

# **An Economist's Interpretation of Criterion (b)**

A Report on behalf of Allen Arthur Robinson

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The analysis here represents the views of Robert Marks (ABN 50 844 376 180) and should not be construed as those of Allen Arthur Robinson or its clients.

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## 1. Background

1. I have been asked to examine documents associated with the application of the Pilbara Infrastructure Pty Ltd for the declaration of the Hamersley Rail Network by the National Competition Council.<sup>1</sup>
2. In the course of analysing these documents, I shall refer to reports written by Professors Joshua Gans<sup>2</sup> and Joseph Kalt (2005),<sup>3</sup> eminent economists.
3. I shall question the NCC's interpretation of the meaning of Criterion (b)<sup>4</sup> in Section 44 of the Trade Practices Act 1974.
4. From an economist's perspective, is the proper test for Criterion (b) a social test of social costs and benefits, or rather a test of private profitability, such as occurs in the United States, where the market actions of the entrant<sup>5</sup> in entering either by building new infrastructure or by buying the services of existing infrastructure from the incumbent do not require the court or the tribunal to engage in a social cost-benefit analysis based on data submitted by the applicant about the counterfactual market event of additional infrastructure being constructed?

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1. The Pilbara Infrastructure Pty Ltd (2007), Application under Part IIIA of the Trade Practices Act 1974 for Declaration of the Service Provided by Hamersley Iron Pty Ltd's Pilbara Rail Network, 16 November 2007; and The Pilbara Infrastructure Pty Ltd (2008), Supplementary Submission (Public Version), Application under Part IIIA of the Trade Practices Act 1974 for Declaration of the Service Provided by Hamersley Iron Pty Ltd's Pilbara Rail Network, 18 January 2008.
  2. Joshua Gans (2007), The Evaluation of Criterion (b) in Long-Haul Rail Services, A Report on behalf of DLA Phillips Fox, 19 December 2007.
  3. Joseph P. Kalt (2005), Before the National Competition Council In the Matter of the FMG Access Application, May 2, 2005.
  4. "That it would be uneconomical for anyone to develop another facility to provide the service," *Trade Practices Act 1974: Section 44G, Limits on the Council recommending declaration of a service, Criterion (b)*.
  5. I shall refer to a single firm seeking entry as "the entrant," although the analysis will not materially alter if several firms seek entry at once.

5. The Satisficer's Curse<sup>6</sup> suggests that in its interpretation of Criterion (b) the NCC might well have declared facilities that, even under its interpretation, should not have been declared because the costs of constructing alternative facilities might have been overestimated, as discussed in Section 5.2 below.

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6. R. E. Marks (2007), The Satisficer's Curse, mimeo.  
<http://www.agsm.edu.au/~bobm/papers/satisficers.pdf>

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## 2. TPI's Application

### 2.1 TPI's November 2007 Application

1. In its November 2007 Application,<sup>7</sup> The Pilbara Infrastructure Pty Ltd (hereafter TPI) argues under Criterion (b) that the service that is sought use of — the Hamersley Rail Network and associated infrastructure — should be declared in order “to enable TPI to offer a rail haulage service to the mining industry in the Pilbara.”
2. In Section 7, TPI argues that “No facility other than access to the Hamersley Rail Network could provide the same service as the service to which access is sought as no facility serves the same routes as the routes of the Hamersley Rail Network” [§7.1].
3. This is of course correct, but implies that the access sought requires at least the identical routes, from mines to ports. Unless Hamersley's owner, Rio, and Rio's joint venturers chose to outsource operation of their own rail haulage services to TPI, no other potential customers would demand haulage from those mines to those port facilities served by the Hamersley Rail Network.
4. This suggests a “point-to-point” service, rather than an “all points service,” which would not rely on “the same routes,” but rather on segments of these routes.
5. In the November Application, TPI uses public information to project Rio's demand for rail haulage services to the end of 2007, and argues that there would be excess capacity on the Hamersley Rail Network at the end of 2007 [§7.2].
6. The Application notes [§7.4] that in the event of declaration, and in the event that the increased use of the Network as a result of TPI's access resulted in capacity constraints adversely affecting (“impinging on”) Hamersley's operations, then either TPI would have “to invest in expanding the capacity of the Hamersley Rail Network” (implying shared ownership of the augmented Network) or TPI would have to compensate Hamersley for any loss of efficiency that resulted.

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7. The Pilbara Infrastructure Pty Ltd (2007), op. cit.

7. Left unstated is that TPI would have to compensate Hamersley for any augmentation (adding sidings and associated infrastructure) of the Network that Hamersley might undertake as a consequence of TPI's usage. Further, TPI's statement implies that any reduction of efficiency in the operation of the Network as throughput expands corresponds to experiencing capacity constraints.
8. TPI states that it is seeking declaration of approximately 625 kilometres of railway and associated infrastructure, and estimates that replicating that would cost at least \$2.5bn, based on its own construction costs elsewhere. TPI states that it doubts that it could duplicate the Network at that cost because of "impediments" that would "greatly increase the cost" or "make it impossible" [§7.5].

