urban terrorism, associated trade-offs in terms of all costs and risks and 108–11
Bergenwald, L. 105
blackouts see interruptions, electricity system
Blair, P.D. 210, 236
BLS (Bureau of Labor Statistics) 177
Bohara, A.K. 117
Brill, Steven 81
Brisman, B. 105
Brookshire, D. 298
BTS (Bureau of Transportation Statistics) 210, 211
Bulkeley, William M. 92
Bureau of Economic Analysis see REIS
business
corporate income tax, impediments to free markets in terrorism risk management and 46
interruption losses, electricity system interruptions resulting from local terrorism and 11–12
losses, risks and costs of electricity sector event and 278–83, 285
see also firm buyer
problem, electricity sector two-sided markets and 322–3
Cameron, G. 185, 186
Campanella, T.J. 175
CAPPs (Computer-Assisted Passenger Pre-Screening) 68, 92
Carus, S.W. 190, 192
casualties see human costs
catastrophe
federal assistance, impediments to free markets in terrorism risk management and 46
food terrorism see food terrorism, catastrophe analysis
see also dotted
federal assistance, impediments to free markets in terrorism risk management and 46
food terrorism see food terrorism, catastrophe analysis
catastrophe costs
permanent or ephemeral 159–60, 180
displaced firms, relocation of 167–75
New York then and now 160–67
places that recover and places that do not 175–9
see also costs; Elmira; Homestead; New Orleans
catastrophe model estimation, food terrorism 199–201 role of, insurability issues 40–42
see also models
CBRN (chemical, biological or radionuclear) terrorism
casualties resulting from 195, 197, 198 event frequency and seriousness 197–8
food terrorism and 183–4, 186, 199–200
future research issues 204
insurance coverage eligibility under TRIA and 47 ‘reoccurrence period’ and 8, 200, 201–3
terrorism risk special features and 43 terrorism trends and 190, 193–4
see also terrorism
Census Bureau 177, 179, 211, 286
centralization
over-, TSA basic flaw 69–73
tendency, polycentricity strategy and 20–21
see also decentralization
CES (constant elasticity of substitution) function
LA CGE model and 298, 299, 301
CFS (Commodity Flow Survey)
MRIO data and 210
NIEMO construction and 219
interstate trade flow coefficients 221, 223, 226, 227, 228, 229
NIEMO data and 209, 211, 216, 236
see also DOT
Chang, Nancy 21
Chang, S. 301
Chao, H.P. 295
checkpoints
passenger 92–3
see also barriers; screening
Chenery, H.B. 209
Chertoff, Michael 4, 82, 88, 129
see also DHS
Chicago Tribune 74
CIA (Central Intelligence Agency) 282
civil liberties
political rights and terrorism and, positive incentives strategy 26–32
Clean Air Act 277
see also legislation
CNS (Center for Nonproliferation Studies) 184–5, 86
Coaftee, J. 112
Cobb-Douglas function
LA CGE model and 299
Cohen, M.A. 117
Cole, David 21, 26, 34
Collins, W.J. 287
Comfort, L. 295
compensation see insurance; WC
conflict of interest
TSA basic flaw 73–5
congestion
transportation-related, risks and costs of electricity sector event and 283–5
consumer sentiment
food terrorism impact on 148, 150, 153, 155–6
Cooper, P.W. 104
Corcoran, P. 295
costs
direct, terrorism and democracy relationship and 30
electricity sector events see electricity sector
implications, airport security 94
infrastructure protection, funding, NPS risk management and 127–8
social, electricity system interruptions resulting from factors other than terrorist attacks 11
urban terrorism, associated trade-offs in terms of all benefits and risks and 108–11
see also catastrophe costs; events; human costs; impacts; indirect costs; losses; opportunity costs
countermeasures
urban terrorism 106–8
CREATE (Center for Risk and Economic Analysis of Terrorism Events)
DHS and 3
electricity sector and 317
Hurricane Katrina follow-up 13
NIEMO and 229, 232
tourism and terrorism and 235
data
food terrorism catastrophe analysis 184–6
LA CGE model, for 301
NIEMO construction, for 211–16
state-by-state effects of attacks on seaports 210–11, 216–19
Davis, Ann 92
Davis, D.R. 160, 175
DAWG (Disturbance Analysis Working Group) 274, 278, 279
decentralization
horizontal, defined 20
political, polycentricity strategy and 20
spatial, polycentric society and, polycentricity strategy 20
targets made safer by 18–19
vertical, defined 20
see also centralization
decision
current management, impact on future options, cost-effective strategies against urban terrorism 112
matrix, risk management 103
Defense Contract Audit Agency 81
definitions
act of terrorism 48
diffusing media attention 17
federalism (vertical decentralization) 20
polycentricity 17
positive incentives 17–18
resilience 294
separation of powers (horizontal decentralization) 20
shock 159
demand see final demand
democracy
terrorism relationship 28–32, 33
see also politics
Index

