

## Chapter 5

### 5.0 Introduction

Chapter three developed the external benefits and costs relevant to saleyard selling and set out the basis for the application of cost benefit analysis. Moreover, it was argued that two principal external issues warranted examination. These were the additional revenue generated within the local economy by the saleyard's presence and the market information which producers glean from saleyard visits. This chapter attempts to quantify these benefits for inclusion with the internal costs and benefits explored in the previous chapter. This will then permit discussion of policy implications within the cost benefit framework.

The chapter itself comprises three main parts. Part one examines the additional expenditure generated by a small saleyard estimated using a CVM survey of firms in the local economy. The second part of the chapter focuses on the results of a wider survey of users of a larger Victorian saleyard. Results from this section provide a valuable comparison with those presented in part one. The third part of the chapter deals with the value of market information derived from saleyard visits. The results presented in this section highlight the difficulty of providing an accurate valuation of market information. Nevertheless, a number of significant issues arise from these results which are worthy of further study. The chapter concludes with some summary remarks on the external benefits and costs associated with saleyard selling.

## **5.1 Induced Expenditure Detected by a CVM Study of Business Firms**

Section 3.1.1 detailed the traditional methods of estimating multiplier impacts associated with a regional industry. Limitations associated with these methodologies prevent their application to an analysis of the additional expenditure oft-attributed to the presence of the saleyard facility. More specifically, multiplier estimation is not consistent with the cost benefit framework employed in this study. Such inconsistencies have been largely ignored by other studies which have sought to emphasise the regional significance of saleyard facilities as a catalyst for spending within the local economy.

A submission presented to the Livestock Sales Facility Working Group of the Department of Agriculture in Western Australia is illustrative of the erroneous application of economic constructs in this area. The submission from the Midland and Districts Chamber of Commerce noted that "...we believe it is reasonable to conclude that a significant portion of the country consumers shop in Midland as part of their livestock purchase/sale transaction" (Midland and Districts Chamber of Commerce 1989, p. 4). Moreover, as part of the submission the commercial dependence of business firms on country custom was estimated by survey and assumed to be totally dependent on the continued operation of the local saleyard. This reveals a critical mis-specification error. Such assumptions exclude the possibility of some expenditure by rural producers being autonomous of the saleyard facility.

The Midland and District submission points to the necessity for applying those methodologies capable of isolating only those expenditures which warrant inclusion in a cost benefit framework. This research employed two different techniques in an effort to isolate relevant expenditures induced by the presence of the saleyard facility. Firstly, a CVM

survey was administered to firms in a rural area to detect the impact of specific expenditures induced by the presence of the saleyard in that community. Secondly, a wider survey of saleyard users solicited information relating to their current expenditures and estimated changes to those expenditures in a scenario of altered saleyard operation. Both surveys are presented in Appendices B and C respectively.

### **5.1.1 Selection of the Population**

Yea is a rural township with a population of approximately 960 located in the North-Central district of Victoria. The saleyard facility at Yea is currently owned by the Murrindindi Shire which was formed as a result of local government amalgamations in 1994. Prior to this the saleyard facility was owned and operated by the Shire of Yea. The operation of the saleyard was suspended in 1982 for eight years before the construction of a new saleyard complex on the outskirts of Yea. The current facility deals in store livestock with no liveweight facilities for the sale of prime stock.

While the infrastructure of this saleyard venue differs considerably from that of the Wodonga saleyards [the subject of the short-run analysis in the previous chapter] the recent discontinuous operation of the saleyard is appealing in an estimation of the additional spending associated with saleyard selling. Since it is the aim of this component of the study to isolate only those expenditures which are contingent on the operation of the saleyard, Yea provides the opportunity to examine the expenditure patterns of saleyard users both with and without an operational saleyard. Moreover, the relatively small size of the community reduces the possibility of such expenditures becoming indistinguishable from other activities within the local economy.

### **5.1.2 Administration of the CVM Survey**

A CVM survey was administered to all 'shop-front' businesses operating in the Yea township in June 1996. The purpose of the survey was to detect discernable changes in expenditure which could be attributed to the saleyard's operation. These changes in expenditure were further tested by a willingness to pay scenario where business firms were asked for financial support to continue the operation of the saleyard. The survey itself comprised three main parts. The first part of the survey provided a profile of the business firm seeking particulars of the age, size and structure of the business. Firms were also asked to comment on their customer base. This section of the survey could later be used to model responses in subsequent sections of the survey. The second part of the survey asked firms to quantify the impact of the saleyard on their business activities. Details of the effects on business turnover and employment were addressed in this section. Finally, firms were presented with a scenario to test their willingness to provide financial support for the saleyard. More specifically, firms were asked an open-ended WTP question comprising a once-off payment to fund the continued operation of the saleyard. While there is a growing preference for dichotomous-choice or closed-ended WTP questions in CVM, such questions require large sample sizes to permit robust estimation of the mean WTP (Crase 1996, p. 104). The small number of firms in the Yea township required that an open-ended WTP question be administered in this case.

All businesses were initially contacted in person and the survey was distributed to owners or proprietors during this initial contact. Since the relatively small population size of thirty five business firms prohibited the application of a pilot survey, individual questions were tested on firms outside the Yea area. More specifically, questions were tested on businesses in Wodonga with respondents asked to comment on the suitability of particular

questions. Businesses in Yea were given two weeks to complete the survey as well as contact details for clarification of questions. Telephone contact was made with all businesses a week later to prompt the completion of the survey and assess potential areas of concern. The survey was then collected in person after two weeks had elapsed. It was felt that personal contact with proprietors would improve the response rate and provide an opportunity to collect qualitative data relating to the saleyard's impact on the local economy. Moreover, given the relatively small population, robust estimation of the affects of saleyards on local business firms was contingent on a high response rate to such a survey.

### **5.1.3 Results of the CVM Survey of Yea Business Firms**

The total response rate to the survey was 94%. One firm, a rural merchandise and livestock agent, refused to complete the survey citing the financial significance of the saleyard and the need for financial confidentiality. A second firm, a hotel, also failed to return the survey despite commitments to forward the required details at a later date. Item response rates were generally high though some firms were reluctant to divulge weekly turnover figures and 'protest' non-responses were evident in the WTP question in section three.

54.3% of those firms responding to the survey indicated that the saleyard's operation had some impact on their business. All of these firms claimed that their turnover increased as a result of a livestock sale taking place. One firm was unable to comment on the relationship between turnover and saleyard activity having only recently established in the Yea area. Of those firms indicating a positive relationship between saleyards activity and turnover, only three indicated that the change in turnover was sufficiently large to warrant an increase in employment. The average increase in employment in these three firms was approximately 13 hours.

