

RESOURCE MARKETS AND MANAGEMENT

Reading/Reference List & Course Outline

With world commodity prices at record lows, we are once again reminded of the importance of the resources sector to the Australian economy. This subject attempts to use recent economic theory to shed light on some of the private and social issues related to resource development. Meanwhile, there is widespread concern at global environmental despoliation: the greenhouse effect of global heating, the disappearance of the protective ozone layer, the pollution of the Mediterranean and North Seas, acid rain, and—closer to home—the seemingly inexorable salinification of Australia's irrigation regions.

Broad issues include an examination of the economic aspects of resource extraction, sale, and use, including the use of renewable and non-renewable natural resources, and environmental degradation. Assessment of the importance of the problem, the microeconomics of externalities and public goods, the market as efficient intertemporal allocator, policies for industry and community.

In particular, the subject includes an examination of the stock and flow conditions necessary for the efficient allocation of natural resources (including environmental amenities) through time. We shall examine actual resource markets to examine possible relative scarcity and explanations for price fluctuations. We shall discuss policies for resource management, of both exhaustible and renewable resources, and both *in situ* and extractive resources. We shall examine the costs of pollution and methods of pollution control.

Outline of subject:

I *Resource markets.*

- 1.1 Introduction & definitions.
- 1.2 The Australian scene.
- 1.3 Natural resource scarcity.
- 1.4 The pricing of exhaustible resources.
- 1.5 The world oil market.
- 1.6 Taxing resources: auctions & royalties.
- 1.7 Trade in resources.

II *Economics of the environment.*

- 2.1 Renewable resources.
- 2.2 Natural resources & natural environment.
- 2.3 Environmental pollution.

2.4 Property rights.

Required text:

Tietenberg Th. *Environmental and Natural Resource Economics*, HarperCollins.

Fisher A. C., *Resource & Environmental Economics*, Cambridge: CUP, 1981 (AGSM 333.7/79) (on reserve)

As well, the following books will be found useful:

Bromley B. ed. *The Handbook of Environmental Economics*, Oxford: B. Blackwell, 1995.

Lloyd P. J. (ed), *Mineral Economics in Australia*, Sydney: Allen & Unwin, 1984 (AGSM 333.850994/3) (on reserve)

Baumol W. J. & W. E. Oates, *Economics, Environmental Policy, & the Quality of Life*, Englewood Cliffs: Prentice-Hall, 1979 (AGSM 301.31/29) (on reserve)

Howe C. W., *Natural Resource Economics*, NY: Wiley, 1979 (AGSM 333/7,10,11) (one copy on reserve)

Cook L. H. & M. G. Porter (eds), *The Minerals Sector & the Australian Economy*, Sydney: Allen & Unwin & Centre of Policy Studies, Monash, 1984 (AGSM 338.20994/17 & 333.850994/4) (one copy on reserve)

Pearce D.W. & R.K. Turner, *Economics of Natural Resources and the Environment*, Baltimore: Johns Hopkins UP, 1990. (AGSM 333.7/103)

Additional readings will be found below. Recommended readings are marked with an asterisk (*). A Package of course notes is available. Readings in the Package are marked with a **P**.

I Resource Markets.

1.1 Introduction & Definitions.

*Fisher, Ch. 1

*Baumol & Oates, Ch. 6

*Howe, Ch. 1,2

*Simon J. L., *The Ultimate Resource*, Princeton: PUP, 1981, Ch. 1,2,3,7,8 (AGSM 333.7/73) **P**

*Tierney, A Wager on the World's Resources, *NYTimes Magazine*, 1991 **P**

Cloud P., Mineral resources in fact & fantasy, in H. E. Daly (ed), *Toward a Steady-State Economy*, SF: Freeman, 1973 (AGSM 338.09/1)

1.2 The Australian Scene.

*Porter's, Helliwell's graphs **P**

*Bureau of Resource Economics, Resource exports in context, in *Processing of Australia's Mineral Exports: An Overview*, Canberra: AGPS, 1987 **P**

Lloyd P.J., Domestic processing, value added and globalisation, Ch. 14, in C.