Dempsey, James X. 21, 26, 35
Department of Commerce Bureau of Economic Analysis 282
Department of the Interior
icon protection and 6, 126, 127, 139, 140
risk calculation and 129, 131
risk management through security investments and 132
see also NPS
Department of the State 105
deterrence
alternative strategies to 3
see also strategies
DFM (doubly-constrained Fratar model)
NIEMO and seaports 210, 219, 221, 228, 229
tourism and terrorism 236
see also models
DHS (Department of Homeland Security)
airport security reform and 4, 95
centralization tendency and 20
CREATE and 3
electricity resilience increasing and 272
food terrorism and 196
maritime security enforcement responsibility under 116
NPS risk management and 128, 129
Planning Scenarios 208
tourism and terrorism and 249
TSA as part of 67
TSA rethinking and 75
liability 88
policy-making and regulation separated from operations 76, 77
political feasibility 81, 82
see also Chertoff, Michael; Ervin, Clark Kent; TSA
Dickey, Rodger L. 86
direct costs see costs, direct
disaster see catastrophe
dislocation
temporary or permanent effect, agglomeration economies and 8
see also Elmira; Homestead; New Orleans
Dixon, L. 105, 109, 278
dollar value
food terrorism impact on 148, 149, 150, 151–2, 153
see also value
DOT (Department of Transportation)
Commodity Flow Survey see CFS
electricity sector and 283
maritime security enforcement responsibility under 116
Office of the Secretary of Transportation 262
TSA as part of 67
Douglass, J.D., Jr. 185
Drakos, K. 238, 239
Drennan, Matthew P. 8, 160, 179
DRP
two-sided electricity markets and 324, 325–6, 329, 331
Dubois, Jacques 38
Dugan, Laura 183, 184, 185
Eckles, J. 295
economic losses see losses, economic
The Economist 25
EDS (explosive detection systems)
baggage-screening updating and 5, 93
cost implications 94
equal-risk model and 68–9
in-line baggage systems incentives and 85–6
liability and 88
reform benefits 95
risk-based model and 89, 90
Statue of Liberty and 137
see also ETD
effects
general equilibrium, economic impacts of attack on Los Angeles water system and 293–4
partial equilibrium, economic impacts of attack on Los Angeles water system and 292–3
see also impacts
Egypt
terrorism and tourism 240, 244
Eitzen, E.M. 193
electricity sector
benefits and costs of event
Index

