Index

Abramovitz, M. 4, 23, 79, 199
academic linkages data 155, 159
academic network 156
agricultural modernization 45
agriculture and PROs 45
agro-food knowledge 100–101
AGRO-Montpellier 102, 105
agronomy 101, 121
Allied Domecq 81
alters 126, 131
Anchor Yeast 185
Anderson, Kym 10, 82, 177, 200
appellations of origin 28, 39
ARC (Agricultural Research Council)

Infruitec-Nietvoorbij 58, 154, 192
Nietvoorbij Institute 184, 185
Argentina
challenge to established producers 43–44
degree of collaboration 59
firms ties with other bodies research 126–41
GSIs (government support institutions) 119, 120, 121, 122, 125, 126, 127, 128, 130, 136, 137, 139, 140, 141, 142
higher education institutes (HE) 58
institutions 120–25
international co-publications 52
international linkages 10
market shares 18
Mendoza wine region 11, 102, 120, 121, 122, 125, 126, 127, 128, 133, 135, 140, 178, 202
microclimates 121
national organizations 66
networks 120–25
PPIs (public private institutions) 11, 122, 123–4, 125, 126, 127, 130, 137, 140, 141, 142, 202
product development 120, 121
public research organizations see PROs
quality control 120
research 55–60, 95–115, 120, 206
San Juan wine region 120, 121, 122, 140
scientific collaboration 51–60, 61, 201
statistics data 134–9
sub-regions 132
unit value exports 22
universities involvement 10–11, 95–115
upgrading 120–25
vineyard maintenance 121
wine consumption 19
wine exports 20, 21, 62, 78, 120
wine industry backwardness 120
wine industry evolution 11
wine industry and poverty 209
wine production volume 19
wine publications 50–51, 87
see also bridging researchers; PROs; research; universities
Arza, V. 95, 97, 114
Asia, NICs performance since 1980s 4
associationalism 118
Australia
bag-in-a-box 78
challenge to established producers 43–4
economies of scale 77
institutional changes 33–6
international co-publications 52
investment flow 83
links with United Kingdom 77
market shares 18, 19, 21
marketing 27–28
mergers and acquisitions 81
public/private partnerships see PPIs

211
R&D (research and development) 7, 10, 34, 70–90
viticulture 88
wine consumption 19, 74, 78
wine exports 20, 21, 22, 71, 72, 73, 74, 77, 78, 89, 151, 200, 202
wine grape prices 85–86
wine imports 71, 72, 88
wine industry booms 71–4, 77
wine industry growth 10, 71–8, 84
wine industry innovation 79–90
wine production 19, 71, 77, 200
wine publications 50–51, 87
wine quality 77–8, 83, 89
wine-in-a-box 74
Australia Wine Industry Technical Conference 84
Australian Bureau of Agricultural and Resource Economics 84
Australian Bureau of Statistics 84
Australian and New Zealand Food Standards Code 78
Australian Wine Board 70, 85
Australian Wine Export Council 70, 78, 83
Australia’s First Families of Wine 89
AWBC (Australian Wine and Brandy Corporation) 34, 70, 83, 84
AWRI (Australian Wine Research Institute) 34, 70, 85
Aylward, D. 177

backward innovation systems 3
bag-in-a-box 78
Barba Navaretti, G. 146, 148
Baume sugar levels 88
Bell, M. 105, 112, 114, 178, 185
Beringer 81
biotechnology 9, 89, 181–2
Box-Cox transformation 132
Brand Australia 28, 83
Brand Champions 83
bridging researchers 11, 147
definition/characteristics 11, 156–8, 163–70
evergence of 33
and LDCs 169
scientific merit of 164–9
and U-I linkages 169
and universities 148–50

