References


References


Cheung, Y.-W., M. Chinn and A. Pascual (2005), ‘Empirical exchange rate models of the nineties: are any fit to survive?’ *Journal of International Money and Finance*, 24 (7), 1150–75.


References

Gabrynowicz, J.I. (2003), ‘Licensing and the Landsat story: law and policy’, presentation to the National Research Council Committee on Licensing Geographic Data and Services, mimeo, National Remote Sensing and Space Law Center, University of Mississippi School of Law.


Ludowicy, C., R. Schwaiberger and P. Leithold (2002), *Precision Farming: Handbuch für die Praxis*, Frankfurt am Main: DLG-VerlagsgmbH.


McCallum, B.T. (2004), ‘Consistent expectations, rational expectations, multiple-solution indeterminacies, and least-squares learnability’, in


Index

adaptive expectations 43–4, 46, 48, 50, 57
agents
bounded rationality and 80
natural born chartists 100, 118
predictions 6–8
probability assessments 10, 125, 137
risk adverse 20
subjective beliefs about future outcome which is deterministic 23
uncertainty and contingent claims 3
what rational would offer 167, 175
aggregate bias 22, 24
agricultural market functioning 47
agricultural production, analyses of market dynamics 40
agriculture, satellite information 93–4, 98
Akerlof, G.A. 4
Allais, M. 81
allocation problem, binding production lags 10
Alpern, S. 158
Amemiya, T. 112
anonymous market mechanism, determines equilibrium prices 165, 175
anticipation and coordination failures 145–6
experimental findings 154–8
game and the two treatments 147
optimal strategies 151–4
Antweiler, W. 136
Appendix 3.1
formulation where probability assessments are object of disagreement and misjudgement 22–3
modelling heterogeneity of expectations with probabilities 29
Appendix 5.1, supply function derived of expected profit maximization 60
Appendix 5.2, computation of the rational expectations fundamental price 61–2
Appendix 6.1
instructions for the experiment 66, 69, 82–4
dry-run exercise 84–5
the experiment 85–6
Appendix 6.2, list of causal rules 67, 87–8
Appendix 6.3
proofs of propositions 69, 89
existence of redundant information and implications for information acquisition 89–90
proof that information stochastically dominates choice without information 89
Appendix 8.1
instructions for the experiment 102, 113
extra information 102–3, 112–14
procedure 114–15
Appendix 8.2, the experimental series and measures of $D_{i,t}^3$ 116–17
Appendix 9.1, instruction for the experiment 122, 139–41
Appendix 9.2, criterion values and rankings for all patterns presented 122, 125, 131, 142–4
Appendix 10.1, outline of computer program 151, 160–61
Appendix 10.2
income under best random and non-random strategy 163
proof that outlined strategy is optimal 153–4, 155, 162–3
Appendix 11.1
instructions for the experiment 167, 177
the course of the experiment 179
market functioning 177–9
applied welfare economics with
boundedly rational expectations 91–2
cost–benefit analysis of provision of
remotely sensed data 94–6
how can welfare losses be avoided? 96–8
remote sensing 92–4
appropriate extrapolative scheme, market will function as under
rational expectations 48
Armstrong, J.S. 39
Arnett, J.J. 21
Arrow–Debreu set-up 3
Arthur, W.B. 108
asset price, sentiment driven 134, 138
assumption, all individuals can be
represented by single rational
individual 21, 27
average output, affected by dispersion of beliefs 24
Ayton, P. 9
Barberis, N. 118
Barsalou, L.W. 66
basic module of efficient roof structure 151–2
Battalio, R.L. 158
Baumol, W.J. 175
Bayes estimator 112
Begg, D.K.H. 21
behavioural tendencies, relevance for
financial markets 119
benchmark
calculations parameter values for 36
cases 33, 36–7, 42
conditions 35
experimental investigation and
166–7
for stock price 51, 58
level of output 28
normative 70
output 25
random walk as 134
values 35
Bernoulli, D. 10
Bernoulli process 103, 105
Besanko, D. 39
Blanchard, O.J. 57
Bloomfield, R. 118
Bolle, F. 57
Bolton, P. 9
Bomfim, A.N. 27
bond, risk-free asset 19, 51
Bonham, C. 56
boundedly rational expectations 44, 48, 91
bounded rationality 80
agents make suboptimal decisions because of limited cognitive
abilities 91
concept used by researchers in political science 91
impediment to adoption of new technology 94
information underacquisition 94
information users, key element in public policies 98
people learn optima through practice and end acting as if unboundedly rational 65
prevention of loss of income due to 96
Bowman, M.J. 30
Branch, W.A. 59
Brehmer, B. 65, 80
Brock, W.A. 59, 164
broken trends, individual probability assessments 125
Brown, D.J. 27
Brown, K.C. 27
Bryant, J. 153
bubble case 55–7
Buchanan, N.S. 45
Busemeyer, J.R. 92
Byamugisha, F. 99
Camerer, C.F. 112
Caplin, A. 91
cardinal utility 10, 12
Caskey, J. 59
certainty equivalent of a lottery 16
Champsaur, P. 9
Cheung, Y.-W. 134
Chow, G.C. 57
Index