prevention 257–60, 262–5, 271–2
electricity valuing 260–62
reliability requirements 265–6
resiliency increasing 267–71
system protection 266–7
interruptions resulting from factors other than terrorist attacks, social costs of 11
interruptions resulting from local terrorism, business interruption losses 11–12
resilience improvement, natural hazards and human error or attack and 10, 12
risk and costs of attack on 273–4, 287–8
application 285–6
approach 274–6
business loss 278–83
human fatalities and injuries 276–8
transportation-related congestion 283–5
two-sided markets 317–18, 320–21, 331–2
Australia, example from 318–20
buyer’s problem 322–3
line flow 327–31
market sequence 325
market structure and calibrations 324
reliability improvement 12–13
results summary 325–6
seller’s problem 323–4
Ellingwood, B.R. 106
Elmira
dislocation and, permanent effect 8, 176–8
see also catastrophe costs, permanent or ephemeral
Enders, W.K. 239
enforcement
existing procedures, NPS risk management and 133
EP (exceedance probability) curves role of, insurability issues 40–42
EPA (Environmental Protection Agency) 11, 109, 262, 277
Epple, D. 117
equal-risk model
TSA basic flaws and 68–9
see also models
equilibrium
general, effects, economic impacts of attack on Los Angeles water system and 293–4
partial, effects, economic impacts of attack on Los Angeles water system and 292–3
see also LA CGE
errors see human error
Ervin, Clark Kent 88
see also DHS
estimates
final demand, state-by-state effects of attacks on seaports and 220–21, 230–32
indirect costs of food terrorism 145–6, 157
approach 147–9
food supply chain, background 146–7
results 154–6
shock size, specifying 149–54
losses, DHS 208
ETD (electronic trace detection) baggage-screening updating and 5, 94
in-line baggage systems incentives and 85–6
reform benefits 95
see also EDS
Eubank, William L. 28–30, 31, 32
Europe
gate screening in 5, 77–81
see also Greece; Italy; Spain
events
benefits and costs of prevention, electricity sector 257–60, 262–5, 271–2
direct and indirect economic losses from, macroeconomic impacts 7–8
risk and costs of, electricity sector 273–4, 287–8
seaports, state-by-state effects on applying NIEMO and 9, 208–9, 233
theme parks, impact on 9–10, 235, 248–9
Index

urban terrorism 100–105

see also costs; electricity sector; impacts; seaports; terrorism; theme parks

EVT (extreme value theory)
catastrophic food terrorism analysis and 183, 196, 198

see also value

Eyerman, Joe 30

FAA (Federal Aviation Administration) 73–4, 84, 109

FAA Reauthorization Act 1996 74

see also legislation

Faruqui, A. 322

fatalities, human see human costs

FBI (Federal Bureau of Investigation) 61

federal government
disaster assistance, impediments to free markets in terrorism risk management and 46

insurer partnership structure under TRIA 48–50

federalism (vertical decentralization) defined 20

final demand
economic impacts of attack on Los Angeles water system and 299 estimates, state-by-state effects of attacks on seaports and 220–21, 230–32

firm

displaced, relocation of, permanent or ephemeral catastrophe costs 167–75

see also business

food terrorism

see also terrorism

foreign policy
terrorism risk special features and 44

Foster, Catharine 90

FP (fixed price)
two-sided electricity markets and 321, 325, 326, 327–8, 329, 331

Franke, D. 183, 185

freedom
political see democracy press, diffusing media attention without infringing 22–3 security and, balancing, NPS risk management and 135–40

Frey, Bruno S. 3, 21, 239

Fries, A.A. 193

Fujita, M. 172

functions

CEs 298, 299, 301 Cobb-Douglas 299

funding
allocations, airport security and 83–5 infrastructure protection costs, NPS risk management and 127–8

GAO (General Accounting Office)
airport security reform and 4 in-line baggage systems incentives and 85–7 TRIA and 47 TSA basic flaws and 68, 71, 72, 73, 74 TSA rethinking and 75, 77, 80, 81, 94

Garrick, B.J. 99

Gawande, K. 117

GDP (gross domestic product)
business losses in electricity sector event and 282 electricity valuation and 261, 262 food terrorism impact on 154–5, 156, 157

General Services Administration 98

George, S. 322

GEV (generalized extreme value) distribution catastrophic food terrorism analysis and 196, 198, 199