- Hamilton (ed.), *The Economic Dynamics of Australian Industry*, Sydney: Allen & Unwin, 1991.
- IC, Mining and minerals processing in Australia: overview, 1991.
- *Stewardson B.R., The Economic Rationale of Adding Value, *Economic Papers*, **10(4): 70–82**, Dec. 1991. (On reserve)
- *Smith B., Resources & Australian economic development, in F. Gruen (ed), *Surveys of Australian Economics*, Vol 3, Sydney: Allen & Unwin, 1983 (AGSM 338.0994/20)
- *Doran C. R., An historical perspective on mining & economic change, in Cook & Porter, Ch. 2
- *Marks R. E., Energy issues & policies in Australia, *Annual Review of Energy*, Vol. 11, 1986. (Handout)
- ABARE, Tables, *Commodity Statistical Bulletin*, 1990. **P**
Agriculture & Resources Quarterly, AGSM Serials.
- McKern B. & P. Koomsup, (ed.) *Minerals Processing in the Industrialisation of ASEAN and Australia*, Sydney: Allen & Unwin, 1988, Ch. 5, Australia, by B. McKern & A. Waltho; Ch. 11, Case studies in the economic evaluation of minerals processing activities, by C. Emerson. (AGSM 338.20994/19)
- Fitzgerald T. M., *The contribution of the mineral industry to Australian welfare*, in Lloyd, Ch. 2, & Canberra: AGPS, 1974 (AGSM 339.520994/1,3)
- Sharma P. C., The resource base, Ch. 1, in Richmond W. H. & Sharma P. C. (eds), *Mining & Australia*, St Lucia: U. Qld Press, 1983 (AGSM 338.20994/15) (on reserve)
- Birrell R., D. Hill, & J. Stanley (eds), *Quarry Australia? Social & Environmental Perspectives on Managing the Nation's Resources*, Melbourne: Oxford UP, 1982 (AGSM 333.850994/1)
- Deans A. (ed), *Alexander & Hattersley's Australian Minerals, Mining & Oil*, Sydney: Law Book Co, 1984 (AGSM Reference 3ac)

1.3 **Natural Resource Scarcity.**

- *Fisher, Ch. 4
- *Howe, Ch. 4,7,10
- *Marks R. E., Economic scarcity **P**
Pearce & Turner, Ch. 19
- Forester T., The materials revolution. (On reserve)
- Tietenberg T., *Environmental and Natural Resource Economics*, Glenview: Scott-Foresman, 1984, Ch. 11 (AGSM 333.7/86) **P**
- *Radetzki M., Structural change in world metal markets. **P**
- *Miller M.H. & Upton C.W., The pricing of oil and gas: some further results. **P**
- Gulley D.A. and DUBY P. (eds.), *The Changing World Metals Industries*, Gordon & Breach, 1988. (AGSM 338.274/3)
- Tilton J. (ed.) *World Metal Demand: Trends and Prospects*, Washington: Resources for the Future, 1990. (AGSM 382.45669/1)
- Manthy R. S., *Natural Resource Commodities — a Century of Statistics*, Baltimore: Johns Hopkins UP, 1978 (AGSM 333/6)

1.4 **The Pricing of Exhaustible Resources.**

*Fisher, Ch. 2

*Baumol & Oates, Ch. 7,8 and Minerals prices. **P**

*Howe, Ch. 5,6

*Marks R. E., Exhaustible resources & scarcity rent. **P**

*Vogely W. A., Issues in mineral supply modeling. **P**

*Edwards J., Scandals, computers, and cartels. **P**

Tietenberg, Ch. 7,8

Pearce & Turner, Ch. 18

Neher P.A., *Natural Resource Economics*, Cambridge: CUP, 1990, Ch. 4
(AGSM 333.7/102)

Smith V. K., The empirical relevance of Hotelling's model for natural resources,
Resources & Energy, 3: 105–117, 1981

Slade M. E., Trends in natural-resource commodity prices: an analysis of the time
domain, *J. Environmental & Economic Management*, 9(2): 122–137,
June 1982. (Graphs in overheads in package: **P**)

Slade M. E., Cycles in natural-resource commodity prices: an analysis of the
frequency domain, *J. Environmental & Economic Management*, 9(2):
138–148, June 1982