BRL Hardy’s 81
brokerage roles 156–7
Brundenius, C. 146
Busby, James 84

Cabernet 27, 200
Cabernet Sauvignon 183
California
influence of 27–8
marketing 27–8
Napa Valley wine region 177
research 29
scientific approach 29
Canada
international co-publications 52
wine research publications 30
CAP (Common Agricultural Policy)
regulation 35, 209
Cape Town city-region 179
Cape Wine Academy 185
Cassi, Lorenzo 10, 147, 150, 201
Castel Frères 39
catch-up
and creativity/innovation 4–5
and innovation systems 6–7
institutional changes 33–6
institutional conditions for 23
main drivers in 3, 10
political conditions for 23
and scientific capabilities 43
and social capabilities 4
social technologies and 23
and techno-economic paradigm
transformations 23
and technological congruence 4
Catholic University 58
Cavirro 32
Centro Tecnologico de la Vid y el Vino
see CTVV
Chandon 102
Chardonnay 27, 77, 183, 200
Charles Sturt University 85, 86
Chenin Blanc 183
Chile
bridging researchers see bridging researchers
challenge to established producers 43–4
Colchagua wine region 177
degree of collaboration 59
family-based industry 32
foreign investment 32
foreign scientific knowledge 152
innovation systems 3
international co-publications 52
international linkages 10
market shares 18
marketing 28
Maule wine region 112
national organizations 67
rapid growth of 17
research 33, 55–60, 95–115, 202, 206
research institutions 33
scientific collaboration 51–60, 61, 201
single representative body 34–5
Talca wine region 58
unit value exports 22
universities involvement 10–11, 95–115
wine consumption volume 19
wine exports 20, 21, 32, 62, 78, 151
wine industry development 150–52
wine industry and poverty 209
wine production volume 19
wine publications 50–51, 87
see also bridging researchers; PROs; research; universities
Chilevid 35, 106
China
scientific collaboration 54
wine consumption volume 19
wine exports volume 20
wine production volume 19
CIREN (Centro de Información de Recursos Naturales) 153
CITRA 106, 107
CMO (Common Market Organization) 35
corporate agreements 50–55
Coenen, L. 100
Colchagua wine region 177
collaboration
at firm level 80–82
at industry level 82–4
consultants 157
coordinators 157
degree of 59
in education 84–8
gatekeepers 157
horizontal integration 80–82
networks 53, 54, 56, 57
pairs by organization 61
and proximity 177, 195, 196
in research 84–8, 156–8
scientific 51–60, 61, 201
in training 84–8
triple helix model 58, 60
vertical integration 80–82
see also knowledge; research
Colom bard 183
competition 27
Concha y Toro 32, 33
CONICET (National Scientific and Technical Research Council) 58
Constellation Brands 32–3, 81
consultants 7, 157
consulting/servicing 108–9
consumer influences 26–8, 37
Cooke, P. 95
Cooperative Research Centre for Viticulture 85
coordinators 157
Corbans 81
CORFO (Chilean Economic Development Agency) 35, 39, 153
Corporacion Chilena del Vino 106
Corredoira, Rafael A. 11, 102, 110, 113, 114, 126, 178, 202
Croser, Brian 85
cross-border linkages 45
CTVV (Centro Tecnológico de la Vid y el Vino) 103, 107, 109
Cusmano, Lucia 9, 33, 43, 47, 49, 79, 103, 151, 200
data sources 47–9
developmental university system 150
demand 25, 26–7
developing countries, weak innovative systems 7
developing linkages indicators 110
developmental university system 150
Distell 32, 33, 58
downstream industry concentration 208
Drakenstein wine region 179
economies of scale 77
embeddedness 118, 119, 132
Innovation and technological catch-up

EU (European Union) agricultural reform 35
EU (European Union) policy 209
Europe, historical monopoly over wine culture 26
Ewert, J. 22, 32, 182, 183, 204
experience goods 200
extra-national influence 6

FDI (foreign direct investment) 146, 148
Fernandez, R.M. 156–7
firms
access to resources 125
associationalism 118
embeddedness 118, 119
export programs 128
inter-firm networks 118
network composition 125–9
and PPIs 125
product upgrading 125–9
R&D 128
ties with other bodies research 126–41
training 128
Fleming, L. 120, 130
flying winemakers 31
Fondo Vitivinicola 123, 127
foreign investment 32, 88
foreign ownership 132
foreign research linkages 159
foreign scientific knowledge 152
Fornachon, John 85
Foster’s Brewing Group 32–3, 81
France
challenge to winemakers 43–4
industry restructuring 35
international co-publications 52
research tradition 152
unit value exports 22
wine consumption volume 19
wine exports volume 20, 21, 151
wine production volume 19
wine publications 50–51, 87
wine research publications 30
FTC (Fondo para la Transformacion y el Crecimiento) 123
gatekeepers 157
Generation Next 83–4