Ciccone, S.J. 21
classical version of expected utility 12
Clower, R.W. 164
Cohen, R. 56
Cohen, R.B. 57
Conlisk, J. 65, 91
Connolly, T. 92
Cooper, A.C. 39
Cooper, D.J. 80
Cooper, R.W. 145
Cooper, W.W. 30
coordination, location problems 146, 158
coordination failure, players’ decisions made under strategic uncertainty 146, 158
cost–benefit analysis, remotely sensed data 94–6
costly information and decision making 65–6
analysis of individual performance 77–9
analysis of individual information acquisition 69–77
the experimental design 66–8
optimal solution strategy 68–9
costly rationality, decision making under uncertainty 65
Cothren, R. 20
Cox, J.C. 81
Crawford, V.P. 158
crop health, remote sensing 94, 99
Cuthbertson, K. 57
cyclical pattern of output 45

Day, R.H. 65, 77
De Bondt, W. 57, 118
decision maker 13, 151
decision making centralized/decentralized 145–58
under uncertainty 6, 20, 65, 92
with costly information 65
De Grauwe, P. 108
De Long, J.B. 27
Derakshan, N. 21
determination of economy’s price level, role of expectations 164
deviations from rationality in expectations, do not necessarily generate sizable market effects 50

Dewachter, H. 108
Dewatripont, M. 9
dispersion of expectations 21–2, 27
divergent dynamics 48, 58
diversification 30, 32–3, 36, 38–9
Dixit, A.K. 30
Dominitz, J. 21, 112
Dornbusch, R. 175
Duffy, J. 58, 175
Dwyer, G.P. Jr. 57, 104
econometric analysis of expectations data, time series extrapolation has non-linear elements 137
econometric studies of various markets, historical data for 57
economic analysis, role of heterogeneity of expectations for economists (as subjects) 69, 104
educational investments 80, 99
Eeckhoudt, L. 9
efficient valuation of stock 51
egalitarian roof structure of optimal size 152–3
Eggleton, I.R.C. 100, 105–6
eliminating 30–33, 36–8
endowment risk 173
ENPV see expected net present value equilibrium, unbounded rationality and 166
Erev, I. 80
estimates of individual pattern use 105–8
evaluating responses to pattern experiment 104–5
Evans, G.V. 58
Evans, M.D.D. 134
exchange rates, diversity concerning which fundamentals important for valuing 136
exchange rate simulations 134–5
expectations on average biased towards optimism 21, 27
conditional 40–43
coordination of determines level of nominal prices 174
errors 25–6
heuristic 47, 57–8
expected utility maximization 8, 10, 12, 19–20
according to Von Neumann–Morgenstern 12–16
markets and equilibrium 11–12
measures of risk aversion 18–19
utilities and probabilities 10–11
variance of income as measure of risk 16–18
experimental data, investigate econometrically 101, 105–6, 112
experimental study, subjects fail to use information efficiently 65
extrapolative expectations 39, 57–9
level 43–4
trend 43–4, 131
Eysenck, M.W. 21
Ezekiel, M. 45
farming, application of remote sensing 93, 95, 99
Fehr, E. 175
Feldman, J. 100, 105–6, 112
Figlewski, S. 21, 56
finance professionals (as subjects) 104–5, 107–8, 111
Fischbacher, U. 176
Fischer, S. 57
Fisher, E. O’N. 58
Fisher, F.M. 56
fixed pattern response 101, 112
forecasting 30, 32, 36, 39
forecasting among alternative strategies under uncertainty 30
choice of strategy 31–2
fixed set-up costs 32–5
operating costs 35–7
effects of lowering forecasting costs 37–8
going ahead 33
refraining 32
forecasting heuristics 39
foresight, hypothesis of rationality in 56
Fornari, I. 57
Fox, J.C. 91
Frank, M.Z. 136
Frankel, J.A. 108
Frantz, R. 100
Frenkel, J.A. 175
Index