Firms claiming to be affected by activity at the livestock saleyard were also asked to estimate the value of additional spending when livestock sales take place. Use of the mid-point of the discrete intervals presented to respondents produced an average increase in turnover of \$324.29. Since 19 firms claimed to be affected by the operation of the saleyard, the estimated additional spending generated in “shop-front” firms in Yea is approximately \$6,000. Moreover, monthly livestock sales would produce an estimated \$72,000 additional annual turnover across these firms and the equivalent of approximately four weeks employment for a single individual. However, there are a number of important limitations to this analysis.

Firstly, a caveat relates directly to the two firms who did not respond to the survey. There was reason to believe that both firms would benefit significantly from the saleyard’s operation. The absence of data from these firms may thus understate the additional spending generated by the saleyard. Secondly, the variance in estimated turnover across affected firms is substantial. A standard deviation of \$711.50 suggests that the benefits of this increased turnover are distributed inequitably between businesses. Moreover, to assume that all 19 firms are significantly affected by the operation of the saleyard may overstate the importance of this spending. This view is generally supported by other qualitative responses volunteered during the course of data collection. Many firms reported some initial increase in spending which coincided with the opening of the new saleyard venue which had since abated. Responses to the WTP question in section three of the survey also provide support for the view that the additional expenditure generated by the saleyard is relatively insignificant for some firms.

Firms were presented with a scenario where the continued operation of the Yea saleyard

required financial support from them. The payment vehicle was a once-off payment to the committee appointed by the Shire to administer the saleyard. The response rate to this question was relatively high at 80%. This is unusually high for an open-ended CVM question, where non-response rates are normally inflated by the unfamiliar environment of assessing goods traditionally viewed as public goods. Moreover, the absence of any 'starting point clues' provided by dichotomous choice and payment card questions imposes additional demands which are frequently manifested in low response rates. Notably, all those offering a non-response to this question indicated protest against paying for public infrastructure which had been traditionally funded by the public exchequer. The mean WTP was \$135.71 from the 28 firms offering a response to the question. Once again the variance in responses was significant, with responses ranging from \$0 to \$1,000.00. The standard deviation of \$278.84 reflects both the wide variation in responses and the small number of respondents. While the high standard deviation is of concern from a policy perspective, large standard deviations for WTP questions relating to public goods are not uncommon (Crase 1996, p. 108).

An attempt was also made to model the WTP data against other socio-economic information collected as part of the survey. Of particular interest was the relationship between the firms stated WTP and the reported change in turnover experienced by the firm which resulted from the saleyards operation. *A priori* a significant positive relationship was expected. A similar relationship was expected between the relative importance of rural customers and the firm's WTP. The age of the firm was also included in the model, given that the arguments surrounding additional regional expenditure are largely historical. The resulting model is reported in Table 5.1.

*Table 5.1: A Model of Yea "Shop-Front" Firms WTP for the Continued Operation of the Saleyard, 1996.*

<b>Variable</b>	<b>Coefficient</b>	<b>t value</b>
<b>Change in Turnover</b>	0.02	0.222
<b>Rural Customer Base</b>	-1.09	-0.289
<b>Age</b>	0.11	0.057

\*Adjusted R<sup>2</sup> -0.14

It is evident from Table 5.1 above that this model performs poorly with some variables being of the wrong sign and all being of little statistical significance. Nevertheless, further use of the mean WTP does provide some insight into the issue of increased expenditure induced by the operation of the saleyard in Yea.

Assuming that the mean WTP can be applied to all "shop-front" businesses results in a total value of \$4,749.85. Clearly, this once-off payment differs substantially from the estimated increase in firm's annual turnover of more than \$70,000. This disparity is further widened when the increased turnover is viewed as an annuity. There are a number of possible explanations for this disparity. Firstly, respondents may not have clearly distinguished the different time frames associated with the WTP scenario and the questions relating to changed turnover. Moreover, the propensity for once-off payments to become regular sources of revenue for different levels of government may place a downward bias on the mean WTP. Secondly, the marginal profit derived from an additional \$72,000 turnover across 35 businesses may not be large enough to induce high WTP responses. In addition, if respondents were unable to distinguish the time frame of the WTP question, the mean WTP is consistent with a rate of profit equivalent to 7% of sales.

There are a number of other issues which arise largely from anecdotal evidence collected during this phase of the study. Firstly, there was some evidence from respondents which suggested that owners and proprietors were not able to clearly distinguish whether the spending which coincided with a livestock sale was additional spending to that which would have occurred in the normal course of events. For example, the farmer who undertakes grocery shopping to coincide with a livestock saleyard may simply reschedule the timing of this spending rather than alter the quantum of this expenditure. Indeed comments describing some discernable change in spending coinciding with the initial opening of the new saleyard, followed by a smoothing of spending patterns, support this view.

Secondly, there was some anecdotal evidence of significant strategic biases in the behaviour of some respondents, including free-rider behaviour. The amalgamation of municipal governments in Victoria has fuelled debate in some rural communities. In Yea, the rationalisation of municipal services with the relocation of facilities from Yea to larger centres has created the view in some residents that municipal facilities remaining in Yea must be protected from further rationalisation. Some respondents may have carried this view into offering strategic responses to the survey, despite assurances of the impartial nature of the study. There was also evidence that some respondents were uneasy about offering to fund public infrastructure projects. Invariably these respondents offered lower responses. It is possible that such respondents were aiming to remain free-riders rather than indicate any benefit derived from what is currently a publicly funded facility.

Thirdly, an opinion was expressed that the local saleyard provided an opportunity to 'showcase' local livestock and therefore indirectly affected the demand for rural properties in the area. Moreover, this demand resulted in higher than normal property values and

subsequent additional rate income to the local government. While this has not been specifically tested, there appears to be little *a priori* evidence to support this view.

The results from the study of Yea “shop-front” firms are inconclusive. On one hand, responses to the WTP question suggests that additional expenditure attributable to the operation of a livestock saleyard in a rural community is of little importance relative to the overall costs associated with operating such facilities. On the other hand, reported changes to turnover, while not significant for all firms, may warrant consideration.

## **5.2 Expenditure Detected by Survey of Saleyard Users**

One of the difficulties detected with the survey of firms in Yea was the inability of some firms to disaggregate additional expenditure which was induced by the saleyard. An alternative approach was therefore developed which concentrated on saleyard users and their expenditure.

### **5.2.1 Survey Design, Population and Sampling**

The Wodonga saleyard was used as the foundation for estimating short-run costs and revenues in the previous chapter. It was noted that the Wodonga saleyard is one of the largest in terms of cattle throughput and also keeps accounting records which are relatively comprehensive. Part of these records includes a listing of clients who have previously sold cattle in the saleyard. Access to this client list would permit a survey of saleyard users including an analysis of their expenditure patterns. Moreover, this information could provide the basis for clarification and comparison with the data assembled on the smaller Yea saleyard. The survey was also designed to model the value of market information

which producers source via direct visits to saleyard venues. Discussion of this aspect of the survey is reserved for later sections in this chapter.