Germany
economic development 5
industrialization 5
international co-publications 52
unit value exports 22
wine consumption volume 19
wine exports volume 20
wine production volume 19
wine publications 50–51, 87
wine research publications 30
Giuliani, Elisa 11–12, 60, 95, 97, 105, 112, 114, 120, 130, 147, 178, 185, 189, 192, 195, 202, 206
GIV 32
Glänzel, W. 64
global marketing 31
global wine industry dynamics 18–23
globalization and knowledge diffusion 45, 46
globalization and regulatory framework 46
globally available technology 146
Godin, B. 96–97
Gould, R.V. 156–7
gourmet culture 26
government technology centers 128
grape production requirements 79
GSIs (government support institutions) 119, 120, 121, 122, 125, 126, 127, 128, 130, 136, 137, 139, 140, 141, 142
GVCs (global value chains) 148
GWRDC (Grape and Wine Research and Development (R&D) Corporation) 7, 10, 34, 70, 85–6
HE (higher education institutes) 58, see also universities
Hong Kong duty-free market 89
horizontal collaboration 80–82
How Universities Promote Economic Growth 149
Hungary, scientific collaboration 54
ICGEB (International Centre for Genetic Engineering and Biotechnology) 181
ICT and information exchange 47
Index

IDR (Instituto Desarrollo Rural) 124, 127
imported technologies 45
indigenous capability 8, 46
industry/university links see universities
INIA (Instituto Nacional de Investigación Agropecuaria) 153
Innova Chile 35, 153
innovation
in Australian wine industry 79–90
by winemakers 203
and catch-up 6–7
in Chile 146–76
cooperation on 190
in development economics 6, 7
and exports 31
and extra-national influence 6
and extra-national systems 6
and firms 31, 80–82
institutional 82–4
as learning systems 6
national system of innovation 95
openness of system 158–60
perspective and catch-up 6
regional system of innovation 95
and science 7–9
sectoral dynamics 24
in South Africa 146–76
systems 3, 147
SSI (sectoral system of innovation) approach see SSI
in traditional sectors 203
universities involvement see universities
university research 7–9
Innovation and Globalization in the Wine Sector: An International Comparison between Argentina, Chile, Italy and South Africa 2
INRA-Montpellier 102, 105
Institute for Wine Biotechnology 154
institutional frameworks and SSI 25–6
INTA Mendoza 127
INTA (National Institute of Farming Technology) 58, 111
INTA San Juan 123
inter-firm networks 118
inter-organizational networks 126
international academic linkages 156
international co-publications 50–55
international collaboration 51–60
international property rights 8
international research networks 150
international scientific openness 156, 158, 159, 160
investment and organizational change 17
investment and technological modernization 17
irrigation 8
IS (innovation systems) in developing countries 147–8, 149
ISCAMEN 111
ISI (Institute for Scientific Information) 107
Israel, wine research publications 30
Italy
bulk wine exporter 38
challenge to winemakers 43–4
industry restructuring 36
international co-publications 52
Piedmont region research 195
rapid growth of 17
sales 32
unit value exports 22
varieties 27
wine consumption volume 19
wine exports volume 20, 21, 151
wine production volume 19
wine publications 50–51, 87
wine research publications 30
Jacob, M. 114
Japan
industrialization 5
scientific collaboration 54
Johansson, B. 99
Karlsson, C. 99
knowledge
base and technology 28–30, 31
capital 81
domains 25
flow 100–101, 177, 178, 189, 190, 202, 204
high-tech 3
intermediaries 183–5
producers 183–5
and proximity 177, 195, 196
innovation and technological catch-up

spillovers from FDI 146
transfer 149
users 183–5
willingness to share 190–92
see also collaboration; research
Korea
industrialization 5
and knowledge transfer 149
Kunc, Martin 10, 58, 202
KWV 182