Friedman, M. 172, 175
Frieze, I.H. 21
Froot, K.A. 108
full information strategy 69, 77

Gabrynowicz, J.I. 93
Gardes, F. 57
Gilboa, I. 20
Gitman, L.J. 21
global positioning system (GPS), remotely sensed information and 93
going ahead 32–3, 36
government intervention, will improve welfare with bounded rationality of agents 97–8
government officials and businessmen, overacquisition of information 80
Grether, D.M. 81
Guesnerie, R. 58

Hales, J. 118
Haller, H. 158
Haltiwanger, J.C. 145
Hamouda, O.F. 20
Hays, P.L. 98
Heine, S.J. 21
heterogeneous expectations 8, 12, 21, 26–7, 48–9
heterogeneous probability assessments, agents’ and expected benefits from future market transactions 12
heuristic forecasting schemes 39–40
heuristics 27, 39, 44, 47
use of visual patterns 105
Hey, J.D. 29, 57, 158
Hicks, J. 164
Hill, J. 98
Hirshleifer, J. 9, 20, 118
hog cycle 45
Holden, K. 56
Hommes, C.H. 59
Hong, H. 137
Honkapohja, S. 58
Hopper, G.P. 134
hypothesis of rationality of foresight see rational expectations

individual expectations, non-contractible elements and 9
individuals, often remain ignorant about the working of their environment 79–80
information 65, 80, 91–2, 94–6, 98, 105
information acquisition by subjects of group economists 70, 74–6
information acquisition by subjects of group people 70–73
information costs 65–9, 78
information service, banks could become important partner in 97
information sheet 67–8
investment strategies 32–3, 36

Jeong, J. 56
Jones, M.R. 91, 100, 105–6
Journal of Remote Sensing 99

Kahneman, D. 20, 91
Katona, G. 21
Keane, M.P. 56
Kelly, M. 57
Keynes, J.M. 21, 175
Kirman, A.P. 27
Kiyotaki, N. 175
Kmenta, J. 112
Krugman, P.R. 164

Laibson, D. 91
land as variable factor of production 21 rent 24–7
land market 21–2
LANDSAT 93
Leahy, J. 91
lean information strategy 69, 90
Lee, K.C. 56
Lehman, D.R. 21
LeRoy, S.F. 57
level-extrapolative expectations 43–4
Levine, D.I. 21, 57
Lo, A.W.H. 100
location decision, role of forecast cost for 32
location of plates and costs 149–50
lotteries and compound lotteries 15
lottery, market price of 108–10
Lovell, M.C. 21, 56
low-inflation equilibrium 165, 175
Lucas, R. 20
Ludowicy, C.R. 99
Lund, N. 100
Lundberg, S.J. 20
Lyons, R.K. 134

Macauley, M.K. 98
McCallum, B.T. 58, 175
McDonald, R. 30
Machia, M.J. 20
Maddala, G.S. 56
main cue strategy 70, 77
Manski, C.F. 112
Marimon, R. 165, 169
market
agricultural 57
moral hazard and 9
populated with extrapolating noise traders 137
stock 51–7, 119, 135–6
market economy, determination of price level 164
market model 45, 109, 125
market prices 11, 20, 45, 58
Markov chain, used to generate data in pattern experiment 102–4
Markowitz, H. 19
mathematical expectations 47, 49, 58
maximin principle 6–9, 30
maximum likelihood estimate of probabilities 103, 112
measures of risk aversion 18–19
Meese, R. 134
military applications, remote sensing and 93, 98
Milleron, J.-C. 9
Mirman, L.J. 81
model economy 164, 167, 175–6
model of pattern-based expectations, behaviour and 111
money, transactions and expectations 164–5, 175
experimental analysis 167–8
playable monetary economy 165–7
aggregate outcomes 169–73
assessing individual rationality 168–69
tests of the quantity theory of money 173–4
Morgenstern, O. 10
Morris, S. 158
multiple equilibria, rational expectation models and 58
multiplicity of price level equilibria 164
multivariate expectations 43–4
Muth, J.F. 47, 57–9