The client list provided by the Wodonga saleyard comprised approximately 7,000 individuals and firms identified by their 'tail-tag number' and a postal address. Unfortunately, not all addresses were available in complete form, with some appearing simply as localities or post offices. A pilot survey was designed and mailed to 35 saleyard clients randomly selected by matching random numbers against the order of their appearance in the list. A reply paid envelope was included and respondents were asked to respond within two weeks of receipt of the survey. The survey was distributed in January 1997 and included telephone contact details for assistance. Three surveys were returned unopened because the address details from the client list were inaccurate. After one month only five valid responses had been returned representing a response rate of 14%. The diverse nature of respondents also left any analysis of data from the pilot subject to the influence of outliers. The low response rate to the mail pilot survey suggested that a larger survey would be subject to significant sampling biases. Moreover, the costs associated with obtaining a robust sample size via a mail survey led to a consideration of an alternative telephone survey of saleyard users.

The mail survey was substantially condensed to facilitate administration by telephone. The survey comprised three main parts examining the livestock holdings of respondents, trading patterns and visits to the Wodonga saleyards, and spending by individuals in the Wodonga area. Once again, a pilot sample was randomly drawn from the client list supplied by the Wodonga saleyards. Client details were then forwarded to Telstra for the provision of telephone numbers. 23% of clients could not be identified either because telephone numbers were not listed or the address supplied was incomplete. Respondents were contacted in the

evenings throughout March 1997 with each interview taking approximately 20 minutes to complete. All interviews were conducted by two interviewers with regular debriefing sessions to ensure consistent recording of data and identification of potential problems. Problems also arose because of the historic nature of the client list. 20% of those contacted in the pilot had not used the Wodonga saleyards in the past twelve months and were therefore excluded from the survey. Moreover, 10% of those listed were unable to be contacted during the course of the pilot survey. The response rate of those who could be contacted and to whom the survey was still relevant was relatively high at 94%. Since during the pilot respondents were generally able to provide a valid response to most questions, changes to the survey format appeared unwarranted.

The travel costs of respondents were considered to be of paramount importance. Thus, variability in the travel distance of respondents in the pilot was used to estimate an appropriate sample size. Assuming a 95% confidence interval, that the estimated travel distance lies within 10 km of the mean, produces a sample size of 98. The combined proportion of those to whom the survey was not relevant and those who could not be identified or contacted was approximately 60%. Thus, to achieve an appropriate sample size, 300 clients were randomly selected from the client list with interviews being administered via the same methodology employed in the pilot. All interviews were conducted throughout April 1997.

### **5.2.2 Results of the Survey of Saleyard Users**

Details of the contact and response rates in the larger telephone survey appear in Table 5.2. 34% of those identified from the client list were contactable and 92% of those contacted provided valid responses.

*Table 5.2: Response and Contact Rates for Telephone Survey of Saleyard Users, Wodonga.*

1997

	<b>Number of Respondents</b>
Valid Responses	106
No Listing	88
Unable to Contact	34
Not using saleyards in last 12 months	64
Non-response	8

The issue under examination in the current context is the identification of expenditure which can be directly attributed to the operation of the saleyard. Respondents were asked to apportion the extent to which they undertook household and agricultural spending in the Wodonga area. Respondents were then asked if these expenditure patterns would alter were they not to sell livestock in Wodonga. Those respondents indicating that their spending was directly tied to their livestock selling activities were then asked the likely proportional change to their spending were they not to use the saleyards at Wodonga. Information was also sought about other economic activities that users undertook to coincide with a saleyard visit. This question was included as a means of weighting travel expenditure rather than identifying additional expenditures, since there is no indication as to whether this spending would have occurred independently of the saleyard visit. There was an item non-response rate of 10% relating to expenditure issues, with most non-respondents citing concerns about the confidentiality of their expenditure.

86.8% of those responding to expenditure questions indicated that they undertook some household spending in the Wodonga area, while 87.8% indicated a propensity to undertake

agricultural spending. Mean household and agricultural expenditure in the Wodonga area was 58% and 56.7% respectively, suggesting that saleyard users make significant use of other firms within the local economy. Both agricultural and household expenditure are significantly correlated to travel distance, with correlation coefficients of -0.579 and -0.578 respectively.

19% of respondents indicated that their spending patterns had some direct relationship to their livestock selling activities. Moreover, all of these respondents indicated that their spending in the Wodonga area would decline were they to transact in livestock elsewhere. Unfortunately, only half of those respondents claiming that their spending would be reduced were able to accurately quantify the extent to which their spending would be affected. Some of those unable to quantify their reduced expenditure noted that the reduction would be only minor while others found themselves unable to respond. The mean estimated reduction in spending from those able to provide a response was 62.73%.

The ABS publish selected financial data relating to Victorian beef cattle enterprises (ABS 1997a, p. 72). Using these data and the respondent's estimated proportional reduction in expenditure, it is possible to develop a monetary estimate of the additional spending which can be directly attributed to the operation of the Wodonga saleyard. The most recent ABS estimates apply to the 1994-95 financial year and identify the total value of 'purchases and selected expenses'. This item refers to "...cash payments made during the year by the farm business for goods and services relating to either agricultural or non-agricultural activity. Livestock purchases have [also] been included under purchases and selected expenses, rather than capital expenditure" (ABS 1997b, p. 64). Examination of the relationship between livestock sales and slaughter rates indicates that approximately 16% of all livestock

sales involve transactions between producers (ABS 1997a, p. 68). Assuming that this proportion of total livestock sales represents the purchase of livestock by other enterprises, results in a monetary estimate of 'expenses and purchases' net of livestock purchases equal to \$27,709.23 per farm business. Given that such expenditures are not restricted to agricultural activity, this amount is assumed to represent the sum of potential household and farm expenditure. Multiplying this monetary amount by the respondents estimate of the local disbursement of spending provides a monetary estimate of the value of spending currently undertaken by saleyard users. Applying the individual's estimated reduction in spending isolates that expenditure which is solely attributable to the presence of the saleyard in Wodonga. The total value of this expenditure from the sample of 300 clients was \$79,594.68 or \$7,954.68 per complete response.

At this point it is worth noting the representative features of the sample used in this analysis. During the course of this survey respondents were asked details about their livestock assets. This information was used to model travel cost information which is presented in subsequent sections of this chapter. The same data can also be used to test for sampling bias. The average cattle herd size reported by survey respondents was 128.8 cows. This compares with an estimated herd size of 127 head throughout Victoria (ABS 1994, p. 1). On the basis of this data the sample can be considered representative of the population of Victorian cattle producers at the 1% level. However, while the total respondent data would appear representative, there is need for caution when analysing the changed expenditure revealed in this survey. The small number of respondents reporting changed expenditure patterns as a result of altered livestock selling leaves mean estimates subject to the influence of outliers. More specifically, one respondent who claimed to reduce their agricultural and household expenditure in the Wodonga area from 100% to 10% has inflated the mean reduction in

expenditure induced by altered livestock selling procedures. Exclusion of this outlier would reduce the value of expenditure to \$54,656.49 for the sample population or a mean of \$5,465.65 for those respondents whose expenditure is related to livestock selling and were capable of estimating the likely change in spending induced by altered use of the saleyard.