Label Integrity Program 83
laboratory investment 98–99
Landmark Australia 84
LDCs (less developed countries) and IS (innovation systems) 147–8
learning from exports 146, 148
Lee, Terry 85
Lindemans 77
Lorentzen, Jo 11, 177, 178, 180, 181, 202
low-tech sector innovation 149
Lundvall, B.A. 6
LVMH group 39

McDermott, Gerald A. 11, 102, 110, 112, 114, 120, 121, 126, 178, 202
McEvily, B. 125
Malerba, F. 3, 6
Mani, S. 3
marketing 27–8, 191
Maule wine region 112
Mayr, K. 150
Mazzoleni, R. 4, 5, 8, 9, 43, 45, 60, 149
Mendoza wine region 11, 58, 102, 120, 121, 122, 125, 126, 127, 132, 133, 135, 140, 178, 202
mergers and acquisitions 31, 81
Merlot 27, 183
microclimates 121
Mildara Blass 81
modernization 5, 29, 31, 45
Mondavi 81
Montana 81
Morrison, Andrea 9, 10, 11–12, 147, 195, 207
Mowery, D. 98

Nabeshima, K. 99, 146, 149
Napa Valley wine region 177
National Institute of Farming Technology (INTA) 58
National Scientific and Technical Research Council (CONICET) 58
national system of innovation 95
National Wine Grape Outlook Conference 84
National Wine Industry Environment Conference 84
Nelson, K. 6
Nelson, R.R. 4, 5, 6, 8, 9, 45, 60, 79, 149
networks 120
academic 156
collaboration 53, 54, 56, 57
composition 125–9, 205
effectiveness 178
facilitator role 125
inter-firm 118
New Argonauts 150
New World see Argentina, Australia, California, Canada, Chile, New Zealand, South Africa, USA
New World production levels 18, 21
New World production methods 5
New World wine exports 21
New Zealand
research institutions 33
wine exports 78
NICs (newly industrializing countries) performance since 1980s 4
Nietvoorbij Institute 184, 185
Norton 102

OECD (Organisation for Economic Co-operation and Development) 98
oenology 85, 101, 105, 121, 132, 185
Old GSIs see GSIs
Old World see France, Germany, Italy, Portugal, Spain
Orange River wine region 183
organizational change and investment 17
Orlando Wines 81
Overstrand wine region 179
Owen-Smith, J. 142