Slade M. E., Noninformative trends in natural resource commodity prices: U-
shaped price paths exonerated, *J. Environmental & Economic
Management*, 12: 181–192, 1985

Farrow S., Testing the efficiency of extraction from a stock resource, *J. Political
Economy*, 93(3): 452–487, 1985

Miller M. H. & Upton C. W., A test of the Hotelling valuation principle & the case
of the oil & gas companies, *J. Political Economy*, 93(1):1–25, 1985

Pindyck R. S., Models of resource markets & the explanation of resource price
behaviour, *Energy Economics*, 3:130–139, July 1981, (on reserve)

Schmidt R.H., Hotelling's Rule repealed? An examination of exhaustible resource
pricing. *Fed. Res. Bank of S. F. Econ. Rev.* Fall 1988: 151–154. (On
reserve)

*The Tin Case Study. **P**

1.5 **The World Oil Market**

*Epstein E. J., The cartel that never was. **P**

*Marks R. E. & P. L. Swan, The irrelevance of OPEC: property rights and implicit
discount rates in the world oil market. **P**

*International Monetary Fund, World oil situation: recent developments &
prospects, *World Economic Outlook*, May 1990. **P**

Ball R. & Marks R. E., Short-term supply-side instability in the world oil market,
AGSM Working Paper 86-023, September 1986.

Yergin D., *The Prize: The Epic Quest for Oil, Money, and Power*, NY:
Simon and Schuster, 1991.

Hubbard H.M., The real cost of energy, *Scientific American*, April 1991. (On
reserve)

1.6 **Taxing Resources: Auctions & Royalties.**

*Fane G. & B. Smith, Resource rent tax, In *Australian Energy Policies in the 80s*, ed. D. M. Hocking, R. J. Clarke, & C. D. Trengove, Ch. 7, Sydney/Melbourne: Allen & Unwin/Cent. Policy Stud. Monash Univ., 1986

*Dowell R. D., Resources rent tax & alternative forms of mineral royalties, *Australian Tax Forum*, 1(4):437–450, Dec 1984

*Emerson C. & P. J. Lloyd, Improving mineral taxation policy in Australia, *Economic Record*, vol 59, Sept 1983. & Figure in **P**

Lloyd P. J., Resource rent taxes, *Australian Economic Rev*, 66(2/84): 37–46, 1984

Bergstrom T. C., Property rights & taxation in the Australian minerals sector, Ch. 7, & Nellor D. C. L., Taxation of the Australian resources sector, Ch. 8, in Cook & Porter

Heaps T. & Helliwell J.F., The taxation of natural resources, Chapter 8 in: *Handbook of Public Economics* ed. by A.J. Auerbach and M. Feldstein, Amsterdam: North-Holland, 1985 (AGSM 336/18)

Swan P., Resource rent tax: the issues, *ESA Economic Pap*, 3(3): 1–10, 1984

Brennan M. J. & E. S. Schwartz, A new approach to evaluating natural resource investments, *Midland Corporate Finance J.*, 3(1): 37–47, Spring 1985

1.7 **Trade in Resources**

*Smith B., Long-term contract arrangements and financing arrangements for minerals development, ANU Australia–Japan Centre, 1980. **P**

Smith B., Long-term contracts for the supply of raw materials, in J.G. Crawford and S.Okita (eds.), *Raw Materials and Pacific Economic Integration*, Canberra: ANU Press, 1978.

II Economics of the Environment.

2.1 **Renewable Resources.**

*Fisher, Ch. 3

Howe, Ch. 11,12,13

Tietenberg, Ch. 9,10

Pearce & Turner, Ch. 16,17

Neher, Ch. 1

2.2 **Natural Resources & Natural Environment.**

*Fisher, Ch. 5

*Marks R. E., Competition & common property. **P**

*Marks R.E. & Swan P.L., Greenhouse abatement: global action, Australina road transport, and macroeconomic costs. **P**

BIE, Greenhouse gas abatement and burden sharing, Research Report No. 66, 1995.

Seneca J. J. & M. K. Taussig, *Environmental Economics*, Englewood Cliffs: Prentice-Hall, Second edition, 1979, Ch. 4 (AGSM 301.310973/11)

Heal G., The use of common property resources, Ch. 3 in Smith V. K. & J. V.

