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Does tenure review in New Zealand's South Island give rise to rents?

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Abstract.

Under "tenure review," the ongoing privatization of South Island Crown pastoral leases, a pastoral lessee surrenders part of his leasehold, and acquires a freehold interest in the remainder. In order to determine whether the Crown sold the right to freehold too cheaply, we model the proportional difference between the price (per hectare) at which the Crown sold its interest to the lessee, and the prices paid to former lessees who have onsold some part of their new freeholds.

JEL codes: K11, Q28.

Keywords: tenure review, pastoral leases, New Zealand, rent seeking.

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Background.

About 20% of the South Island of New Zealand consists of Crown land leased to pastoral farmers.[1] The leases have 33 year terms and are renewable in perpetuity. Since 1992, a pastoral lessee can apply to acquire a freehold interest in part of his leasehold~~s~~, if he agrees to cede part of his leasehold to the Crown. The resulting land reform transaction is called "tenure review." Under tenure review, the Crown sells its residual ownership interest in the part of the leasehold 'capable of economic use,'[2] and buys the lessee's interest in the part deemed to have conservation value.

Bargaining in each tenure review deal includes the following features:

- The Crown hires a contractor to bargain on its behalf with the lessee;
- The contractor's compensation does not vary with the terms of the deal agreed to;
- The contractor is compensated for completing tasks on a checklist, with the final payment made when the deal is closed;
- The Crown sets no reserve price on what it sells;
- Only the lessee may bid for freehold ownership.

Tenure review gives rise to two significant option values:

1) A lessee has the option to acquire a freehold interest in part of his leasehold by going through tenure review;
2) Like any freeholder, a new freeholder has the option to apply to subdivide or to vary the land use of his freehold.

The Crown employs a professional valuer to estimate the value of the Crown's residual interest in the land to be privatised. We used the Official Information Act 1982 to obtain copies of the resulting valuation reports. For all but four of the 77 deals, these valuation reports found no material value above and beyond that arising from pastoral farming. Hence the Crown bargained with farmers as if option value (2) were zero.

We propose to examine the correctness of this omission by looking at the selling prices of land privatized under tenure review. 176 parcels, amounting to 47,678ha, have been carved out of 28 of the 77 leaseholds that completed tenure review during 1992-2008. According to Table 1, these 28 new owners paid the Crown $6.9M for the right to freehold 102,306ha, then realized $134.5M by selling 47% of their new freeholds. Many hundreds of additional parcels carved out of former leaseholds are awaiting buyers.

We evaluate this situation by comparing the price (per ha):

- At which the Crown sold its interest to the lessee;
- Received by a new freeholder who on-sells part of the freehold.

Hypothesis.

Controlling for location and the time value of money, the option to change land use *post* tenure review gives rise to rents enjoyed by former high country pastoral lessees.

Dependent variable.

P_{os} = Price/ha obtained when new freeholder sells some part of his freehold.

P_f = Price/ha the new freeholder paid under tenure review to purchase the Crown's interest in the land to be privatized.

The dependent variable is $\ln(P_{os} / P_f)$. The larger its value, the greater the potential rent.

Explanatory Variables.

ln(*size*) = log of on-sold parcel size in hectares. A small to medium size parcel is indicative of a major departure from extensive pastoral land use; thus parcel size is our operational measure of land use change. Higher value uses (e.g., lifestyle blocks, viticulture, lake-

1. For more on the institutions and other aspects of tenure review, see Brower, A., Meguire, P., and Monks, A. (2010) "Closing the Deal: Principals, Agents, and Sub-agents in New Zealand Land Reform," *Land Economics* 86(3): 267-92.
2. Crown Pastoral Land Act 1998, section 24(a)(2).

front sections) are correlated with smaller parcels. Hence a small parcel will command a higher price per hectare than a large one, and we predict a negative coefficient.

Location = 1 if the leasehold lies within 10km of Queenstown or Wanaka, and/or within sight of Lakes Hawea, Pukaki, Tekapo, Wakatipu, or Wanaka; = 0 otherwise. These characteristics give rise to amenity values and hence higher market prices. We predict a positive coefficient.