## 2.2 TPI's January 2008 Supplementary Submission

1. The arguments of the November Application are expanded in TPI's January 2008 Supplementary Submission.<sup>8</sup> This submission includes a paper by Professor Joshua Gans,<sup>9</sup> which formalises the NCC's current interpretation of Criterion (b) as a test of the existence of net social benefits from mandating access with declaration. There are arguments against this interpretation, however, as adduced in Section 5 below.
2. Gans derives a general criterion for a social efficiency test, with the possibility of augmentation of the existing facility in response to higher demand, including the potential entrant's demands, as well as investment in an alternative facility in response to the extra demands. That is, he formalises the NCC's interpretation of Criterion (b) as a test for the existence of positive social net benefits.
3. Gans correctly states that a proper social cost-benefit analysis must include the social benefits of the factual and counterfactual cases being compared. It is true, however, that under reasonable assumptions about the usages of the incumbent and the efficiencies of the additional facility Gans' formulations reduce to comparisons of the costs of constructing an additional facility and the costs of a larger or smaller augmentation to the exiting facility.<sup>10</sup>

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8. The Pilbara Infrastructure Pty Ltd (2008), *op. cit.*

9. Joshua Gans (2007), *op. cit.*

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4. Gans notes some difficulties for the Council in applying the social net benefits test, however. He derives a simple “evidentiary” test: if the entrant’s demand for the service was added to that of the incumbent, would the incumbent prefer to augment the existing facility rather than constructing an additional facility? If so, he says, then the facility should be considered uneconomic to duplicate, as required by Criterion (b).
  5. There are two points to note here. First, adding the demands for the service ignores the coordination costs associated with two (or more) operators on the same facility. That is, a simple sum of the demands understates the costs of complexity, especially when the facility is operating at or near capacity. What might be economical for a single operator of the augmented facility might well be uneconomic for two (or more) operators.
  6. Second, Gans’ evidentiary test requires the NCC (or other outside tribunal) to answer the hypothetical question. As argued by Kalt (see Section 4 below), it would be better to let the actual decision of the incumbent when faced with the possibility of an entrant constructing its own facility reveal whether constructing an additional facility was uneconomic.
  7. Nonetheless, nothing daunted, the Supplementary Submission makes so bold as to answer the hypothetical question for Rio in the negative, thus conveniently bolstering its case that declaration should be granted [§5.6].
  8. The “practical difficulties” that Gans alludes to involve the problems that third parties face when attempting to second-guess the incumbent’s hypothetical decision. Not only is it hypothetical, but it is almost certain that the information necessary to make the decision is commercial in confidence, that is, confidential information of the incumbent. Third parties “can only make educated guesses” [§5.8].
  9. U.S. policy, as outlined by Kalt in Section 4 below, does not require such guesses, whether educated or not: instead, the U.S. courts allow market forces to solve the problem.

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10. See inequalities (4) and (6) in Section 3.3 below.

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10. TPI attempts to estimate likely demand for its proposed haulage service. It outlines two possible mines of Fortesque's and five other companies or joint ventures that hold prospective deposits, or exploration licences, or tenements [§5.10].
  11. If TPI expected to have to venture its own capital in construction of a rail network on which to operate its proposed rail haulage service, it would have to undertake a much more comprehensive analysis of prospective future demand for the service and for its rail facility than might be required to obtain declaration. Using its own capital rather than Rio's might provide the incentive to get the estimates as accurate as possible, especially in light of the Satisficer's Curse,<sup>11</sup> discussed in Section 5.2 below.
  12. TPI derives some estimates of the capacity of the Hamersley Rail Network now and into the future as Rio's own usage rates grow. Using its own experiences in the Pilbara, TPI reports approximate construction costs for railway and sidings. TPI concludes that the capacity of the existing Hamersley rail network could be augmented or duplicated without too many difficulties associated with land or heritage issues [§5.11–17].
  13. TPI however argues that replicating the Hamersley Rail Network with another facility faces "potentially insurmountable difficulties." Approximately 95 kilometres of the Hamersley Rail Network run through two national parks. TPI argues that the Western Australian government is unlikely authorise construction of an additional facility "serving the same routes" [§5.18–21].

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11. R. E. Marks (2007), *op. cit.*

### 3. Gans' Formalisation of Criterion (b): Social Decision Criterion

#### 3.1 The factual net benefits

1. Following Gans' nomenclature, we denote the incumbent's usage with the entrant's access will be  $Q^a$  and the entrant's usage will be  $q^a$ . The on-going costs associated with the entrant's access<sup>12</sup> are denoted by  $c(q^a)$  and the on-going costs associated with the incumbent's access are denoted by  $C(Q^a)$ . The capital costs associated with any augmentation of the infrastructure are given by  $A$ , where any profits accruing to the incumbent as a result of augmentation are netted from the costs in determining  $A$ .