see also value
Index

Giuliani, Rudolph 20
Gladish, S. 105
Golaszewski, Richard 90
Goldin, E. 292
Gollire, C. 108
Goo, Sara Kehaulani 76, 77
government see federal government
Greece
terrorism and tourism 238
see also Europe
Greenberg, J. 117
Guellke, Adrian 26
Guikema, S. 102
Haimes, Y.Y. 105
Haitobsky, Y. 292
Hardin, Russel 24
Harrigan, J. 172, 173
Harrington, W. 117
Hartwig, R. 38
Hawley, Kip 88
see also TSA
hazards see natural hazards
Heal, G. 43
Henderson, J.V. 163
Heschmeyer, M. 174
Hewitt, Christopher 28
Highham, Scott 81
Hoffman, Bruce 17
Homestead
dislocation and, temporary effect 8, 178
see also catastrophe costs, permanent or ephemeral
Houston
state-by-state effects of attacks on seaports and 208, 216, 230, 232
see also seaports, state-by-state effects of attacks on
Howe, D. 208
HSPD 7 (Homeland Security Presidential Directive 7) 127, 129
human costs
CBRN events, from 195, 197, 198
injuries and, risks and costs of electricity sector event and 276–8, 285
vehicle-bomb attack 104–5
see also costs
human error
attack or, electricity system resilience improvement and 10, 12
human fatalities see human costs
impacts
attack size, on loss-sharing under TRIA 54, 56, 58–9
current management decisions, on future options, cost-effective strategies against urban terrorism 112
economic, of attack on Los Angeles water system 292–6
industry and state-level, of short-term loss of seaport services, NIEMO and 9
insurance take-up rate, on loss-sharing under TRIA 54, 56–9
interregional economic, NIEMO and attacks on theme parks 9–10
location, on loss-sharing under TRIA 54, 55–6, 58–9
macroeconomic, direct and indirect economic losses from attacks 7–8
see also costs; effects; events; losses; seaports; theme parks
IMPLAN see MIG
incentives
in-line systems, baggage and airport security 85–7
see also positive incentives
income
allocation, economic impacts of attack on Los Angeles water system and 299
corporate tax, impediments to free markets in terrorism risk management and 46
Independence National Historical Park
NPS risk management and 138–40
see also NPS
indirect costs
food terrorism, initial estimates 145–6, 157
approach 147–9
food supply chain, background 146–7
Index

results 154–6
shock size, specifying 149–54
see also costs
Indonesia
terrorism and tourism 240, 243
information
control systems and, electricity
sector resilience increasing 271
sharing, terrorism risk special
features and 44
injuries see human costs
inspection
optimal strategies, USCG 6, 116–18, 123
Lemma 2, proof of 125
with two risk types 121–3
without risk classification 118–21
insurance
background 38–40
future research issues 60–61
terrorism as extreme event,
insurability issues 40–45
terrorism risk management,
impediments to free markets in
45–7
see also TRIA; WC
insurance losses
allocation process 52
bearing if TRIA abolished 59
sharing with and without TRIA 50–54
see also losses
interest rates
food terrorism impact on 148–9,
150, 151, 152
interruptions
business, losses from electricity
system interruptions resulting
from local terrorism 11–12
electricity system 11–12, 257–8, 259,
261
see also outages
investment
economic impacts of attack on Los
Angeles water system and 299
security, NPS risk management
through 132–5
Isard, W. 209
Israel
airport security, screening 5
terrorism and tourism 239

Italy
positive incentives strategy 25
see also Europe
ITERATE (International Terrorism: Attributes of Terrorist Events)
database 184, 185
Jack Faucett Associates, Inc. 210, 211, 235
Jackson, R.W. 210, 236
Jaffee, D. 39
Kaplan, S. 99
Kaplow, L. 117
Karpiloff, D.G. 113
Keeney, R.L. 99, 102
Kelly, H.F. 167, 168, 171, 174
Keohane, N. 44
Kilgour, D.M. 118
Krueger, Alan B. 31–2, 32
Krugman, P. 172
Kunreuther, Howard 3, 38, 43
Kutan, A.M. 238, 239
LA CGE (Los Angeles Computable General Equilibrium) model
economic impacts of attack on Los
Angeles water system and 298,
300–301, 315–16
data for 301
equilibrium/disequilibrium
conditions and 299–300
income allocation, final demand
and investment and 299
production and 298–9
refinements, water outage
simulations 301–4
supply and trade of goods and
services and 299
see also models
LaFree, Gary 183, 184, 185
Lahr, M.L. 211
Laitin, David D. 31–2, 32
Landsberger, M. 117
Lapan, H. 44
Lave, Lester 10, 19
Lee, D. 44
legislation
airport security, needed for 76–7
Clean Air Act 277
Index