Time elapsed = Years elapsed between completion of tenure review and subsequent on-sale. As this controls for the time value of money, we predict a positive coefficient with a value similar to New Zealand dollar long-term interest rates.

Results.

The estimated regressions are reported in Table 2. The estimated coefficient on ln(*size*) ranged from -0.71 to -0.81. $\overline{R}^2$ = 0.794 with just ln(*size*) alone. The coefficients on *Location* and *Time elapsed* were also significant, and their values were as hypothesized. However, their incremental contribution to $\overline{R}^2$ did not exceed 0.024.

Discussion.

P_{os} / P_f ranges from 1.9 to 26,968, with a median value of 995, so that the discrepancy between P_{os} and P_f is usually quite large. We submit that a large discrepancy is consistent with a former lessee enjoying a large rent as a result of having gone through tenure review. But first we consider other explanations that have been advanced for why $\ln(P_{os} / P_f)$ is as large as it is.

1. An advocacy group for pastoral lessees, the High Country Accord, proposes to explain the discrepancy between P_{os} and P_f by:
   a) Tenure review does not grant the right to subdivide, but only the option to apply to subdivide;
   b) The time, cost, and uncertain outcome of applying for consent to subdivide;
   c) The boom in rural land prices, 2000-08;
   d) Pastoral leasing being nearly equivalent to ownership, so that lessees owned over 90% of the value of the land from the outset.[3]

   (a)-(c) are all positively correlated with *Time elapsed*. The estimated regressions reveal that *Time elapsed* has an estimated coefficient is 0.08, similar to NZ$ long term interest rates over the period 1992-2008. A value of 0.08 is inconsistent with (c).

   If (d) were true, then the lessees' ownership interest, expressed as a percent of the capital value of the land, should be consistent across leases, because the same statutes govern all leases. One would thus expect the P_{os} / P_f in Fig. 1 to cluster around a value indicative of the lessees' property interest the land. In fact, the P_{os} / P_f range over 5 orders of magnitude, ruling out any possible clustering.

2. The government agency in charge, LINZ, proposes to explain the price discrepancy as follows:
   a) An independent report (Armstrong et al. 2006) concluded that tenure-review prices were "fair" because both Crown and lessee agreed to all aspects of the deals.[4]
   b) The option value of subdivision was minimal when most tenure reviews were completed;
   c) LINZ relied on expert valuation advice to obtain P_f;
   d) The problem is confined to deals concluded before 1998, when tenure review appraisals

3. Geoffrey Thomson, 'High Country Report Flawed,' *The Press*, March 8, 2006. Ben Heather. "Farmers deny rip-off over tenure review land deals." *The Press*, 22 Feb 2010.
4. Ben Heather. "Farmers deny rip-off over tenure review land deals," *The Press*, 22 Feb 2010.

admittedly failed to take development potential into account.

(a) wrongly assumes that the only parties with an interest in tenure review outcomes are the Crown negotiating agent and the lessee. It assumes that the parties can reach an efficient agreement, regardless of parties external to the deal. But when one party is the Crown, the agreement affects parties not present at the negotiations. Thus the efficiency, Pareto optimality, and fairness of an agreement reached by insiders alone cannot be assumed.[5]

(b), (c) and (d) assume that after 1998, valuers retained by the Crown took into account the option value of subdivision. In fact, valuers did so in only the four deals shown in Table 3, and only one transaction in our data involved land carved out from one of those four deals. In the case of Alphaburn, the option to change land use was valued at $3M for the entire 3365ha privatized. Yet less than one year after privatization, Table 1 reveals that the new owner sold a mere 193ha for $10.1M. Furthermore, Table 3 shows that even when a valuer foresaw the subdivision potential, the price at which the Crown agreed to grant freehold was well below the valuer's estimate.

Conclusion.