2. As Gans assumes, the (inverse) demand function for the entrant is denoted as  $p(q)$ . Then the net social benefit from allowing access for the entrant to the infrastructure is:

$$[p(q^a)q^a - c(q^a)] + [P(Q^a)Q^a - C(Q^a)] - A \quad (1)$$

3. Expression (1) is made up of the profits (revenues less on-going costs) of the entrant (the first term), plus the profits of the incumbent (the second term), less the capital costs of augmentation (the final term).
4. Note that, although we have referred to this case as the "factual" case, ex ante the costs associated with entry by the seekers must be estimates, not historical costs and revenues, despite any historical experience that might shed light on these estimates.

#### 3.2 Gans' counterfactuals: extending supply

1. This section sets out expressions for the revenues and costs associated with the development of an alternative infrastructure facility.

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12. Without congestion (supply constraints), these variable costs include: scheduling, maintenance, and accidents; with congestion, these costs will also involve the loss in revenues to the incumbent associated with displacement of capacity to the entrant.

2. The usages of the alternative infrastructure by the potential access provider (the incumbent) and the entrant are denoted as  $Q^d$  and  $q^d$  respectively.
3. Following Gans, the quantity  $Q^d$  assumes that the potential provider will augment its existing infrastructure, although it may not augment it to the maximum extent (associated with cost  $A$  in Section 3.1 above), but only to a smaller extent, at a cost  $a < A$ , in order to meet a lower usage of  $\underline{Q}^d < Q^d$ . Whether the potential provider augments to a large or to a small scale will depend on the relative profits of the two choices.
4. The capital costs of developing an alternative facility are denoted as  $D$ , and the on-going costs of the alternative facility are denoted as  $c^{ALT}(q^d)$ .
5. Therefore the net social benefit realised in the counterfactual is:

$$p(q^d)q^d - c^{ALT}(q^d) - D + \max \left\{ [P(Q^d)Q^d - C(Q^d) - A], [P(\underline{Q}^d)\underline{Q}^d - C(\underline{Q}^d) - a] \right\} \quad (2)$$

6. Expression (2) is the sum of two sub-expressions: the net revenues associated with building the alternative (the first term) plus the profits associated with a large or small augmentation of the existing facility, whichever is the greater (the second term).

### 3.3 The decision

1. Criterion (b) is satisfied when “it would be uneconomical for anyone to develop another facility to provide the service.” Professor Gans takes the Council’s interpretation of this: “a choice of developing another facility will be considered uneconomical if the net social benefits from no development [of an alternative facility] will exceed those from development.” He states that this interpretation of Criterion (b) will be satisfied if expression (1) is equal to or greater than expression (2).

2. Note that, from a social perspective, the distribution of costs and benefits between the incumbent and the entrant is irrelevant. Even whether one of them suffers a loss under the entry regime is not relevant, so long as the sum of their net revenues is non-negative, and so long as the continued viability of neither is threatened. In summary, net social benefits are a measure of overall efficiency, and the distribution of benefits and costs between the firms is not relevant.
3. In turn, Gans considers three additional assumptions, which enable simplification of the two expressions, and so clarify the social decision criterion of  $(1) \geq (2)$ .

### 3.3.1 Access causes augmentation

1. If the profits associated with a smaller augmentation are larger than those associated with a larger augmentation, and if the augmentation is sufficient to meet the entrant's usage demand, and if the alternative facility is not significantly more efficient than the existing facility (in which case  $q^a = q^d$ ), then Professor Gans shows that the social decision inequality  $(1) \geq (2)$  can be simplified to

$$D \geq [P(\underline{Q}^d) \underline{Q}^d - C(\underline{Q}^d) - a] - [P(Q^a) Q^a - C(Q^a) - A] \quad (3)$$

2. Inequality (3) states that the NCC's interpretation of Criterion (b) will be satisfied if the cost of constructing the alternative facility is equal to or greater than the difference between the incumbent's profits with a small augmentation and its profits with a large augmentation of the service, netting out the costs of the augmentations.
3. In turn, when the augmentation was simply to satisfy the seeker demand and when the incumbent would use the facility to the same extent before and after augmentation, then  $Q^a = \underline{Q}^d$ , and inequality (3) becomes:

$$D \geq A - a \quad (4)$$

4. Gans notes that using inequality (4) is equivalent to the NCC's interpretation of Criterion (b) in previous decisions: when the costs of developing an alternative facility are equal to or greater than the difference between the cost of a larger augmentation and the cost of a smaller one, then Criterion (b) is satisfied.

