCs. *See* Less developed countries
Lerman-Mansky frequency simulator, 87
Less developed countries (LDCs), 11–14
Life cycle, household (Thailand and Côte d'Ivoire), 13–14, 180, 191–98
Life-cycle hypothesis (LCH) of consumption, 9–10, 135; with bequest motive in, 135–36, 139, 156–58, 161; original specification of, 136–38, 160, 162; predictions of, 10; without bequest motive, 137
Life-cycle model: for analysis of Japanese pay-as-you-go pension system, 213–16; of saving, 13, 202–3
Life expectancy, less developed and industrialized countries, 164–65
Likelihood, maximum. *See* Likelihood functions; Simulated maximum likelihood (SML)
Likelihood functions; in discrete choice problem, 84–87; in labor supply and time provision structural model, 124–25; in labor supply and time provision Tobit model, 118; simulations to estimate, 81, 84–87, 92–103
Liquidation bond, 241–43
Living arrangements: categories and sequences of, 90–93; decision for, 79–80; as discrete choice problem, 106–7; effect of health, income, and marital status on decision for, 6–7, 80, 88–90, 97, 100, 102; of elderly, 109–10; inter- and intratemporal correlation assumptions for, 5–6, 79–80; in Thailand and Côte d'Ivoire, 174, 176, 179, 183–84, 191, 199. *See also* Discrete choice problem; Likelihood functions; Simulated maximum likelihood (SML) estimation
Living arrangements model, 92, 94–96
Living standards, Thailand and Côte d'Ivoire, 182–91, 199
Long-term care: components of, 251; estimates of insurance effects on, 16–17; insurers' offering and financing for, 15; measurement of need for, 252; Medicaid as insurer for, 253. *See also* Nursing home care

Marital status: consumption patterns related to, 159, 162; as factor in family support for elderly, 9, 121–22, 128; polygyny as form of, 174, 176, 179
Markov assumption test, 293–94
Markov model: assumptions of simple, 18–19; first-order and second-order tests, 278–94; specifications tests for simple, 275–76; test of measurement errors in, 294–99. *See also* Heterogeneity (Markov model); Homogeneity (Markov model null hypothesis)
Medicaid: duration of stay and exit probabilities with, 17, 268; hazard rates for, 265; limits to and variability of eligibility for, 252–53, 273; model of financing by, 260; as source of nursing home payments, 251–55, 277–78, 301. *See also* Insurance, government health
Medicaid patients, 272–73
Medicare: conditions for payments by, 252–54; duration of stay and exit probabilities with, 17, 268; hazard rates for, 265, 269; model of financing by, 260; Prospective Payment System, 254; as source of nursing home payment, 251, 255. *See also* Insurance, government health
Medicare Catastrophe Act (repealed), 252
Medicare patients, 272–73
Men: educational levels (Thailand and Côte d'Ivoire), 180; income levels by age (Thailand), 187–91; labor force participation (Thailand and Côte d'Ivoire), 180–81

MNL model. *See* Multinominal logit (MNL) model
MNP model. *See* Multinominal probit (MNP) model
Moral hazard: insurers' vulnerability to, 251–52, 272; in long-term care, 15, 252. *See also* Hazard model of retirement; Hazard rates
Mortality rate, Japan, 210
Multinomial logit (MNL) model, 82. *See also* Nested multinomial logit (NMNL) model
Multinomial probit (MNP) model, 81–84, 92, 94–100, 102, 104–6. *See also* Panel multinomial probit (PMNP) model

National Center for Health Services Research (NCHSR), 19, 276
National Longitudinal Survey (NLS), 138
National Long-Term Care (Channeling) Demonstration, 17, 250, 254–55, 270
National Nursing Home Survey (1977), 270
NCHSR. *See* National Center for Health Services Research
Nested multinomial logit (NMNL) model, 82
NLS. *See* National Longitudinal Survey
NMNL model. *See* Nested multinomial logit (NMNL) model
Nursing home care: analyzing demand for, 273; differences in duration of, 16, 253–54, 257, 269; estimates of duration, 258–59; lack of price estimates for, 273; measurement of use of, 250; for Medicaid patients, 277; methods of financing, 251–54; mode-of-exit estimates, 16, 265–68; price variation in, 249, 253
Nursing homes: incentive payments to, 277–78; link between financing and exit modes of, 250, 257, 259–68

Options value model (of retirement), simplified. *See* Goals attainment model (of retirement)
Option value model (of retirement), 2–3, 22, 24–29, 59–60; compared with dynamic programming model, 37–42; parameter estimates using, 35–37, 59; predictive validity of, 38–39; results of analysis using, 32–33, 58–59