The large discrepancies between P_{os} and P_f are consistent with former lessees' enjoying large rents after tenure review. This suggests tenure review is inefficient for at least three reasons:

a) The option to acquire large rents via tenure review could artificially inflate the sale price of leaseholds in course, making explanation 1(d) a self-fulfilling prophecy (albeit one not supported by the data).

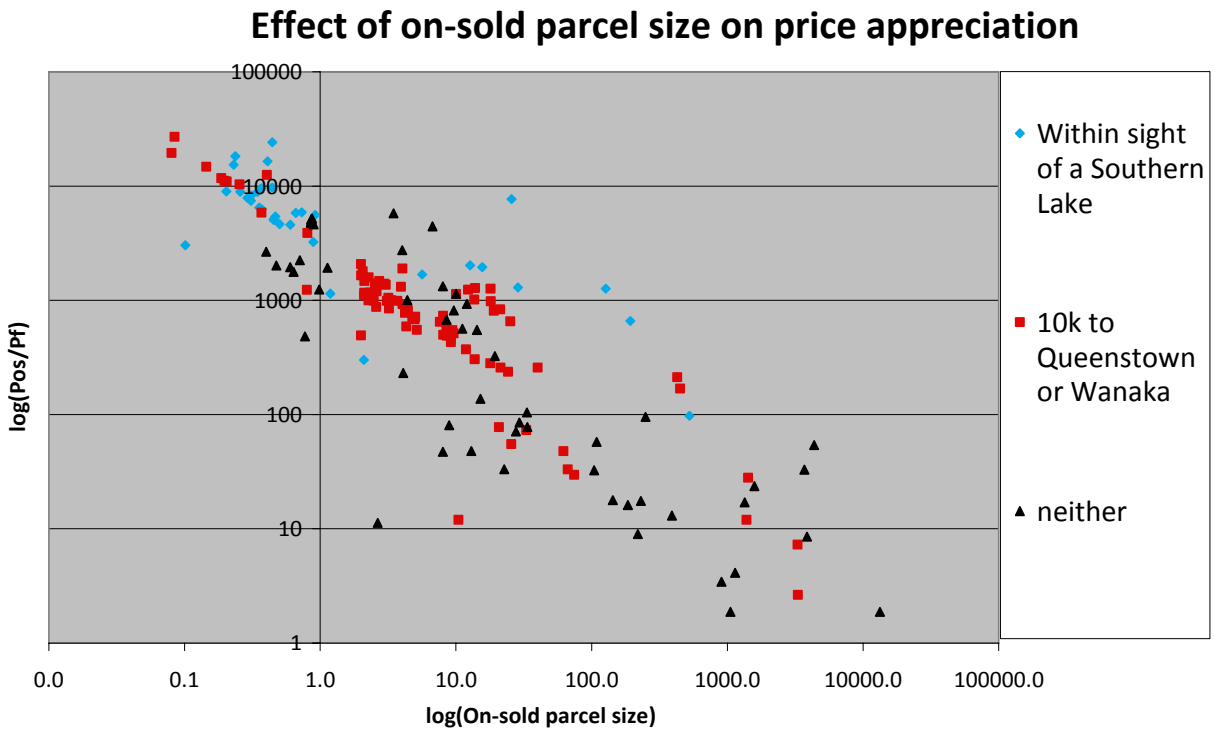
b) The price inflation of (a) makes tenure review an increasingly expensive policy. Therefore the price to purchase freehold should not be based on market prices for leaseholds in course, because the latter includes the value of the option to freehold, apply to subdivide, and sell.

c) Rents could also encourage or reward inefficient rent seeking by existing lessees. Rent seeking could take the form of lessees' clearing native bush or otherwise destroying conservation values on leasehold land,[6] in order to strip it of conservation value and make it suitable for privatization.

5. Brower, Ann (2008) *Who Owns the High Country*? Nelson, NZ: Craig Potton Publishing: 141. Ellickson, R. C. (1991) *Order without Law: How neighbours settle disputes*. Harvard University Press.