### 3.3.2 If augmentation occurs regardless

1. If the incumbent decides to augment the existing facility based on its own usage needs and regardless of others' needs, then the costs of augmentation  $A$  are not relevant to the social decision. In this case the main benefit of developing an alternative facility is that it meets increased usage, which in turn allows more incumbent usage and more entrant usage. If, however, the costs of developing another facility exceed the value of this increased usage, then it is not economical to develop an alternative facility.
2. If the incumbent is capacity-constrained despite the augmentation, then there can be no entrant's usage, which means that  $q^a = 0$  and  $Q^a = Q^d$ . The social decision criterion ((1)  $\geq$  (2)) simplifies to:

$$D \geq p(q^d)q^d - c^{ALT}(q^d) \quad (5)$$

3. Inequality (5) states that the NCC's interpretation of Criterion (b) will be satisfied and it will be uneconomic to develop another facility if the actual private profits to the incumbent are no greater than the cost of construction of the alternative facility. The decision is uneconomic whether from a private perspective or a public one.

### 3.3.3 When the facility is not likely to be capacity-constrained

1. When the the incumbent's demand for the existing facility is not capacity-constrained,<sup>13</sup> and when the incumbent is likely to augment the existing facility regardless of potential entrant's demands, then the incumbent's usages are equal ( $Q^a = Q^d$ ). If, furthermore, the efficiency of the alternative facility is equal to that of the existing facility (so that  $q^a = q^d$  for the entrant's usage), then the social decision criterion ((1)  $\geq$  (2)) is simplified to:

$$D \geq 0 \quad (6)$$

2. Unlike inequality (4), inequality (6) states that the NCC's interpretation of Criterion (b) is satisfied when the net social cost of developing an alternative facility is non-negative. Hence, Professor Gans argues that it is always uneconomical to develop another facility under these circumstances.

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13. Gans' Section 3.4.3 heading lacks the word "not".

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## 4. Kalt on Market Solutions

### 4.1 Summary

1. Professor Kalt<sup>14</sup> spells out the U.S. policy on the issues that concern us here: the possibility of one firm's facility being made available to another in order to avoid socially wasteful expenditure and to lower barriers to entry for potential entrants. In summary, the U.S. approach takes a dynamic rather than a static approach, and assumes that firms themselves are the best judges of their own profitability. The U.S. approach does not include a Criterion (b), as interpreted.
2.
  - a. Unlike the practice of the NCC, the U.S. policy of "essential facilities" does not involve the court or regulatory agency in conducting and applying a social net benefit calculation (such as whether the social decision inequality  $(1) \geq (2)$  in Section 3.3 above) as a component of the decision of declaring a facility.
  - b. Instead, *inter alia*, the U.S. applies an absolute feasibility test, which asks whether a potential entrant would find it infeasible or impractical (but notably not *uneconomic*) to provide its own facilities.
3.
  - a. Kalt argues that the economic rationale for this approach can be seen in the argument that if it is practical and reasonably feasible for a new entrant to build its own facility, then an incumbent is confronted with the prospect of a competitor entering.
  - b. In the NCC framework as evolved, there is concern that such entry would result in the building of alternative facilities that are socially wasteful; in which inequality (4) holds from Section 3.3.1 above: the costs of developing an alternative facility are no smaller than the difference between the cost of a larger augmentation to accommodate the entrant's demand and the cost of a smaller one.

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14. Joseph P. Kalt (2005), *op. cit.*

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4. a. As Kalt reports, U.S. policy recognises two things that follow:
    - i. the very fact of the feasible entry with a new facility implies that the incumbent faces a *credible threat* that its current business might bypass its facility in the future and instead use the new entrant's facilities, and
    - ii. this credible threat puts pressure on the incumbent to consider offering to sell the would-be entrant access to the incumbent's existing facilities.
  - b. When it is profitable for the incumbent to offer such access, and when this service can be provided at a lower incremental (on-going) cost than the cost of the would-be entrant's costs of building and operating a new facility, then rational profit-seeking conduct will lead to the would-be entrant avoiding building a new facility and instead buying services from the incumbent's facility.
  - c. This corresponds to Gans' case 3.3.3 (no supply constraints), when the social decision inequality (6) holds: the net social cost of developing an alternative facility is non-negative. It could also hold in his case 3.3.1 (access leads to augmentation), so long as inequality (4) holds: the costs of developing an alternative facility exceed the difference in costs between a larger and a smaller augmentation.