FAA Reauthorization Act 1996 74
MTSA (Maritime Transportation Security Act 2002) 116
SAFETY (Support Anti-terrorism by Fostering Effective Technologies) Act 88
see also ATSA; TRIA
Leigh-Fischer Associates 86
Lemon, D.M. 273
Leone, Richard C. 26
Leontief inverse matrix 230
Levine, Michael E. 90
Li, Quan 30, 32
liability
airport security 87–8
Liao, Shu-Yi
LA CGE model and 298, 301
Los Angeles electricity interruptions and 11–12, 291, 292
market polycentricity and 19
water outage simulations and 303, 308
liberties see civil liberties
Lim, D. 308
line flow
electricity sector two-sided markets and 327–31
Little, R. 108, 112
Little, Richard G. 6, 19, 102
Livingstone, N.C. 185
Los Angeles
size of loss impact on loss-sharing under TRIA 54, 56, 58–9
Los Angeles County
electricity system interruptions, business interruption losses and 11–12
water system, economic impacts of attack on see water system, Los Angeles
Los Angeles/Long Beach
state-by-state effects of attacks on seaports and 208, 209, 216, 230, 232
see also seaports, state-by-state effects of attacks on
losses
business, risks and costs of electricity sector event and 278–83, 285
business interruption, electricity system interruptions resulting from local terrorism and 11–12
direct and indirect economic, macroeconomic impacts of attacks and 7–8
economic, vehicle bomb attack 105 estimates, DHS 208
life see human fatalities
productivity, macroeconomic impacts of attacks and 7, 8
short-term, of seaport services, NIEMO and industry and state-level impacts 9
see also costs; events; impacts; insurance losses; property losses; WC
Luechinger, Simon 3, 28, 239
MacCulloch, Robert 32, 34
macroeconomic impacts see impacts, macroeconomic
make-or-buy authority
airport security and 82–3
Mallonnee, S. 105
management
current decisions, impact on future options, cost-effective strategies against urban terrorism 112
see also risk management
manpower
NPS risk management and 135
Margo, R.A. 287
markets
free, terrorism risk management impediments to 45–7
polycentricity, polycentricity strategy and 19–20
two-sided, electricity sector see electricity sector, two-sided markets
see also stock market
Martin, P. 172, 173
MATLAB™ program 230
McCloud, K. 185, 186
McKee, M. 298
media
attention diffusion strategy 17, 21
attention reduction 22–3
terrorism symbiosis 21–2
Meilijson, I. 117
Mica, John 82
Michel-Kerjan, Erwann 3, 39, 44
Mickolus, 184
MIG (Minnesota IMPLAN Group)
  Los Angeles water system and 300, 301
  MRIO and 210
  NIEMO construction and 219, 223, 226, 229
  NIEMO data and 209, 211, 216, 236
Mileti, D. 294
Miller, Abraham H. 28
Miller, R.E. 210, 229, 236
MIPT (National Memorial Institute for the Prevention of Terrorism)
  185, 187–9, 200, 203, 274
Mitchell, W.J. 173
models
  catastrophe 40–42, 199–201
  equal-risk, TSA basic flaws and 68–9
  risk-based, TSA rethinking and 88–9
SCPM (Southern California Planning Model) 233, 235, 236
see also DFM; LA CGE model;
  MRIO model: NIEMO
Moffett, M. 117
Mohtadi, Hamid 8
Morgan, Grainger 19
Morrall, J.F. 111
Moses, L.N. 209
MRIO (multi-regional input–output) model
  seaports and 9, 209–10, 211, 229, 230
  theme parks and 235, 236, 237
see also models; NIEMO
MTSA (Maritime Transportation Security Act 2002) 116
see also legislation
Murshid, Antu Panini 8
National Capital Planning Commission 134
National Parks Diversion Scenario 244–8
see also NPS; theme parks
National Research Council 101
National Safety Council 277
natural hazards
  electricity system resilience improvement and 10, 12
NERC (North American Electric Reliability Council) 259, 274, 278
Neumann, Peter R. 25
New Orleans
  dislocation and, temporary or permanent effect 8, 178–9
see also catastrophe costs, permanent or ephemeral
New York
  catastrophe costs and, permanent or ephemeral 160–67
New York City Office of Management and Budget 167
New York State
  Department of Labor 285, 286
  Office of the State Comptroller 166
New York Times 182, 241
New York/Newark
  state-by-state effects of attacks on seaports and 208, 209, 216, 230, 232
see also seaports, state-by-state effects of attacks on
NIEMO (National Interstate Economic Model)
seaport services and, state-by-state effects of attacks on seaports and 9, 208–9, 233
data 210–19
  multi-regional IO (input–output) model construction, background 209–10
NIEMO assembly 230
NIEMO construction 211–16, 219–29
seaport final demand estimates 230–32
terrorist attack simulation results 232–3
  theme parks and, impacts of attacks on 9–10, 235–6, 238
see also models; MRIO
Northern Ireland