6. Donald Aubrey, High Country Chair of Federated Farmers, quoted in: Staff, "Rents Could Rise, High Country," *Otago Daily Times*. October 14, 2006.

Fig. 1.



Note. Logs are base 10 for easier reading.

Table 2. Estimated Regressions.

Constant	ln (*Size*)	*Location*	*Time elapsed*	$\bar{R}^2$	*SER*	*BIC*
7.95 (0.07)	-0.74 (0.03)	---	---	0.794	0.950	242
7.54 (0.17)	-0.71 (0.03)	0.53 (0.18)	---	0.806	0.923	239
7.11 (0.18)	-0.72 (0.04)	0.47 (0.18)	0.08 (0.03)	0.817	0.894	236
7.42 (0.16)	-0.81 (0.05)	0.14† (0.06)	0.09 (0.03)	0.818	0.892	235

† Variable is ln(*Size*)×*Location*.

Note. *N*=174; sample omits two large negative residual outliers. Regressions estimated via OLS using TSP 4.5. Standard errors in parentheses are robust to heteroskedasticity. *SER* = standard error of the regression. *BIC* = Schwarz criterion.

Table 1. Summary Data Aggregated by Lease

Name of lease	*Hectares privatised*	*Gross price for freehold*	*Hectares on-sold*	*Gross price of on-sold land*	P_{OS}/P_f
Alphaburn	3365	$267,500	193	$10,100,000	658
Closeburn	930	$199,889	14	$17,696,000	6,089
Hillend	2659	$336,000	2443	$26,200,000	85
Pukaki Downs	3722	$120,000	583	$4,665,000	248
Rhoboro Downs	4648	$55,000	127	$1,900,000	1,262
Woodbine	338	$110,000	0.1	$100,000	3,033
Bendigo	8727	$172,500	624	$4,685,000	380
Cone Peak	2181	$350,000	40	$1,650,000	257
Eastburn-Waitiri	5910	$535,000	1810	$9,700,000	59
Glenroy	1973	$400,000	13	$425,400	159
Midrun-Lake McKay	5372	$179,375	1	$492,000	11,630
Mt Pisa I & II	4633	$413,000	12	$1,204,845	1,097
Mt Rosa	1388	$155,556	53	$7,521,000	1,265
Queensberry Hills	2905	$191,000	1792	$7,347,500	62
Spotts Creek	3344	$282,600	3304	$2,030,000	7
Wentworth	3840	$351,111	3432	$5,547,000	18
Ardgour	3719	$640,000	229	$1,466,000	37
Avalon	1352	$134,000	1341	$2,264,000	17
Ben Ohau	4375	$169,500	3707	$6,047,000	42
Blackstone Hill	2684	$175,000	1055	$129,000	2
Cairnmuir	4437	$141,000	4065	$4,914,000	38
Earnscleugh	16410	$608,889	15344	$1,624,000	3
Glencreag-Camberleigh	922	$310,000	922	$1,751,000	6
Halwyn	3713	$124,444	624	$1,397,500	67
Mataura Valley	4322	$164,858	4357	$9,000,000	54
Omahau Downs	165	$31,000	6	$1,819,000	1,697
Raglan Run	1583	$84,500	1584	$2,000,000	24
Waiorau	2691	$191,000	4	$785,000	2,749
Sum	*102306*	*$6,892,722*	*47678*	*$134,460,245*	

Note: Blue = new freehold includes some of the shoreline of Lakes Hawea, Pukaki, Tekapo, Wakatipu, or Wanaka; Red = some or all of the former leasehold lies within 10km of Queenstown or Wanaka; Black = all else. This colour coding is identical to that in Fig. 1

Table 3. The Value of the Option to Vary Land Use.

Lease name	*Valuer's estimation of the value of option to change land use*	*Price at which Crown sold freehold*
Alphaburn	$3M	$267,500
Glendhu	$4.5M	$579,000
Glen Nevis	$1.2M	$570,000
Wyuna	$5.25M	$1,300,000