National Aeronautics and Space Administration (NASA) 93, 98–9
National Research Council 99
Nerlove, M. 57
Newell, B.R. 92
new technological information, challenge of teaching to farmers 99
Niehans, J. 21, 27, 164, 173
noise traders or feedback traders 27, 119, 137
nominal prices, move proportionally to change in money supply 165, 174–5
non-rational dividend expectations 51–2
Nyhus, E.K. 91
Obstfeld, M. 165
Ochs, J. 166
one-period ahead forecasts 54
optimists 21–3, 27
optimization problem, under certainty 151–2
option value of waiting 30
oscillatory dynamics of market price 46
output levels in six runs of the experiment 169, 171
overacquisition of information 80, 92

Pareto dominant outcome 145, 158
Patinkin, D. 166, 175
pattern-based expectations and financial markets 112, 118–19
the experiment 119–22
experimental results 122–5
how well simple extrapolative schemes explain elicited expectations 125–33
simulated asset market and tests of realism 133–6
Index

pattern recognition as basis of expectations 100–101
estimates of individual pattern use 105–8
evaluating the responses 104–5
the experiment 102–4
model of pattern use 101–2
pattern recognition and market psychology 108–11
patterns
average of individual answers 125, 137–8
ranked according to maximum average cent amount earned in assessment of populations’ expectations 125, 129
ranked according to maximum of individually expected change 122–3
ranked according to maximum size of bias in assessment of populations’ expectations 125, 128
ranked according to minimum average cent amount earned in assessment of populations’ expectations 125, 130
ranked according to minimum of individually expected change 122, 124
role in time series forecasting of non-experts 100
People (as subjects) 104, 107–8, 111
perfect market economy 3–4, 9
Pesaran, M.H. 56–7
pessimists 22–4, 27
Pigou, A.C. 108
Pindyck, R.S. 30
Pingle, M. 65, 77
playable monetary economy 164, 165–7, 175
Plott, C.R. 57, 81
point expectations 6
Pope, R.D. 27
Porter, D.P. 57
positive and negative deviations from fundamental price 111–12
Posner, M.I. 100
possible roof models 148–9
Pötzelberger, K. 58
Prat, G. 57
price dynamics 49–50, 57–8, 134
price level 164, 169, 171, 173–5
realized 173
prices of agricultural commodities 27
price series 119, 137
principle of expected utility maximization 8
private sector as supplier of information 92–7
producer, fixed amount of management skill 22
production 6, 22, 31
production decision depends on expectations 6, 10–12
production lags 5–10, 45
production sites, different locations or different countries 31
prominent patterns 106, 122, 137
Pruitt, S.W. 21
psychology 92, 100, 108
Puccetti, R. 100
Pythagoras Theorem, use of 149
quadratic utility function 17–18
quantity theory of money may be robust to agents’ deviations from perfect rationality 174, 176
price level changes in proportion to change in money supply 173
R&D, pursued along one or several lines 31
Rabin, M. 80
Radner, R. 27, 65
Rajeev, G. 91
random number generator 133–4
random strategy 154, 162–3
random variable 40
random walk as benchmark model 134–6 rational expectations and 44
random walk series 135, 137–8
Rapoport, A. 92
rational bubbles 111
rational expectations 40
bubble solution 56, 58
conditions when heuristics conform to 44
equilibrium 22
heterogeneity of expectations and 21, 48–9
market dynamics under 47–8, 58
market price under 54, 58
solution to problem presented 104, 112
theory 21, 27
rational solution, estimating
parameters of data-generating process by method of maximum likelihood 103, 112
rationality, deviations from associated with animal spirits and sun spots 108
rationality of expectations, can be tested independently of other hypotheses 57
rationality of individual behaviour, assess using agent’s maximization problem 168
redundant knowledge, overacquisition of information and 80
refraining 31–2, 36
regression
analysis of market functioning 111
equation for (subject-) population average of expected changes 131–2
models for data of subjects 106–8