A number of other issues arise prior to further treatment of this estimate. Firstly, substituting the mean reduction in expenditure for incomplete responses would enable the inclusion of these respondents in the analysis. However, this methodology would inflate the value of this expenditure, particularly given that some respondents indicated that the impact would be relatively minor. Alternatively, exclusion of these respondents is likely to underestimate the value of additional local expenditure derived from saleyard users. Secondly, identifying the appropriate population size to which this estimate can be applied is troublesome. The client list provided by the Wodonga saleyard comprises some 6,900 listings. An examination of Table 5.2 reveals that there are flaws with this list which may induce serious biases to any estimate of the value of additional expenditure. Over half of those randomly selected from the list had either not used the saleyard in the past twelve months or were not listed by Telstra. Questions therefore arise about the accuracy of this list as an estimate of the population of saleyard users. Similarly, cost and time constraints on this research have left 10% of cases unable to be contacted. Thirdly, the client list applies only to those users who have sold livestock in the Wodonga saleyards. While a number of respondents had both purchased and sold livestock in Wodonga, there is no exclusive listing of purchasers. Again the absence of this data raises questions about the appropriate user population.

Nevertheless, acceptance of the above limitations enables us to proceed with a qualified

estimate of the value of additional spending to the Wodonga community which derives from the presence of saleyard infrastructure. Assuming that the saleyard user population is defined by the client list suggests the sample population represents 4.3% of the total activities of all saleyard users. Excluding those respondents who were unable to quantify changes to their spending produces an estimated total expenditure by all saleyard users of \$1,851,039. Ignoring the single outlier with a claimed 90% reduction in expenditure reduces this estimate to \$1,271,081. This represents the additional annual expenditure in the Wodonga area which can be directly attributed to the presence of the saleyard facility. It is worth noting that estimated expenditure would be roughly doubled were the mean assigned to those unable to quantify their altered spending.

Having derived an estimate of the additional expenditure within the local economy which can be directly attributable to the presence of the saleyard, consideration must be given to the appropriate method for including this estimate in the CBA framework. The compensation principle largely subjugates distributional issues since it is stated in terms of potential rather than actual compensation (Johansson 1991a, p. 23). That is, the compensation principle concerns itself with aggregate welfare rather than the explicit distribution of that welfare. In the context of additional spending generated by saleyards, there is no requirement to further trace the recipients of this additional spending since the beneficiaries of this spending need only hypothetically transfer benefits to the owners of the saleyard, the municipal government. Given the role of local government in representing the broad interests of the community, the application of the compensation principle in this case may appear warranted. Thus, the compensation principle provides the theoretical justification for simply summing this additional expenditure with other monetary benefits associated with saleyards. A more complete treatment of these issues is presented in the

final chapter.

Two further issues arise relating to the welfare implications of the additional expenditure induced by saleyards. Firstly, there is question of the ‘portability’ of these results. Chapter four detailed the direct costs and revenues associated with saleyards mapped against variations in output. It is important to determine the extent to which additional expenditures can also be mapped against output. Since there are only two cases available to compare saleyard scale with user’s additional expenditure, it is not possible to fully test the relationship between the scale of saleyard and this additional expenditure. However, on the basis of the data available the following comments appear warranted. The Wodonga saleyards has an annual cattle throughput which is approximately 23 times larger than the scale of the Yea saleyards. The estimated additional spending generated by this saleyard is approximately 20 times larger than the estimated change in turnover claimed by Yea’s “‘shop-front’” firms. Clearly, such results should be treated cautiously. It is particularly important to emphasise the difficulty of defining such a narrow relationship when the incentives for household and agricultural expenditure in the two communities are so complex. For example, the agglomeration effects of the different urban centres may also explain this variation in expenditure. Nevertheless, there would appear to be some relationship which warrants further research.

Secondly, it is necessary to reconsider the grounds for including this additional expenditure in the cost benefit framework. The public ownership and support of saleyard venues has, in many cases, persisted on the historical acceptance of the benefits derived from such infrastructure. In some cases detailed consideration of these issues was not required since the saleyard was capable of generating tangible financial benefits in the form of operating

surpluses returned to the municipal government. Those saleyards unable to generate tangible benefits have continued to operate on the basis of perceived increases in local spending and wealth induced by the saleyard. In an implicit sense, the direct losses sustained by the local government could be more than compensated by the beneficiaries of this additional economic activity. There is some doubt whether this argument could be sustained in an environment where all levels of government are considering their 'core activities' and examining the extent to which divestiture to the private sector of 'non-core activities' is feasible. More specifically, saleyard losses are tolerated largely because of their historical ownership, but it is becoming increasingly difficult to define the market failure which requires that saleyards remain in public hands. Moreover, the argument of additional regional expenditure could be transposed to a variety of privately operated firms. Yet there is no chorus of support suggesting that private firms continue operating and sustaining losses because of the additional expenditure that they generate for others within the local community. These issues will be discussed in greater detail in the final chapter. At this stage it is worth noting that there may be some conjecture about the validity of including these additional expenditures in an analysis of municipal saleyards.

### **5.3 The Value of Market Information Derived from Saleyards**

The traditional valuation of market information focuses on the outcome of employing that information. For example, management literature has focussed on the discernable benefits derived from making decisions in an environment of perfect knowledge and comparing these outcomes with the risk and costs of imperfect decisions. [For a more complete treatment of these issues see, for example, Groebner and Shannon 1992, p. 659-663]. This study has adopted a different approach. Effort has been directed at uncovering the value

of market information gained by saleyard visits by applying the TCM usually reserved for valuing environmental goods. It has been assumed that users of saleyards would reveal their demand for market information through their travel frequency to the saleyard venue. Moreover, the rational 'consumer' of this information would disclose their reservation price via travel expenditure.

### **5.3.1 Application of the TCM to Saleyard Users**

The sampling, development of the pilot study and administration of the final telephone survey followed the procedure described in section 5.2.1. Respondents were questioned about their frequency of visits to the saleyard, travel distance, travel time to the saleyard, and other activities undertaken during the course of a typical saleyard visit. Questions were also asked about the respondent's perceptions of market information from saleyards and exposure to alternative livestock selling methods. The survey response rate was as described by Table 5.2 though the item response rate for these questions was higher than that for questions relating to the expenditure of saleyard users.