## 4.2 Kalt on the U.S. doctrine of “essential facilities”

1. Kalt reports that for access to a facility to be mandated by the U.S. courts (equivalent to the Australian concept of *declaration*), which in so doing intervenes in the market relations between parties, the facility must be declared “essential.”
2. For this to happen, four criteria must generally be proven:
  - i. control of the essential facility by a monopoly — does the incumbent have market power?
  - ii. inability of a competitor practically or reasonably to duplicate the essential facility

- iii. denial of the use of the facility to a competitor — has access been denied? and
    - iv. feasibility of providing access to the facility to the entrant by the incumbent — will sharing the facility materially inhibit the incumbent's ability to serve its customers adequately?
3. Criterion #2 ((ii) above) is closest to the Australian Criterion (b), but is quite different. It does not mean that alternative facilities are more costly, or less convenient, or less preferable. So long as there is an alternative (or potentially an alternative) facility — even if it might entail some economic loss, as mentioned in Section 3.3 above — then an incumbent's facility is not essential.
4. By respecting the lawfully acquired facilities created by the incumbent's investments, U.S. doctrine reduces the incentives for entrants to "free-ride" on the incumbent's foresight or luck, with the distortionary incentives access following from declaration of essential facilities would entail.
5. By "free-riding" I do not suggest that the entrant would gain the services for nothing: there would still be a payment to the incumbent to cover the on-going costs of providing the facility. "Free-riding" is a term used by economists to describe situations where later players can gain something for nothing, even if it is the certainty that the facility works, because the earlier player took the risk. This might be called the "After you" regime, where all will wait for another to make the first investment and so take the initial risk.
6. The U.S. approach (under its Criterion #2) uses the forces of the marketplace, rather than the court or tribunal, to perform the social cost test on the efficiency (or waste) of new facilities.

### 4.3 Kalt and the economics of the U.S. Criterion #2

1. The U.S. Criterion #2 is a tougher test than is the Australian Criterion (b), as interpreted, for those seeking access to a declared facility. In Australia, a claimant need only demonstrate that otherwise feasible alternative facilities are more expensive to society than would compelling the incumbent to provide access be.

2. The U.S. approach does not contemplate a social cost-benefit test in the courtroom, but leaves it to the marketplace, in effect. Kalt gives a simple example:
3. A would-be entrant faces a cost of \$200 to build an alternative facility of its own. This would lead to net revenues, after paying all other costs but before paying the cost of construction, of \$300. The entrant would thus be left with net profit of \$100 ( $= \$300 - \$200$ ).
4. In Gans' terminology from Section 3 above, the cost of constructing the alternative facility ( $D$ ) is \$200; the entrant's net revenues absent construction costs ( $p(q^a)q^a - c(q^a)$ ) is \$300. There is no augmentation ( $A = a = 0$ ).
5. Since its alternative facility is feasible and practical (absent any legal impediments to the facility's construction and use), under U.S. policy the incumbent's facility would not be deemed "essential" and access to it would not therefore be mandated.
6. The would-be entrant's alternative facility represents a credible threat of entry, which would mean the incumbent possibly losing upstream input suppliers and downstream customers to the entrant, with possible reduction of market power (monopsony or monopoly, respectively) in both markets.
7. Moreover, denying the entrant access to its facility also denies the incumbent access revenue from this facility. Indeed, by asking \$199 from the entrant for access to this facility, the incumbent would achieve two things: first, it would induce the entrant to forgo construction of its own facility, and, second, it would generate additional revenues of \$199 for the incumbent, absent congestion of the facility with its associated costs.
8. Given these numbers, the incumbent cannot avoid the prospect of losing some suppliers upstream, some sales downstream, and some market power, since the entrant will be competing in these markets one way or the other. Would a rational incumbent provide access at a competitive charge of, say, \$199? It depends, to give the economist's stock-in-trade.

#### 4.3.1 Access causes congestion

1. If providing access to the incumbent's facility results in congestion, with a loss in the incumbent's net revenues before the access revenues are included, and if these congestion costs plus the direct costs of providing access exceed \$199, then no: the incumbent would not choose to suffer a reduction in profits by making access available to the entrant.
2. In this case, the incumbent would not offer access at any charge less than the sum of the direct costs of serving the entrant plus the net revenue loss from the congestion caused by third-party access. Nor would it be in society's interests for the incumbent to do so: congestion costs are just as much social costs as are the construction costs of \$200.

#### 4.3.2 Access without capacity constraints

1. If the incumbent can provide the entrant with access and generate access revenues from the entrant that exceed the sum of the incumbent's direct costs of service plus any net revenue losses due to degradation of service provided to the incumbent's existing suppliers and customers, then the rational, profit-seeking incumbent will do so.
2. With Kalt's simple example, if access can be provided to the entrant at a cost (of service provision and congestion costs, if any) of \$150, then the rational incumbent will do so.
3. In this example, Kalt notes that the incumbent is a natural monopolist: its single facility can meet the market's demand for service at a lower cost than the sum of the costs of using the existing facility and constructing an alternative facility.

#### 4.3.3 The would-be entrant's behaviour

1. Faced with the incumbent's offer of access at a charge of \$199, the entrant will forgo investing in its own facility and instead use the incumbent's facilities. The incumbent obtains a net profit of \$149 ( $= \$199 - \$150$ ) and the entrant gains access and saves \$1.
2. If the incumbent does not make this offer, then the entrant enters anyway (and pays \$200 to construct its own facility), and the incumbent forgoes the opportunity to increase its profits by \$49.