regressive expectations 43–4, 48, 132
remotely sensed data, cost–benefit analysis of 94–6, 99
remotely sensed information, access made dependent on participation 95
remote sensing 92–4, 98
Remote Sensing of Environment 99
remote sensing information, satellite information services 92, 98–9
repetition and learning, not sufficient to bring about rational choices 65, 80
Reyniers, D.J. 158
Richardson, G.B. 145
Riley, J.G. 9, 20
risk 146
assessment of fire 99
aversion measures of 15–16, 18–20, 58, 158
endowment 173
income 17
indifference 18
loving 16
neutral behaviour 13, 16, 18, 32, 41
premium 51
strategy 38
risk-free,
bonds 19, 51
interest rate 51, 58
Rogoff, K. 134
Roth, A.E. 80
Rötheli, T.F. 27, 56–7, 112, 175
Rousseau, J.-J. 145
Rowley, J.C.R. 20
Rumelhart, D.E. 100
run patterns 105–11
Runkle, D.E. 56
Saatchi, S.S. 99
state-contingent commodities 5
St Petersburg paradox of gambling 10
Salanie, B. 9
Samuelson, P.A. 175
Sannier, C.A.D. 99
Sargent, T.J. 164
Sarle, C.F. 45
satellite information services 92–3, 98
savings policies 91
Say’s law 166, 175
Schelling, T.C. 158, 175
Schmalensee, R. 56
Schmedider, D. 20
Schoemaker, P.J.H. 20
Schütt, B. 99
Scitovsky, T. 158
Selten, R. 91
servo-mechanisms, as a substitute for forecasting 30
Shanks, D.R. 80
Shefrin, H. 122, 132
Shiller, R.J. 52, 57, 110, 136
Shin, H.S. 158
Shleifer, A. 137
Shubik, M. 164
Siegel, D. 30
Simon, H.A. 44, 91, 100
simulated time paths, comparison with historical financial data 135
simulations of market dynamics 49–50, 134–6  
Skyrms, B. 146  
Smith, V.L. 57  
Smyth, D.J. 56  
Sögner, L. 58  
spot market 6–8, 11–12  
stag hunt problem 145–6, 158  
Startz, R. 20  
static expectations 43–5, 50, 53  
Stein, J.C. 137  
stochastic production function 41  
stochastic relationships, important limits to learning 65, 80  
stock, risky asset 19–20  
stock market 51–6  
stock price 40, 51–6  
experimental time series and simulations 135–6  
stopping rules 92  
subjective probabilities 9, 22, 27, 110  
subjects  
coordinate actions poorly if have to make decisions on counterparts’ actions 158  
estimation of probabilities of a Bernoulli process 105  
fail to find most economical way of forecasting successful project 80  
hits and misses by 77–8  
use of heuristical procedures 105  
suboptimal decision making, average loss due to 77  
suboptimal use of information, rule rather than exception 104  
suboptimality in decision making, cost–benefit analysis and 80  
Sugden, R. 175  
Summers, L.H. 137  
Sunder, S. 57, 165, 169  
swinging of a hammer, test of strength 23  
switching 30–32, 36, 38–9, 69  
Switzerland  
decision making experiment 69  
pattern experiment 104  
Système Probatoire d’Observation de la Terre (SPOT) 93  
technical analysis 100  
thaler, worth in euro cents 149, 151  
Thaler, R.H. 57, 91  
thinking ahead, decision makers and 92  
Thorn, B.K. 92  
time series models 40  
Timmermann, A. 65  
Tobin, J. 18–19, 175  
Todd, P.M. 44  
Toman, M.A. 98  
treatments  
A and B in coordination experiment 146–57  
one, two and three in monetary experiment 167–73  
trend-extrapolative expectations 43–4, 131  
trend patterns 118–25, 132  
trend-reversing expectations 53–4  
Truax, D.D. 98  
Turnovsky, S.J. 57–8  
Tversky, A. 20  
Tyebjee, T.T 21  
Tyran, J.-R. 175  
uncertainty 3, 6, 8–9, 20, 30, 38–9, 65 strategic 146  
derunderacquisition of information 80, 92  
University of Erfurt, students as subjects 118, 154, 167, Usher, J.M. 98  
Van Huyck, J.B. 143  
von Neumann, J. 10  
von Neumann–Morgenstern, expected utility 12–19  
Wachtel, P. 21, 56  
waiting 32, 36, 38–9  
Wald, A. 8  
Wald tests 107, 111–12  
Waldman, M. 27, 145  
Wallace, N. 164  
Webley, P. 91  
welfare analysis, conducted in light of bounded rationality of agents 80, 91  
welfare losses 96–8
Wenzelburger, J. 58
Wicksell, K. 164
Williams, A.W. 57
World Bank, information service and 97, 99
World Wide Web 136
Wright, G. 9

Wright, R. 175
Zakout, W. 99
Zeckhauser, R. 133
Zellner, A. 56
zigzag patterns, expectations and 105–11, 119–25, 132