It was assumed that travel costs included the opportunity cost of labour since the direct utility derived from the journey was assumed to be of little importance. Moreover, the primary motive for the saleyard visit was assumed to be work-related. The wage rate was assumed to be \$12.00 per hour since this is the approximate cost of casual agricultural labour (Elton 1997, p. 47). Vehicle running costs were set at a rate equivalent to a Ford Falcon, less than five years old, and estimated at 54.87 cents per km (NRMA 1996, p. 24).

68.9% of respondents indicated that they undertook other activities during the course of a saleyard visit with the majority taking the opportunity to purchase groceries or farm

supplies. Fully attributing the travel cost of these respondents to the saleyard is likely to overstate the value of the saleyard visit. Moreover, given that an assessment has already been included of the value of this additional expenditure, failure to weight travel costs to reflect these other activities will produce some double-counting of this expenditure. Travel expenditure was therefore weighted to reflect the purpose of the visit to the Wodonga area. Respondents who undertook other economic activities during the course of a saleyard visit had travel expenditure weighted at 0.5, while travel expenditure for those solely visiting the saleyard was fully assigned to the saleyard.

Respondents were asked to rank the value of saleyard visits as a source of information between 'very important' and 'irrelevant'. A four point Likert scale was provided for this purpose. Care was taken to distinguish saleyard visits from livestock reports published in the media. The question was divided into two parts requiring a separate ranking for selling and for buying livestock. 40.6% of respondents ranked saleyard visits as a 'very important' source of information when selling livestock. A further 31.1% regarded saleyard visits as 'important' when selling. Saleyard visits would appear to be less influential as a source of information when buying livestock. The proportion of respondents stating that saleyard visits were 'very important' and 'important' when buying livestock was 36% and 10% respectively. Some studies have used such subjective rankings to further weight travel costs [see, for example Bennett 1996, p. 8]. This procedure was not adopted in this case since use of the individual TCM allows for the inclusion of these rankings as a separate explanatory variable.

The total number of visits was calculated by examining the frequency of buying and selling and weighting these frequencies according to the respondents own assessment of their

personal attendance at the saleyard. Those who stated that they ‘sometimes attended’ a sale if they were buying or selling were given a weighting of 0.5. For example, a respondent claiming to have sold livestock 4 times in the last twelve months was assumed to have visited the saleyard twice. The weighted frequency of attendance during buying and selling visits was then summated with the respondents estimate of other visits not directly associated with the sale or purchase of livestock. There may be some conjecture about this method of calculating saleyard visits. It could be argued that only visits not directly associated with a sale or purchase represent the gathering of market intelligence by producers. The inclusion of visits when a producer buys or sells livestock may overstate the frequency of saleyard visits for the purpose of gleaning market information. However, the use of agents does not necessitate that a livestock producer attend a saleyard to either purchase or sell livestock. Thus, any visit to the saleyard was assumed to yield market information which could not be otherwise obtained.

Data on travel costs is usually collected at the site of the subject of the valuation. Thus, only those that have already undertaken some travel expenditure are included in the data set. In this case, not all respondents had undertaken travel expenditure, with 50.9% indicating that they never attend the saleyard when selling livestock and 76.4% indicating that they never attend when buying livestock. Moreover, 54% of respondents indicated that they never visit the saleyard for ‘other’ purposes. Inclusion of these respondents in the analysis of travel cost would distort results producing a downward bias on estimates. Those respondents not visiting the saleyard site were therefore excluded from further statistical estimation which reduced the total of usable responses to 63.

The size of the livestock enterprise was assumed to have some influence over the

respondent's visitation frequencies. Since comprehensive details of livestock numbers were provided by respondents it became necessary to subsume this information into a single index for inclusion as a variable in regression estimates. Livestock were weighted according to their dry sheep equivalents [DSE's] to produce a total index of the livestock holding of the respondent.

### 5.3.2 Results of TCM

The individual TCM was chosen since it permits examination of other explanatory variables such as the size of the livestock producer and avoids the subjective weighting of saleyard visits in line with respondents expressions of the relative importance of those visits. Different functional forms were considered including semi-log and double-log forms. The semi-log form was chosen since its statistical performance was similar to other forms and the computation of consumer surplus using such forms is relatively simple. Consumer surplus is calculated by simply inverting the travel cost coefficient (Herath and Jackson 1994, p. 7). The estimated individual travel cost model is presented in Table 5.3.

*Table 5.3: Semi-log Model of Individual Travel Costs*

<b>Variable</b>	<b>Coefficient</b>	<b>t value</b>
<b><i>ln</i> Travel Cost</b>	-3.449	-1.317
<b>Constant</b>	25.421	2.486

\*Adjusted R<sup>2</sup> 0.012

This is a very weak model explaining only 1% of the variation in the data. The sign of the travel cost coefficient is as expected although it is not statistically significant at the 10% level. Despite its lack of significance, individual consumer surplus was estimated for

completeness. The individual consumer surplus of \$0.29 translates to a modest consumer surplus for the total saleyard users of approximately \$420.00.

To improve the performance of this model and to test the significance of other variables another semi-log model was developed. This model included the respondents average ranking of the importance of saleyard visits as a source of market information. The size of the livestock enterprise was also included and represented in the index of livestock assets owned by the respondent. The resulting model is presented in Table 5.4.

*Table 5.4: A Model of Individual Travel Costs Including the Ranked Importance of Saleyard Visits and the Size of the Livestock Enterprise.*

<b>Variable</b>	<b>Coefficient</b>	<b>t value</b>
<i>ln</i> Travel Cost	-5.420	-2.314
<i>ln</i> Average Importance	18.827	3.329
<i>ln</i> Livestock	4.942	3.259
<b>Constant</b>	2.366	0.19

\*Adjusted R<sup>2</sup> 0.235

This model represents a substantial improvement on that presented in Table 5.2. All variables have signs consistent with *a priori* expectations and all are significant at the 5% level. Nevertheless, the model itself explains only 24% of the variation in the data. It is worth noting that the estimated value of consumer surplus has been further reduced by this model.

### **5.3.3 Analysis of TCM and Other Issues**

The results presented in section 5.3.2 point to a low value for market information derived from direct visits to saleyard venues. There are a number of other issues which arise from these results. Firstly, there is some inconsistency between the calculated consumer surplus and other responses provided by saleyard users. The mean number of visits by respondents was 12 per year at an average cost of \$64.76. Thus, while the decision to visit saleyards does not appear to be strongly influenced by travel costs, the frequency and expense of such visits suggest that some benefit must be derived by those individuals who undertook them. Moreover, the high ranking placed by a large number of respondents on saleyard visits as a source of market information points to the need for further investigation of this issue.

Secondly, there are methodological limitations to the application of the TCM in this current context. Chapter three noted that this methodology was likely to understate the value of market information gleaned from saleyards since livestock marketing reports provide such information as a public good. This could also explain some of the inconsistencies in the data described above. More specifically, respondents may value market information from the saleyard, yet since such information can be acquired at zero cost there is no need to undertake travel expenditure to gain such information. While care was taken to distinguish saleyard visits from livestock marketing reports during the administration of the survey, it is possible that some respondents were unable to clearly make this distinction.