Paarl Vineyard Study Group 193
Paarl wine region 183
Index

Paul, H.W. 152
Pavitt, K. 185–6
Perez, C. 4, 5, 23, 26, 199
Peri, G. 150
Pernod Ricard 39, 81
phylloxera 2, 81, 84–5, 152
Piedmont wine region 195
Pierce’s Disease 81
Pinotage 183, 190
Pinotage Association 185, 193
Ponte, S. 22, 32, 182, 183, 204
Pontificia Universidad Catolica de Chile 58, 103, 105, 112, 152
Portugal
international co-publications 52
scientific collaboration 54
unit value exports 22
wine consumption volume 19
wine exports volume 20
wine production volume 19
wine publications 50–51, 87
Powell, W.W. 142
PPIs (public private institutions) 7, 11, 122, 123–24, 125, 126, 127, 130, 137, 140, 141, 142, 178, 202, 205
precision viticulture 88
product development 120, 121
product upgrading 125–9, 130, 133, 137
production techniques 31
ProMendoza 124, 127
PROs (public research organizations) 7, 8, 10, 25, 43, 44, 45, 58, 60, 146, 149, 152, 153, 163, 201, 204, 205, 206
Proyectos de Fomento 39
public/private partnerships see PPI
R&D see research
Rabellotti, Roberta 9, 10, 11–12, 60, 147, 192, 195, 202, 207
Rappoport, D. 97
recombination 120
regional development and training 98
Regional Heroes 84
regional system of innovation 95
and universities 97–9
regulatory framework 209
research 7, 10, 29
in Argentina 55–60, 95–115, 120, 206
bridging researchers see bridging researchers
by category 30
in California 29
and catch-up varieties 24
in Chile 33, 55–60, 95–115, 202
collaboration networks 53, 54, 56, 57
foreign research linkages 159
global trends 49–51
indicators 106
and industry transformation 17, 36
institutions 33
international research networks 150
and knowledge flow see knowledge flow
PROs see PROs
and proximity 177, 195, 196
publications see wine publications
and science 44–7
in South Africa 7, 33, 34, 55–60, 180, 202
U–I (industry–university) linkages 33, 98, 206
in universities see universities
see also bridging researchers;
collaboration; knowledge researchers
CVs 154–5
scientific openness of 175
statistics data 174
U–I linkages 176
Robertson wine region 183
Roseworthy Agricultural College 85
Sampat, B.N. 4
San Juan wine region 120, 121, 122, 140
Sauvignon 27, 200
Sauvignon Blanc 88, 183
SAWB (South African Wine and Brandy Corporation) 34
SAWIS (South African Wine Information and Systems) 185
SAWIT (South African Wine Trust) 34
Saxenian, A.L. 150
Schiller, D. 95
science
and research institutions 152–4
see also bridging researchers;
research
scientific collaboration 51–60, 61, 201, see also research
scientific collaboration networks 53, 54, 56, 57
scientific publications 49–55, 62
sectoral system of innovation see SSI
Shiraz 183
Slow Food movement 39
Smith, K. 147
social capabilities and catch-up 4
social technologies and catch-up 23
Soo, M. 117
South Africa
black empowerment 34
bridging researchers see bridging researchers
Cape Town city-region 179
collaboration 59
Drakenstein region 179
economy and knowledge infrastructure (Western Cape) 179–82
foreign investment 32
foreign scientific knowledge 152
Gauteng province 180
innovation studies 186–94
innovation systems 3, 182
innovative activities 185–94
institutional changes 33–6
international co-publications 52
international linkages 10
market shares 18
national organizations 68–9
Orange River region 183
Overstrand region 179
Paarl region 183
political instability 34
public/private partnerships 7
R&D (research and development) 7, 34
rapid growth of 17
research 55–60, 180, 206
research institutions 33
Robertson region 183
scientific collaboration 51–60, 61, 201
Stellenbosch region 179, 183
Swartland region 179
technological learning 186
Theewaterskloof region 179
theory 3–6
unit value exports 22
universities involvement 10–11
Western Cape region 11, 178, 178–96
wine consumption volume 19
wine exports volume 20, 21, 62, 151, 183
wine imports 183
wine industry development 150–52, 182
wine industry and poverty 209
wine production volume 19, 183
wine publications 50–51, 87
Winetech 7, 34, 60, 154, 182, 185, 186, 192
Worcester region 183
South African Journal of Enology and Viticulture 184–5
South African Society for Enology and Viticulture 185
South African Wine Industry Council 34
Southcorp/Rosemount 81
Spain
international co-publications 52
unit value exports 22
wine consumption volume 19
wine exports volume 20
wine production volume 19
wine publications 50–51, 87
wine research publications 30
spatial proximity 11
SSI 6, 9, 18, 24–6
demand factors 25, 31
institutional frameworks 25–6
knowledge base 31
knowledge domains 25
and PROs (public relations organizations) 25
relationships of key actors in 25–6
star scientist migration 149–50
Stellenbosch University 58, 154, 184, 185, 193
Stellenbosch wine region 179, 183
Strategy 2020 34
Strategy 2025 83, 84
Index

SunBio 185
supermarket sales 31–2
Swartland wine region 179
Taiwan
industrialization 5
knowledge transfer 149–50
Talca wine region 58
techno-economic paradigm
transformations 23, 26
technological congruence and catch-up
4, 26
technological learning 4
technological modernization and
investment 17
technological modernization and
marketing strategies 28
technology
globally available 146
imported 45
and knowledge base 28–30
life cycle shortness 45
Tecnovid 106
terroir 2, 12, 27, 28, 29, 36, 79, 183,
185, 192, 201
Theewaterskloof wine region 179
Thorn, K. 100
ties see firms
Tiffin, Scott 10, 58, 202
Toneleria Nacional 106
transgenic biotechnology 89
triple helix model of collaboration 58, 60