#### 4.3.4 The social test

1. Kalt argues that in this case the interplay of market forces has performed the social cost-benefit test on whether or not it is wasteful for the entrant to construct new facilities: When the incumbent's costs of providing access (here \$150) are less than the entrant's costs of building the alternative (here \$200), then it would be wasteful to society for the alternative facility to be constructed.
2. The same service can be provided by simply using the incumbent's facility at a lower cost (here \$150). Yet, Kalt argues, it is in precisely such situations (when access to the incumbent's facility is less costly than constructing an alternative facility) that the rational self-interest of the incumbent leads it to provide access at a charge that undercuts the entrant's option of constructing its own facility.
3. When the relative costs are reversed — it is less socially costly for the entrant to construct an alternative facility than for the incumbent to provide service from its existing facility — the incumbent cannot block entry. The marketplace correctly performs the cost-benefit test.

#### 4.4 Kalt's discussion

1. U.S. policy is not to mandate access (*declaration* in Australia) if the entrant's alternative is feasible.
  - a. If entry is feasible but unprofitable for the would-be entrant, then its threat of entering is not credible and the incumbent is thus under little pressure to provide entry services. U.S. policy in this case denies mandating entry (or *declaration*) because the first entrant (the incumbent) is the pioneering investor that bore the risk and profitably entered first.
  - b. If entry is feasible and profitable for the would-be entrant, then its threat of entry is credible, and compels the incumbent to respond — if profitable for the incumbent, entry will occur using the incumbent's facility and avoiding socially wasteful duplication of facilities. If providing the service is not profitable for the incumbent, then entry will occur using the (more socially costly) alternative facility constructed by the

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entrant. The marketplace performs the social cost-benefit test, not a tribunal.

2. Market forces are not infallible, but neither are administrative or forensic decisions, argues Kalt. The key assumption is that the incumbent's goal is profits, whether using its own facility exclusively, or selling an entrant some proportion of the access services of this facility.
3. If the costs of coordinating third-party access to an incumbent's facilities are sufficiently high, then the incumbent cannot offer access profitably. Whether or not a would-be entrant constructs its own alternative facility depends on the profitability of so doing: if unprofitable, then to do so would be socially wasteful. In this case, entry would not occur under U.S. policy, and should not occur under Australian policy.
4. Kalt continues by pointing out that infrastructure facilities, such as railways, are characterised by substantial sunk costs when constructed, and relatively high ratios of fixed to variable costs.
  - a. Firms' operational decisions — the level of production, the prices to charge — correctly ignore fixed and sunk costs, focussing instead on the marginal costs and revenues associated with additional production or changes in price.
  - b. When the facility's costs of construction have been sunk, the owner — here the incumbent — has a strong incentive to sell access to credible entrants whenever possible.
  - c. Refusing to do so might result in an entrant deciding to construct its own facility, to sink its own fixed costs, and to proceed to compete on the basis of the variable (on-going) costs it faces, which are perhaps lower than the incumbent's variable costs, by virtue of the ages of the two competing facilities.
  - d. Both firms have an incentive to avoid potentially ruinous price wars, as they try to increase their facilities' through-puts. As does society. U.S. policy relies on the self-interests of the market participants

to avoid such socially wasteful outcomes.

5. Mandated access when an entrant's own facility is found to be more costly than the costs to the incumbent of making service available on its facility can distort both firms' behaviours. The incumbent will have little incentive to consider selling access to its facility, and rather than diligently doing its own analysis to enlighten its strategic decisions — to enter by constructing its own facility or not — the would-be entrant instead faces the incentive to exaggerate the costs of the alternative facility's construction and on-going operations and to invest in legal expertise instead of corporate strategy. Economists might view the latter investment as an inefficient, dead-weight loss.

## 5. Discussion of Criterion (b)

### 5.1 Two interpretations

1. “b) That it would be uneconomical for anyone to develop another facility (in this case the Mt Newman railway) to provide the service

On balance of submissions received to date, the Council is satisfied that it would be uneconomical to develop another facility to provide the Mt Newman service, in particular given the small amount of rail capacity that FMG or other third parties are likely to require. Declaration of this service, resulting in shared use of the Mt Newman railway, will produce costs associated with interfacing the rail operations of BHP Billiton and FMG. The Council notes however that, should the Minister declare the service, the ACCC arbitration process available to both parties is designed to ensure the costs of providing access are passed on to FMG or any other third party seeking access.”<sup>15</sup>

2.
  - a. “That it would be uneconomical for anyone to develop another facility to provide the service.”<sup>16</sup> What does the word *uneconomic* mean here? There are two possibilities:
    - i. It could mean *unprofitable* for “anyone,” that is, for any private, profit-seeking firm, to develop another facility to provide the service. That is, the market costs for the firm exceeds its market benefits.  
  