A final issue relates to alternative methods of livestock marketing and the potential for 'free-riders'. The collected data revealed only a modest use of other livestock marketing methods. 36% of respondents reported using direct selling while 0.9% reported using CALM. These results are consistent with data collected by the MRC [see, for example,

AACM International 1995, p. 9]. It is of interest to note that those respondents reporting use of these alternative marketing methods also indicated a high ranking for the value of information collected during saleyard visits. In fact 73% of respondents who use other marketing methods ranked saleyard visits as either 'very important' or 'important' when selling livestock. Such results support the view that producers acting outside the saleyard system rely on saleyards to provide market indicators in their dealings in other livestock markets. To this extent, such producers are 'free-riders' since such information can be acquired at minimal or zero cost.

## **5.4 Summary**

This chapter has attempted to quantify indirect benefits relevant to municipal saleyards for inclusion within a cost benefits framework. As noted in chapter three, indirect costs such as loss of environmental amenity are largely site specific in nature. Moreover, altered environmental planning laws restrict their assessment and inclusion in the context of the current study. Accordingly, the relevant external issues are the additional expenditure within the local economy which is solely attributable to the saleyard and the value of market information provided to saleyard users.

Attempts to isolate the additional regional expenditure generated by the presence of a saleyard suggest that while such expenditure is of considerable importance to some firms its distribution amongst the regional economy is not evenly spread. Moreover, adjustments

to these estimates, such that they are consistent with the output/value space in which direct costs and benefits were mapped, may prove troublesome. Distributional issues and the appropriate treatment of results to provide a consistent framework for decision makers warrant further discussion in the final chapter.

The use of the TCM to assess the value of market information has provided some indication of the value of this information. While these values can be readily transposed to the cost benefit framework used in earlier chapters, the absence of robust statistical estimates and other information in the data suggest only cautious use should be made of these results.

## **Chapter 6**

### **6.0 Introduction**

The final step in any CBA is to apply a decision criterion to the estimated benefits and costs associated with a given project. This chapter seeks to deal with this step in the CBA framework and thus examines the policy implications of continuing to operate municipal saleyards in their current form. The chapter also attempts to briefly examine issues which stem specifically from the application of national competition policy and, more generally, the microeconomic reform process in Australia.

The chapter itself comprises three main parts. Part one of the chapter attempts to summarise the findings of this study and apply a decision rule to empirical estimates. Policy implications stemming from the application of this decision rule are detailed in the second part of the chapter, which also discusses these implications in the context of broader economic policy developments. The chapter ends with some brief concluding remarks and outlines various avenues for further research.

## **6.1 Summary of Empirical Findings and Application of CBA Decision Rule**

In previous chapters we have sought to provide empirical evidence on the various costs and benefits of municipal saleyards in Victoria. More specifically, chapter four examined the internal characteristics of municipal saleyards against the framework of the neo-classical firm while, chapter five attempted to quantify those external benefits which are consistent with the CBA framework and lend themselves to general policy recommendations. It is now necessary to draw together these different analyses under a single decision rule.

### **6.1.1 Empirical Findings**

One of the major aims of this study has been to establish whether all municipal saleyards are capable of generating positive net benefits for the communities that fund them. More specifically, we have sought to discover the minimum threshold of livestock throughput which leaves the municipal community revenue or cost neutral and thereby shed at least some light on the potential rationalisation of the saleyard selling system in Victoria. To this end we began by examining the internal costs and benefits of saleyards.

While short-run analysis of costs and revenues was attempted, statistical and data limitations impinged on the derivation of useful policy recommendations from the short-run framework. However, the estimation of long-run cost and revenue functions proved more fruitful. In section 4.5.1 we showed that saleyards with an annual cattle throughput of less than 12,176 head were likely to generate internal economic losses. Moreover, given the sensitivity of a number of variables in this analysis and the presence of substantial economies of scale and/or size up to 213,071 head, this break-even throughput may be

even higher. These results provide support for a rationalisation of the saleyard selling system in Victoria.

The analysis of the internal costs and revenues of municipal saleyards also provided a vehicle for examining the efficient pricing of saleyard selling. We indicated that the level of cattle throughput which results in the equation of marginal cost and price is approximately 202,559 head, just short of MES. Throughput below this level produces prices which exceed marginal cost and raises the possibility of transmitting inefficiencies to the broader livestock industries themselves. Once again, there would appear to be a case for rationalising the saleyard selling system on the basis of these findings.

In chapter five we turned our attention to the external benefits generated by saleyard facilities. We observed that there were two major sources of external benefit which warranted inclusion in the current context. Firstly, we examined the additional expenditure generated within the local economy which is induced solely by the presence of the saleyard. To this end two different methodologies were invoked in regions where the scale of the saleyard operation varied. This permitted a test of the relationship between saleyard scale and the value of additional regional expenditure. In Wodonga, the largest saleyard in Victoria, a survey of saleyard users was employed to estimate the value of induced regional expenditure. 19% of those surveyed indicated that some part of their current expenditure was directly related to their use of the saleyard infrastructure. Of these respondents, all indicated that they would reduce their spending in the local economy if they did not use the saleyard, with the average reduction in spending being 62.73%. A number of issues arose from this data, including the influence of outliers on empirical estimates. Using estimated expenditure patterns from the ABS (1997a), and excluding

outliers from the data set, produced a monetary estimate of the value of induced regional expenditure of \$1,271,081 in 1994 dollars. This represents the value of annual expenditure by Wodonga saleyard users which is solely attributable to the presence of the saleyard and presumably would be lost to the local economy were the saleyard infrastructure to close.

In Yea an alternative approach used a survey of local “shop-front” firms to value additional expenditure induced by the operation of the local saleyard. Results from this survey were inconclusive, although firms estimated the value of additional expenditure at approximately \$6,000 per livestock sale. Assuming monthly sales, this is equivalent to \$72,000 annually in 1996 dollars. However, responses to the WTP scenario and other evidence collected during this phase of the study suggest only cautious use should be made of these estimates. Moreover, the relatively low and varied WTP for the continued operation of the Yea saleyard suggests the distribution of this additional expenditure is far from even.

The second source of external benefit from municipal saleyards was assumed to be the value of the market information gleaned by livestock producers. In chapters one and three we noted that focussing on saleyard attendance was likely to understate the value of this information since similar information is available as a public good through the media. However, in the absence of any other appropriate methodology the TCM was employed to derive an estimate of the value of saleyards as a direct source of market information. A survey of saleyard users in Wodonga was used to provide data which modelled the travel frequencies of saleyard users. The results produced a relatively modest consumer surplus of \$420.00 in 1997 dollars for users of this venue. We noted in section 5.3.3 that this value may be the result of the methodology employed, particularly given the frequency and cost of saleyard visits by some producers. Other data derived from this phase of the

study suggests that saleyards play an important role in providing market intelligence, particularly for producers selling livestock directly to processors.