  fatalities (1968–2000) 27
positive incentives strategy applied to 25–6
Norton, Gale 137
NPS (National Park Service)
  insurance and 39
  risk assessment and 6–7
  risk management 6–7, 126, 140
    icon protection, public policy framework for 127–8
  risk calculation, analytical framework 128–32
  security and freedom, balancing 135–40
  security investments, through 132–5
  see also Department of the Interior; theme parks
Nuclear Regulatory Commission 75
O’Brien, Brendan 25
OECD (Organization for Economic Cooperation and Development) 39
Office of Management and Budget 111, 167
O’Harrow, Robert, Jr. 81
Oladosu, Gbadebo 11–12, 19, 301, 308
opportunity costs
  positive incentives strategy raising 23, 24–5
  terrorism and democracy relationship and 30
  see also costs
O’Rourke, T. 303, 309
outages
  electricity, risks and costs of attack and 275, 280, 281
  water system, Los Angeles 296–8, 301–8
  see also interruptions
Park, Jiyoung 9, 210, 235, 236
Parkinson, Larry 6
parks see NPS; theme parks
Partridge, M. 298
passengers
  airport security and 89–93
Pate, J. 185, 186
Paté-Cornell, E. 99, 102, 104, 106
Pauly, M. 38
PCIAA (Property Casualty Insurers Association of America) 50
Pedell, B. 39
Pereira, Joseph 92
Perl, Raphael 21
Petak, W. 295
Pezzini, Silvia 32, 34
PGIS (Pinkerton Global Intelligence Services) 183, 184, 185
Philadelphia Inquirer 139
Phillips, M.B. 193
Pillar, P. 44
Pizam, A. 239
Planning Scenarios (DHS) 208
Polenske, K.R. 210, 211, 235
policy see foreign policy; terrorism policy
political process
  access to, terrorist reintegration and, positive incentives 24
political rights
  civil liberties and terrorism and, positive incentives strategy 26–32
politics
  decentralization, polycentricity strategy and 20
  TSA rethinking and 81–2
  see also democracy
polycentricity strategy
  centralizing tendency 20–21
  defined 17
  market polycentricity 19–20
  political decentralization 20
  prospective targets made safer 18–19
  spatial decentralization and polycentric society 20
  see also strategies
Poole, Robert W., Jr. centralization tendency and 21
risk-based airport security and 88, 89, 91, 92
TSA legislation and 4
population
  density, spatial decentralization and 20
  see also urban terrorism
ports see airports; seaports
positive incentives strategy, new terrorism policies and 23
defined 17–18
Northern Ireland, application to 25–6
relationship between civil liberties, political rights and terrorism 26–32
two forms of 24–5
see also incentives; strategies
pricing see FP; DRP; RTP
production
economic impacts of attack on Los Angeles water system and 298–9
productivity
losses, macroeconomic impacts of attacks and 7, 8
property losses
loss-sharing under TRIA and, impacts on 57–8, 59
loss-sharing with and without TRIA and 53
see also losses
Quinn, Kenneth 69
Reason Foundation 91, 92
reduction
media attention 22–3
reform
recommended, airport security 4–6
reintegration
terrorist, access to political process and, positive incentives 24
REIS (Regional Economic Information System, Bureau of Economic Analysis) 161, 163, 177, 179
reliability
electricity system, two-sided markets and 12–13
requirements, electricity sector 265–6
reoccurrence period
CBRN events and 8, 200, 201–3
vehicle bomb attacks 104
repentants
welcomed, positive incentives and 24–5
research issues
future 13, 60–61, 204
resilience
electricity sector, increasing 267–71
electricity system, natural hazards and human error or attack and 10, 12
market economy 19–20
water system, Los Angeles 294–6
resources
airport security, macroeconomic impacts of attacks and 7
return period see reoccurrence period
Richardson, Harry W. 9–10, 287
Rickman, D. 298
rights see political rights
risk
calculation of, NPS risk management and 128–32
electricity sector event see electricity sector, risks and costs of attack on
equal-, model, TSA basic flaws and 68–9
high-, air passengers, separating ordinary and 91–2
insurance see TRIA
low-, air passengers, identifying 90–91
terrorism, special features, insurability issues 43–4
urban terrorism, associated trade-offs in terms of all benefits and costs and 108–11
USCG optimal inspection strategies and 118–23
risk assessment
NPS and Department of Interior and 6
urban terrorism 99
risk-based model
TSA rethinking and 88–9
see also models
risk management
decision matrix 103
terrorism, impediments to free markets in 45–7
urban terrorism and 6
see also management, NPS; urban terrorism, cost-effective strategies to address
Risk Management Solutions 50, 51
Rivkind, A. 105
Robison, W.S. 209
Index