Note that “anyone” could also mean *any* organisation, including a government department. This is discussed in Paragraph 3 below.
    - ii. It could mean *uneconomic from a social perspective*: this means that taking all social costs and benefits into account, with the appropriate social discount rate, the net present value (NPV) of the project is negative

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15. Media Release (2005), National Competition Council Releases draft recommendation on declaration of West Australia’s Mt Newman Railway, 4 November 2005.  
<http://www.ncc.gov.au/pdf/DERaFoPR-001.pdf>

16. *Trade Practices Act 1974*: Section 44G, Limits on the Council recommending declaration of a service, Criterion (b).

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(the present value of social costs exceeds the present value of social benefits).

- b. Will these two measures differ? Yes, when there are costs and benefits that do not accrue to the private firm. That is, when there are costs and benefits beyond the firm's bottom line, as it were.
  - c. An example of unaccrued costs occurs when a firm's use of unpriced clean air or water (and the air or water pollution that this results in) means that the firm does not directly bear the social costs of the pollution. In this case a project could be profitable to a private firm even though its social costs outweigh its social benefits.
  - d. An example of unaccrued benefits occurs when a firm's use of rail freight instead of road tanker to move fuel oil over the Blue Mountains reduces the risk of accident, delay, injury, and death for all travellers on the Great Western Highway over the Blue Mountains. In practice, the NSW Government has subsidised the Shell oil company's rail costs in order that society enjoy this reduction in risk; because the social benefit of lower risk would not otherwise accrue to the unsubsidised company, it would choose to minimise its cost and maximise its profits by choosing road tanker instead of rail freight.
  - e. The two measures also differ when the supply side of the market comprises several or more suppliers producing close substitutes: in this case each firm is profitably producing at a level of output less than the socially optimal one of minimum cost. Despite the social inefficiency of firms producing at average costs above the minimum, there is the benefit of a variety of close substitutes offered for sale.
3.
    - a. A government department is not in general a profit-seeking organisation, and so is not constrained to undertake only those projects for which market benefits exceed market costs: for political reasons it could choose to undertake projects which would be unprofitable for a private firm. Indeed, for political reasons it could even choose to undertake projects whose social costs exceed their social benefits —

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perhaps for reasons of equity — although this would necessarily reduce social welfare or efficiency, suitably defined, and would be deemed *uneconomic* by interpretation (ii).

- b. It is possible for socially uneconomic projects to be undertaken profitably by private firms, as discussed in Paragraph 4c below. It is possible that projects which are unprofitable (*uneconomic*) for any private firm are nonetheless efficient and so desirable socially.
4. a. Which of the two interpretations of *uneconomic* could the Criterion mean?
- i. Interpretation (i): What it seems to be saying is that it would not be profitable for any private, profit-seeking company to develop another facility to provide the service.
  - ii. Interpretation (ii): The alternative interpretation is that from a social point of view it would be uneconomic to develop another facility, which implies that a social cost-benefit analysis (CBA) would necessarily be negative.
- b. As discussed in Paragraph 2 above, economics tells us that from a social viewpoint (a social CBA) a project could be NPV positive while unprofitable for a private company. This can happen because of “market failure,” which means that in this case the benefits to society do not accrue to the private company, which however bears the costs. As a result, from the company’s point of view the project is NPV negative or unprofitable (its costs to the company outweigh the benefits to the company), although from society’s point of view it would be desirable (its social benefits outweighing its social costs).
- c. Can the opposite occur? That is, are there circumstances in which a private firm might find it profitable to develop a facility when this could not be justified from society’s point of view? Yes, if, for instance, the social costs do not accrue to the private company. This could happen with market failure, and might be exemplified by the firm’s use of resources

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being unpriced — the classic cases of which are pollution of the air and of water, or noise, as discussed in Paragraph 2 above.

- d. Another example in which private firms have undertake projects which might be deemed socially uneconomic is the duplication of television cables across Australia's suburbs by Telstra and Optus. A further example is the multiplicity of firms' factories in monopolistic competition, when firms are operating at less than the socially efficient level of minimum average cost. The upshot of this is the variety of close substitutes available for sale.
  - e. In neither of these cases has the government deemed it necessary to regulate to reduce the social costs associated with the duplication. A current example is the proposed fibre-to-the-node (FTTN) networks. Whether one or two are built will depend upon government actions and telecommunication firms' expectations.
- 5.
- a. The foregoing discussion argues that on "welfare economics" grounds each interpretation differs, in general, and that both interpretations make economic sense.
  - b. Moreover, which interpretation is correct will have large consequences for the existing owner of any facility under consideration for declaration, and for any parties requesting such declaration.
  - c. Under interpretation (i), if any firm exists that is willing "to develop another facility to provide the service," that is, if such an investment is profitable (*economic*) for any such firm, then the Council cannot be satisfied of Criterion (b), and cannot then recommend declaration of a service and mandate access.
  - d. Under interpretation (ii), a social CBA is necessary to determine whether, on social efficiency grounds, development of another facility to provide the service would be socially inefficient or socially uneconomical.