### **6.1.2 Combining Internal and External Results**

Chapter four derived direct or internal costs and benefits in output/value space. However, the external benefits isolated in chapter five were not consistent with this framework. More specifically, the direct costs and benefits have been analysed in terms of their relationship to saleyard throughput while external benefits have been estimated while largely holding throughput constant. Since it is desirable from a policy perspective to examine costs and benefits against variable throughput, it is necessary to assume that the relationship between external benefits and scale remains constant. That is, the external benefits are assumed to vary proportionally with the change in livestock throughput.

While the relative paucity of data on this dimension of the problem imposed some limitations, the data which has been collected during the course of this research suggests a proportional relationship is feasible. Moreover, the intuitive appeal of this assumption may counter concerns stemming from the relatively untested nature of this assumption. The inclusion of external benefits in a benefit/output space is analogous to the addition of an extra livestock coefficient to the revenue function used in earlier analysis. Thus, if we are prepared to accept that the benefits of induced expenditure and market information are proportional to livestock throughput, we can proceed with an investigation of other policy implications.

One further adjustment to data is required to facilitate this analysis. The historical nature of the data collected on direct costs and benefits led to analysis in terms of 1980-81 dollars.

Alternatively, data relating to the external benefits of saleyards have been expressed in 1996 and 1994 dollars. More specifically, the Yea study was conducted throughout June 1996 while the study of external benefits in the Wodonga area, while conducted in March 1997, employed ABS estimates expressed in 1994 dollars. For ease of calculation, all costs and benefits were converted to 1980-81 dollars using the CPI for Melbourne.

Taking the value of additional regional expenditure and market information gleaned from the Wodonga study, and assuming that this is proportionally related to the cattle throughput of 1996, produced an extra 'revenue' coefficient of \$2.57 per head. Since the inclusion of these external benefits effectively displaces the revenue function upwards, a lowered threshold level of throughput is necessary to generate zero net benefits. This break-even level of throughput is now only 1,206 head of cattle. Under these assumptions, all current Victorian municipal saleyards would appear to generate positive net present values. Moreover, the scope for rationalisation of saleyards is substantially less than that suggested by an examination of direct or internal costs and benefits alone.

The inclusion of this additional revenue term also has implications for the level of throughput which generates efficient saleyard prices. In section 4.5.3 we noted that if we are prepared to treat average revenue as the demand function it is possible to identify the level of output which equates marginal cost and price. However, the resulting observation that an efficient price is achieved just short of MES rests heavily on our interpretation of the average revenue function. Moreover, as noted in section 2.4.2, there are a number of significant caveats which suggest it may not always be feasible to interpret the average revenue function in this way. These caveats are highlighted when we attempt to apply the classic Pigovian formulation of marginal social costs and marginal social benefits. Under

this formulation the external social benefits, in this case represented by the additional revenue coefficient, displace the demand function upwards. This produces an equation of marginal cost and 'price' at an implausibly high level of cattle throughput. Such results highlight the need for cautious interpretation of saleyard revenue functions and have implications for the appropriate decision rule to be applied within the CBA framework.

### **6.1.3 CBA Decision Rules**

The summation of internal and external costs and benefits into a single net benefit estimate is achieved by embracing the CBA framework. Moreover, this study hinges on an acceptance of the compensation principle, since the benefits and costs of municipal saleyards are distributed amongst numerous economic agents. Given the role of CBA in providing the theoretical framework for conducting this study, it is necessary to briefly address the nature of decision rules applied under CBA.

The three commonly used decision rules in CBA are the maximum net present value criterion, the benefit-cost ratio criterion, and the positive net present value criterion (Tietenberg 1992, p. 74). The maximum net present value criterion supports those projects which provide the greatest surplus of benefits over costs, once all benefits and costs have been priced and discounted to present dollar values. Alternatively, a benefit-cost ratio which exceeds one could be used by decision makers to indicate the capacity of a specific project to add to the welfare of society. If a positive net present value criterion is employed and the present value of net benefits is greater than zero, then support can be justified since a net increase in the welfare of society arises from such projects. Clearly, since governments should be concerned with maximising the welfare of society, no project should be undertaken which imposes greater costs than it provides benefits.

In the context of the current study the positive net present value criterion has been implicitly applied in analysing break-even throughput. Moreover, by focussing on the break-even level of livestock throughput we have implicitly sought to identify the range in output/benefit space which generates zero or positive net benefits. Levels of livestock throughput outside this range fail the positive net present value criterion. Alternatively, our analysis of pricing efficiency rests with the maximum net present value criterion. Here we have sought to identify the single point in output/benefit space which generates maximum net benefits.

The maximum net present value criterion faces two significant limitations in the current context. Firstly, the caveats which apply to the interpretation of the revenue function restrict the application of this decision rule. Secondly, there is a conceptual inconsistency between the maximum net present value criterion and other techniques used within this study. More specifically, the maximum net present value criterion is founded on the Pareto principle (Tietenberg 1992, p. 74) while the summation of external and internal saleyard costs and benefits stems from the compensation principle. Further policy recommendations should therefore focus on the level of saleyard throughput which generates positive net present values rather than the single level of output which generates maximum net present value.

## **6.2 Policy Implications**

Identification of an appropriate decision rule clarifies policy recommendations that stem from this study. These recommendations relate to the current management of municipal saleyards although recent developments in the application of national economic policy

objectives also warrant brief discussion.

### **6.2.1 Saleyard Rationalisation and the Capture of External Benefits**

We noted in section 6.1.2 that rationalisation of smaller Victorian saleyards appeared to be warranted since livestock throughput was insufficient to generate positive net present values. This conclusion was based solely on an examination of the internal economic characteristics of municipal saleyards. However, extending the study to include external benefits produced a different policy recommendation. More specifically, the estimated external benefits derived from these facilities suggests that any rationalisation is unwarranted since the internal economic losses are more than compensated by other benefits derived from these facilities. There are a number of important distributional issues which relate to the latter of these policy recommendations.

The compensation principle which provides the theoretical foundation for this policy recommendation largely ignores distributional issues. Put simply, the latter policy recommendation makes no attempt to comment on the merits of local government enterprises sustaining economic losses so that other economic agents can derive benefits. Moreover, there is no attempt to comment on the redistribution which results from a general impost on all ratepayers and a simultaneous transfer of income to specific economic agents. While the study of external benefits in Yea highlighted some of these distributional issues, further assessment of distributional matters by policy makers appear to be warranted. Moreover, the extent to which the continued operation of smaller saleyards is illustrative of 'rent seeking' may also require investigation.