Rohde, D. 287
Rose, Adam
LA CGE model and 298, 301
Los Angeles electricity interruptions and 11–12, 291, 292, 293
market polycentricity and 19
water outage simulations and 303, 304, 308
RTP (real-time pricing)
two-sided electricity markets and 311, 325–6, 328, 329, 331
Russell, T, 39
safety
prospective targets, polycentricity strategy and 18–19
SAFETY (Support Anti-terrorism by Fostering Effective Technologies)
Act 88
see also legislation
Sally, David 24
Salmeron, J, 273
Sandler, Todd 28, 44, 239
scenario-based approach
loss-sharing with and without TRIA and 51–4
terrorism risk special features and 45
Schuler, Richard 12–13, 331
SCPM (Southern California Planning Model) 233, 235, 236
see also models
screening
5-airport pilot program 71–2, 81
airports, in Europe 77–81
baggage 93
passenger 92–3
visitor, NPS risk management and 133–4
see also barriers
seaports
state-by-state effects of attacks on, applying NIEMO 9, 208–9, 233
data 210–19
multi-regional IO (input–output) model construction, background 209–10
NIEMO assembly 230
NIEMO construction 211–16, 219–29
seaport final demand estimates 230–32
terrorist attack simulation results 232–3
see also Houston; Los Angeles/Long Beach; New York/Newark
security
airport, reform 4–6, 67, 95
freedom and, balancing, NPS risk management and 135–40
interdependent, terrorism risk special features and 43–4
maritime see USCG
physical see urban terrorism, cost-effective strategies to address resources devoted to, macroeconomic impacts of attacks and 7
security investments
NPS risk management through 132–5
seller
problem, electricity sector two-sided markets and 323–4
Sevin, E. 102
Shao, G. 210, 229
Shavell, S. 117
Shi, P. 303
Simonoff, J.S. 280
Smetters, K. 39
Smith, G. 239
social costs see costs, social
society
polycentric, spatial decentralization and, polycentricity strategy 20
space
decentralization, polycentric society and, polycentricity strategy 20
Spain
terrorism and tourism 239
see also Europe
statistics
Bureau of Labor 177
Bureau of Transportation 210, 211
Statue of Liberty
NPS risk management and 136–8
see also NPS
Stern, R.K. 105, 109, 278
Stinson, Thomas F. 7–8
stock market
food terrorism impact on 148, 150, 151, 152
see also markets
Stone, J. 42
strategies
alternatives to deterrence 3
cost-effective, to address urban terrorism see urban terrorism, cost-effective strategies to address
inspection, USCG optimal 6, 116–18, 123
Lemma 2, proof of 125
risk classification, without 118–21
risk types, with two 121–3
media attention diffusion 17, 21–3
see also polycentricity strategy;
positive incentives, strategy;
terrorism policies
Strazicich, M.C. 239
Stutzer, A. 239
supply
goods and services, economic impacts of attack on Los Angeles water system and 299
Takafuji, E.T. 193
targets
prospective, safety of, polycentricity strategy and 18–19
taxation
corporate income, impediments to free markets in terrorism risk management and 46
technology
fuel supply and generation, electricity sector resilience increasing 268–70
NPS risk management and 134
terrorism
conventional, food terrorism compared 201–3
media symbiosis 21–2
opportunity costs raised by positive incentives strategy 23, 24–5
political rights and civil liberties and, positive incentives strategy 26–32
tourism and 237–9
trends in 187–94
see also CBRN terrorism; events;
food terrorism; urban terrorism
terrorism policies
implications for, attacks on theme parks 249–52
new 17–18, 32–5
see also strategies
terrorists
benefits to, limiting by reducing media attention 22–3
reintegration of, access to political process and, positive incentives 24
Testas, Abdelaziz 30
theme parks
impacts of attacks on 235, 248–9
direct and indirect but not induced 236–7
geographical, distribution of 248
international evidence 239–40
National Parks Diversion Scenario 244–8
NIEMO 235–6
no-spillovers case 241–4
policy implications 249–52
results 241
terrorism and tourism 237–9
NIEMO and, interregional economic effects of attacks on 9–10
see also NPS
Thompson, Tommy 182
Tierney, K. 294, 301, 308
Tonge, Jonathan 26
Toomey, D. 319
tourism
terrorism and 237–9
see also theme parks
Towers Perrin 43
Townsend, A.M. 173
trade
goods and services, economic impacts of attack on Los Angeles water system and 299
trade flow
inter-industry coefficients, NIEMO 229
interstate coefficients, NIEMO 219–29
training
improvement of operator communication and, electricity sector resilience increasing 267
NPS risk management and 133