Krutilla (eds), *Explorations in Natural Resource Economics*, Baltimore: Johns Hopkins UP, 1982 (AGSM 333.7/81)

Smith B., Resource developments & environmental policy issues, in Harris & Taylor.

Australia. Dept of Home Affairs & Environment, *Economics & Environmental Policy: the Role of Cost-Benefit Analysis*, Canberra: AGPS, 1983 (AGSM 363.70525/1)

Australia. Dept of Home Affairs & Environment/EPA Vic, *Costs & Benefits of Environmental Protection*, Proc of the National Conference, Melbourne 1980, Canberra: AGPS, 1981 (AGSM 333.720994/1)

2.3 **Environmental Pollution.**

*Fisher, Ch. 6

*Marks R.E., Finding the middle ground: the use of market incentives to protect the environment. **P**

Markets, the State and the Environment: Towards Integration, ed. by R. Eckersley, Melbourne: Macmillan, 1995. AGSM 333.7/112

Pearce & Turner, Ch. 4,5,6,7

Stroup R.L. and J.S. Shaw, Free enterprise and the environment: is private ownership the most effective incentive for unpolluted streams and replanted forests? (On reserve)

The Economist, The Environment, a survey, September 8, 1990. (On reserve)

The Economist, Energy and the Environment, a survey, August 31, 1991. (On reserve)

Oates W.A., Portney P.R., McGartland A.M., The net benefits of incentive-based regulation: a case study of environmental standard setting, *American Economic Review*, **79**: 1233–1247, Dec. 1989.

Tietenberg, Ch. 12–17

Seneca & Taussig, Ch. 3, 9, 10

Baumol & Oates, Ch. 14–21

Coase R., The problem of social cost, *J. Law & Economics*, pp 1–44, October 1960, in Dorfman R. & N. S. (eds), *Economics of the Environment*, 2nd edition, NY: Norton, 1977, (AGSM 301.31/26,33) Ch. 6

Ruff L. E., The economic common sense of pollution, in Dorfman & Dorfman, Ch. 1

Schelling T. C. (ed), *Incentives for Environmental Protection*, Cambridge: MITP, 1983 (AGSM 363.7/1)

2.4 **Property Rights.**

*Smith B. & A. M. Ulph, Property rights issues in the extraction of Australia's exhaustible resources, in L. R. Webb & R. H. Allan (eds), *Industrial Economics: Australian Studies*, Sydney: Allen & Unwin, 1982 (AGSM 338/12,13,14)

Baumol & Oates, Ch. 15

- Pearce & Turner, Ch. 8
- Tietenberg Th., *Emissions Trading: An Exercise in Reforming Pollution Policy*, Washington: Resources for the Future, 1985. (AGSM 363.739256/1)
- Ackroyd P. & R. Hide, A case study—establishing property rights to Chatham Islands' abalone (*paua*), Ch. 8, in: *Markets, Resources, and the Environment*, ed. by A. Moran, A. Chisholm, & M. Porter, Sydney: Allen & Unwin, 1991.
- Brunner D. L., W. Miller, & N. Stockholm, *Corporations & the Environment: How Should Decisions be Made?* Stanford: Graduate School of Business Committee on Corporate Environmental Decision Making, 1981 (AGSM 658.408/50)
- Smart B. (ed.), *Beyond Compliance: A New Industry View of the Environment*, Baltimore: World Resource Institute, 1992 (AGSM)
- Mason Ch, *User Charges for Domestic Garbage Services*, Mascot: Southern Sydney Regional Organisation of Councils, 1994. agsm 363.728/1
- ABS, *Environmental Issues: People's Views and Practices*, Cat No. 4602.0, 1993.
- James D, Using economic instruments for meeting environmental objectives: Australia's experience, Canberra :AGPS for DEST, 1993.
- Stavins RN & Whitehead BW, Dealing with pollution market-based incentives for environmental protection, *Environment* 34(7): 7–42, 1992.
- Cairncross F, How Europe's companies reposition to recycle, *Harvard Business Review*, March–April: 34–45, 1992.
- BIE, Waste management and landfill pricing: a scoping study, Canberra: AGPS, 1993.