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- e. To economists, the wording of Criterion (b) — the fact that the adjective *uneconomic* is not modified by the significant adverb *socially*, and that to be satisfied the Criterion requires that *no-one* (no profit-seeking firm) would find such development economical (profitable) — strongly implies the first interpretation (i): *uneconomic* for any profit-seeking firm.
  - f. Finally, Criterion (f) explicitly addresses the issue of the public welfare: “that access (or increased access) to the service would not be contrary to the public interest.” Under interpretation (ii) of Criterion (b), Criterion (f) would be redundant. That Criterion (f) is included in s44G(2) of the TPA strongly suggests that its meaning is distinct from that of Criterion (b).
  - g. For these reasons we argue that the meaning is given by interpretation (i).
- 6.
- a. We note that in NCC (2006), Section 6, pp. 30–31<sup>17</sup> the Australian Competition Tribunal has construed *uneconomical* in the social cost benefit sense of interpretation (ii) “rather than in terms of private or commercial interests” (of interpretation (i)).
  - b. NCC (2006) concludes that under this interpretation “Criterion (b) limits declaration to the services of facilities with natural monopoly characteristics,” and further notes that “a natural monopoly occurs where a single facility can serve the entire range of reasonably foreseeable demand for a service at a lower cost than two or more facilities.”
  - c. Interestingly, in a market exhibiting monopolistic competition a single factory would produce aggregate output at a lower average cost than a range of different manufacturers’ factories, but there is no community pressure for consolidation of, say, Holden’s and Toyota’s Australian production facilities in order to reduce the prices of Australian-made cars, or even consolidation of the Optus and Telstra cable TV networks.

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17. National Competition Council (2006), *Final recommendation: Fortescue Metals Group Ltd application for declaration of a service provided by the Mt Newman railway line under section 44F(1) of the Trade Practices Act 1974*, Melbourne.

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## 5.2 The Satisficer's Curse and counterfactuals

1.
  - a. Criterion (b) is couched in the subjunctive: "it would be". It is a counterfactual thought experiment: not that anyone *has* found it uneconomic, but that they *would*.
  - b. Counterfactuals necessarily involve speculation. One speculation might be about the incentives created by declaration of the facility against future investment in developing similar facilities. Any firm seeing the declaration of existing facilities would therefore be cautious about future investment in similar facilities. That is, the declaration would create an incentive not to invest in such facilities in the future on the part of any firm.
2. Even without an incentive for the applicant to overestimate the cost of constructing an alternative, the NCC's interpretation of Criterion (b), as formalised by Gans' inequalities (4) and (5) in Section 3.3 above — this interpretation is satisfied when the estimated cost of constructing the alternative facility exceeds (or equals) the difference between the cost of a larger augmentation and the cost of a smaller one<sup>18</sup> — may result in declarations that are unsound.
3. This will happen because of the Satisficer's Curse:<sup>19</sup> when any uncertain prospect is chosen because its estimate exceeds a threshold, then there will be systematic overvaluation on average. This is a statistical artefact, a result of the action of "satisficing," of choosing an uncertain prospect when the estimate of its performance exceeds a threshold. It is not a consequence of the psychological biases of the estimators or the decision-makers, if such biases exist.
4. As interpreted by the NCC, Criterion (b) requires that the estimated cost  $D$  of an alternative facility exceed a threshold, which may be positive (inequality (4)) or zero (inequality (6)). Given the existence of the Satisficer's Curse, as well as the reliance on the applicant's estimates, however meticulous, I argue that this interpretation of Criterion (b) is flawed.

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18. TPI (2008), op. cit., §5.3

19. Marks (2007), op. cit.

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5. If the NCC instead followed the U.S. policy, as outlined in Kalt's paper, then the market actions of the incumbent and the would-be entrant would resolve the issue of socially wasteful investment without the need for the NCC to engage in social cost-benefit analysis with uncertain estimates of future costs and benefits, tasks better left to the actual market participants.
  
  6.
    - a. Finally, the NCC's decision quoted above<sup>20</sup> also talks about "the small amount of rail capacity" likely to be required by third parties.
      - i. How certain can the NCC be that the owners will not soon be using the facility at capacity?
      - ii. How certain can the NCC be that demand by third parties will not soon expand to constitute a significant amount of the rail capacity?
      - iii. How certain can the NCC be that the declared facility will not soon be in excess demand?
      - iv. Would the NCC then permit the owner to use price rationing of third parties to equate demand with (capacity) supply?
  
    - b. To what extent have these dynamic dimensions of the issue been balanced in the decision?

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20. Media Release (2005). *op. cit.*