unit values exports 22
United Kingdom
import barriers 74
international co-publications 52
licensing laws 77
universities
AGRO-Montpellier 102, 105
and bridging researchers see bridging researchers
Charles Sturt University 85, 86
consulting/servicing 98, 108–09
consulting/servicing role 98
developmental university system 150
entrepreneurial role 149
facilitating linkages role 99
INRA-Montpellier 102, 105
ivorytowerism of 149
Pontificia Universidad Catolica de
Chile 58, 103, 105, 111, 112, 152
regional development and training
98
and regional systems of innovation
97–9
research role 98
Roseworthy Agricultural College 85
training role 98
Universidad Catolica del Maule 103
Universidad de Chile 58, 103, 105, 106, 152
Universidad de Talca 95–115
Centro Tecnologico de la Vid y el
Vino 106
Universidad Federico Santa Maria 106
Universidad Nacional de Cuyo
95–115
College of Agriculture 109
School of Agricultural Sciences 102, 111
Universita del Piemonte Orientale 2
universities, and economic
development 96
University of Adelaide 85, 90
University of Buenos Aires (UBA) 58
University of Cape Town 181
University of Pretoria 192–3
University of Santiago de Chile 58
University of Stellenbosch 58, 154,
184, 185, 193
Department of Oenology and
Viticulture 184
wine industry degrees 102, 105, 106,
107, 108, 109, 110, 111
see also bridging researchers;
research
university–industry (U–I) linkages/
networks 2, 10–11, 33, 37, 44, 45,
58, 85, 90, 95–115, 96–100, 98,
112, 155, 156, 158, 160–63, 161,
162, 169, 176, 201, 203, 205, 206, 207
upgrading intent variable 130, 132
USA
California see California
Innovation and technological catch-up

challenge to established producers 43–4
international co-publications 52
market shares 18, 19, 21
retailers 27
scientific collaboration 51–5
unit value exports 22
wholesalers 27
wine consumption volume 19
wine exports volume 20, 21
wine production volume 19
wine publications 50–51, 87
wine research publications 30

value chain management 208
Venables, A.J. 146, 148
vertical collaboration 80–82
Veugelers, R. 64
Vignaioli Piemontesi 39
Viñas de Chile 35
vines
  experimentation 84
  maintenance 121
  vineyard management 191
  vinifera vines 152
Vinos de Chile 35
VinPro 185, 191, 193
Viotti, E.B. 6
viticulture 8, 85, 88, 101, 105, 184, 185

Wagner, J. 146, 147
Western Cape wine region 11, 178, 178–96
Wine 2030 90
wine
  consultants 31
  consumption 18, 19, 27, 74, 78
  as cultural experience 27
  exports 20, 21, 22, 32, 62, 71, 72, 73, 74, 78, 89, 120, 128, 151, 183, 200, 202
  exports unit values 22

imports 71, 72, 88, 183
industry evolution 11
industry regulation 35
production 18, 19, 71, 77, 183, 200
publications 29, 30, 49–55, 57, 62, 74, 87
quality 27
quality control 120
quality upgrading 22
retailers 31, 88–9
six-point scale 38
see also research
Wine Export Council 10
Wine Grape Growers Australia 84
Wine Grape Growers’ Council of Australia 84
Wine Industry Outlook Conference 84
Wine Overseas Marketing Board 70
Wine Spectator 151
wine-in-a-box 74
Wineland 184, 185
Winemakers’ Federation of Australia 83, 84
Winetech (Wine Industry Network of Expertise and Technology) 7, 34, 60, 154, 182, 185, 186, 192
WIP (South African Wine Industry Strategy Plan) 34
Wittwer, G. 82
Worcester wine region 183
World Development 149
world international co-publications 52
world unit value exports 22
world wine consumption volume 19
world wine exports volume 20
world wine production volume 19
world wine publications 50–51, 87
WOSA (Wine of South Africa) 36
Wynboer 184, 185
Yusuf, S. 99, 146, 149
Zaheer, A. 125