Panel multinomial probit (PMNP) model, 104, 106
Pension accumulation: calculations for, 62–64, 66–68; life-cycle profiles for analysis of, 64–66; stock or bond investment strategies for, 66–68; strategies for, 4–5, 61–62; TIAA-CREF participant allocations for, 72–74
Pension annuity value, 61–62
Pension bond, 239, 243. *See also* Social security bond
Pension Fund, hypothetical: functioning of, 236–38, 243; funding of, 238–39, 243; government involvement with, 230, 236 use of pension bond for, 239–41. *See also* Liquidation bond; Pension bond; Pension wealth; Social security bond
Pension plans, firm, 49–54, 59. *See also* Defined benefit pension plan; Departure rates, retirement; Window plan (for early retirement)
Pension wealth, 4–5, 66–68, 74–78. *See also* Bonds; Stocks
PMNP model. See Panel multinomial probit (PMNP) model.
Political forces, Japan, 212
Polygyny, 174, 176, 179, 191
Poverty rates of elderly, 8, 109
Price variation, nursing homes, 249, 253, 273
Probit model (of retirement), 2–3, 22, 27–28, 58; parameter estimates using, 33–34, 36; results with forward-looking variables, 43–45
Public pension system, Japan: with actuarial fairness, 14–15, 220–23, 225–26, 242–43; components and financing of, 209–10; contributions to, as tax, 212–13; creation of budget surplus and deficit, 220–22; effect of high-average-age period for, 14, 207; fully funded method, 15, 213, 217, 220–25; fully funded system with actuarial fairness, 226–28; government perception of contributions to, 229–30; hypothetical implementation of reform for, 223–29; pay-as-you-go method for, 14–15, 207–8, 210–13, 217–19, 222; pay-as-you-go system with actuarial fairness, 225–26; problems of, 207–8; proposed reform plans for, 208; unfunded, actuarially fair, 15. *See also* Baby boom generation, Japan.

Quit rates. *See* Departure rates

Retirement decisions: departure rates used to compare models for, 37–42; early, with and without Social Security, 45–47; ef-

fect of firm pension plan provisions on, 49–54; estimating predictions of, 60; three models to approximate rules for, 2–3, 22–24, 27–49, 57–60. *See also* Dynamic programming model; Goals attainment model; Option value model; Probit model
Retirement History Survey (RHS), 9–10, 135–36, 138, 140–41, 147–50, 159–61
Retirement models. *See* Dynamic programming model; Option value model; Probit model
Retirement rates, predicted and actual, 53–56
RHS. *See* Retirement History Survey
Risk sharing implied in altruism, 204

Saving, government, 229. *See also* Budget surplus effect, Japan; Pension Fund, hypothetical
Saving, national: analysis of pension system effect on, 216; with fully funded pension system, 222, 224; with hypothetical reform options, 223–28; with pay-as-you-go pension system, 222
Saving behavior: bequest motive for, 135; Japanese baby boomer effect on, 222; research in less developed countries for, 163–64; in Thailand and Côte d'Ivoire, 10–14, 194. *See also* Bequest motive; Life-cycle hypothesis (LCH) of consumption
Saving behavior models. *See* Consumption-tracks-income model; Dynasty model; Life-cycle model
Sex. *See* Gender factor; Men; Women
Simulated maximum likelihood (SML) estimation, 81, 84–87, 92–103
Society security bond, 241, 243
Social Security offset, 52
Social security system, Japan. *See* Public pension system, Japan
Stocks: as investment for pension accumulation, 4–5, 61–63, 66–68, 72; relative performance of, 75–78, 84–87
Stock-Wise option value model. *See* Option value model (of retirement)

TIAA-CREF portfolio allocations, 72–76. *See also* Bonds; Pension accumulation; Stocks
Tobit model (of family support analysis). *See* Labor supply and time provision Tobit model
Transfers, financial: by children to parents, 7–9, 109–11, 123, 131; by parents to children, 111, 123, 133. *See also* Labor supply and time provision structural model; Labor supply and time provision Tobit model
Transfers, intergenerational: conditions for no, 222; with hypothetical reform options, 223–28; in Japanese pay-as-you-go pension system, 14–15, 207, 210–11; parent and child financial, 132; of time provided by children, 131. *See also* Baby boom generation, Japan; Children; Elderly; High-average-age period; Transfers, financial; Transfers, time
Transfers, intragenerational: of income between individual and government, 230–36; with pay-as-you-go pension system, 14, 207, 211–12
Transfers, time: by children to elderly parents, 8–9, 109, 128–29, 131; free riding of siblings in, 129. *See also* Labor supply and time provision structural model; Labor supply and time provision Tobit model

Utility function, life-time, 136–40

Wage rate in time provision, 9, 111, 123–24, 129
Wealth: inherited portion of, 135; model of changes in, 136–39
Weibull model, 290–92, 299–300
Window plan (for early retirement): described, 3, 23–24; employers' objectives in, 59–60; features of *Fortune* 500 firm, 23; firm pension plan provisions for, 51–53; predicting actual effect of, 23, 42 predictions for, 3–4, 32–33; predictions using dynamic programming model, 3, 36–37, 39–42; predictions using option value model, 3, 36–41; predictions using probit model, 3, 33, 36–37, 43–44; retirement departure rates with, 38–42, 44, 48–49
Women: educational levels (Thailand and Côte d'Ivoire), 179–80; income levels by age (Thailand), 186–91; labor force participation (Thailand and Côte d'Ivoire), 180–81