transportation
congestion related to, risks and costs of electricity sector event and 283–5

Treuch, N. 108

TRIA (Terrorism Risk Insurance Act 2002)
abolished, loss-bearing if 59
background to 39
coverage eligibility under 47–8
federal government/insurer partnership structure under 48–50
loss-sharing under, impacts on 3–4, 54–9
loss-sharing with and without, empirical analysis 50–54
passage into law 47
vehicle bomb attack risk management and 106

see also insurance; legislation

TSA (Transportation Security Administration)
basic flaws 4–5, 67–75
centralization tendency and 20–21
reform needed 5–6
rethinking 75–6
airport-centered security 82
airport screening in Europe 77–81
baggage 85–7, 93
cost implications 94
funding allocations 83–5
legislation needed 76–7
liability 87–8
make-or-buy authority 82–3
passengers 89–93
political feasibility 81–2
risk-based model 88–9

see also airports; DHS

Turnbull, W. 185, 186

uncertainty
dynamic, terrorism risk special features and 44
urban terrorism
cost-effective strategies to address, risk management approach 98–9, 112–13
costs, benefits and risks, associated trade-offs in terms of all 108–11
current management decisions, impacts on future options 112
countermeasures 106–8
event consequences 104–5
event likelihood 102–4
event nature 100–102
risk management principles applied to 6

USA Today 95

USCG (United States Coast Guard)
optimal inspection strategies for 6, 116–18, 123
inspections with two risk types 121–3
inspections without risk classification 118–21
Lemma 2, proof of 125

see also security
utilities see electricity sector; water system

Vale, L.J. 175
valuation
electricity, benefits and costs of event prevention in electricity sector 260–62
value
dollar, food terrorism impact on 148, 149, 150, 151–2, 153
see also EVT; GEV
vehicle bombs see urban terrorism, cost-effective strategies to address

Venables, A.J. 172
Viscusi, W.K. 109, 278
visitors
screening, NPS risk management and 133–4

Visscher, M. 117

Wang, T.Y. 303
Washington Post 76, 111

water system
| Los Angeles 291–2, 308–9 | Weinberg, Leonard B. 28–30, 31, 32 |
| economic impacts of attack on | Weinstein, D.E. 160, 175 |
| 292–6 | West, C.J. 193 |
| LA CGE model 298–301, 315–16 | West Australian 186 |
| water outage characteristics 296–8 | Wharton Risk Center 50, 51 |
| water outage simulations 301–8 | Wilkinson, Paul 22, 25 |
| WC (workers’ compensation) | Wilson, R. 295 |
| loss-sharing under TRIA and, | Winterfeld, D. von 99, 102 |
| impacts on 54, 55, 56–8 | Wittman, D. 118 |
| loss-sharing with and without TRIA | Wood, K. 273 |
| and 53 | Zeckhauser, R. 44 |
| see also insurance; losses | Zimmerman, Rae 11, 276, 285, 317 |
| Weightman, J. 105 |