A related issue originates from the nature of some of the external benefits included in this

study; specifically, the additional regional expenditure attributed to saleyard venues. We noted in sections 1.3.1 and 3.1 that such expenditures have often been used to justify the continued operation of seemingly unprofitable saleyards. Moreover, the latter policy recommendation relies heavily on the inclusion of these expenditures. However, the historic nature of this argument partly justified the inclusion of these expenditures in the current study. No comment has been attempted on the additional expenditures which may derive from alternative government projects. It is possible, for example, that other local government activities generate even greater rounds of induced expenditure and therefore deserve increased support at the expense of municipal saleyards. Similarly, the additional expenditures generated by alternative government projects may have distributional characteristics adjudged superior to those of saleyards. The inclusion of induced expenditures within a total net benefit framework is not unique to this study [see, for example, McKay (1997)], but it should not be assumed by policy makers that these expenditures are unique to a particular infrastructure or project.

A final distributional issue concerns the capture of external benefits within the municipality which funds the saleyard. Saleyards which sustain internal economic losses place an impost on the municipality which funds that infrastructure. In the context of this study we have focussed on local government, although we have not sought to clearly define the 'regional economy' or the 'local economy' when measuring induced expenditure. Moreover, the regional or local economy need not coincide with local government boundaries. This is of particular significance for smaller saleyards which may be sustaining economic losses and yet, as a result of local government support, provide external benefits to others outside the municipality. Under the compensation principle used to derive the latter policy recommendation, the distribution of external benefits has no

bearing on economic welfare. However, this view is unlikely to be supported where the losses are borne in one municipality while the beneficiaries reside in another. In short, while the rationalisation of smaller Victorian saleyards cannot be supported on economic efficiency grounds alone, the continued operation of these facilities may have significant distributional implications both within municipalities and between municipalities.

### **6.2.2 Competition Policy, Privatisation and the Pareto Principle**

The policy recommendations outlined in section 6.2.1 stem directly from the empirical findings of this study. A number of broader economic policy initiatives relating particularly to microeconomic reform also warrant discussion.

Competition policy and the broader process of microeconomic reform have largely been stimulated by the view promoted by Porter (1990) that a precondition for success in international markets is competition in national markets (Maddock 1997, p. 59). It is this view which provided at least some of the motivation for the Hilmer report (1993) and the subsequent Council of Australian Governments [COAG] agreement. Although local governments were not signatories to this agreement, the states have undertaken to apply competition principles to both their own business enterprises and those of local government (Emcorp 1996, p. 2). In this environment it is appropriate to briefly consider their policy implications for local government businesses generally, and more specifically the operation of municipal saleyards.

The COAG agreement produced consensus on a number of competitive principles. These included price oversight of government monopolies, access to essential facilities to promote upstream and downstream competition, and confirmation that all anti-competitive conduct

was subject to Part IV of the *Trade Practices Act* 1974. While relevant, “...local government in Victoria is unlikely to be significantly affected by [the]...provisions of the competition principles agreement. On the other hand, the application of principles of competitive neutrality to government business activities will be of particular significance for Victoria local authorities” (Victorian Department of the Premier and Cabinet 1996b, p. 8).

The principle of competitive neutrality requires that government business enterprises should not enjoy some advantage simply because of their public ownership. Moreover, government business enterprises should be required to remit funds to reflect the non-payment of taxes, concessional interest payments, the exclusion of depreciation expenses, and the like. Such actions should result in the same competitive rigour being applied in government enterprises as that applied in private firms and improve the efficiency with which society’s resources are allocated (Hilmer, Raynor and Taperell 1993, p. 297). The application of this principle has been restricted to ‘significant’ business enterprises. In the absence of any clear definition of ‘significance’, the application of competitive neutrality has focussed, in part, on defining those enterprises operated by local governments which may be reasonably regarded as ‘significant’.

The local government response to the issue of significance has focussed largely on the size of the enterprise as represented by turnover. Emcorp (1996, p. 21) argued that significance was indicated by income or expenditure of the range \$5 million to \$10 million. Moreover, a phased downward revision of this criterion is envisaged as experience is gained in the application of competitive neutrality principles (Australian Local Government Association 1996, p. 10). However, this view has not gained universal support with the National Competition Council rejecting this criterion for defining significance. As this debate unfolds

it holds substantial implications for the operation of municipal saleyards in Victoria and the application of the decision rule in this study.

Firstly, a lower threshold definition of ‘significance’ would potentially leave larger municipal saleyards subject to the principles of competitive neutrality. Moreover, the application of these principles only to the larger saleyard venues in itself is likely to produce distortions within the saleyard selling network. Therefore, the continued subsidisation of those saleyards unable to generate positive internal net benefits has the potential to foster growth in smaller selling centres at the expense of larger and arguably more efficient saleyards. That is, the application of competitive neutrality principles on the basis of size could potentially produce some of the disadvantages that they are intended to eliminate.

Secondly, competitive neutrality has the potential to shift the focus of any CBA away from compensation principles to Pareto optimality. Competition policy has stressed the role of broader goals and argued that policy must accommodate “...situations where competition does not achieve economic efficiency or conflict[s] with other social objectives” (Hilmer, Raynor and Taperell 1993, p. 6). Nevertheless, the zealous application, or misapplication, of competition policy, and more specifically competitive neutrality principles, may see competition pursued for its own sake (Australian Local Government Association 1996, p. 10). In this environment there is a temptation to focus only on the measurement and comparison of internal benefits and costs. In the case of smaller Victorian saleyards, where the costs are largely internal and the benefits predominantly external, the implications of this shift in focus are highlighted by the net losses identified in chapter four. The application of competitive neutrality in this manner concentrates attention on internal ‘losers’ rather than measuring the gains of external ‘winners’. In effect, this implies an emphasis on the Pareto

criterion rather than the compensation criterion, and results in a different decision rule to that identified in section 6.1.3.

Thirdly, the application of competitive neutrality principles to saleyard venues could substantially affect the development of other livestock marketing methods. Indeed, it could be argued that the lack of competitive neutrality has stifled the growth of alternative livestock markets in Victoria. More specifically, the internal losses sustained by smaller saleyards have, in part, been disguised by the accounting and management practices of some local governments. Embracing competitive neutrality may prevent concealment of these losses and erode support for their continued operation. The application of efficient prices and a commitment to full-cost recovery could conceivably stimulate demand for other livestock marketing techniques which have not enjoyed substantial support to date.

### **6.3 Conclusions and Further Research**

This study has sought to develop a broader understanding of the role of municipal saleyards, particularly in Victoria. The application of economic constructs in a cost benefit framework has produced quantitative data which highlight the current management of these facilities and provides the foundation for assessment of the efficient operation of saleyards. While limitations were revealed in the application of theoretical constructs to operational data, the use of such constructs provides a clear and robust framework for decision makers. Moreover, an examination of internal benefits and costs indicates that there is scope for the rationalisation of saleyard selling in Victoria.

Extending the breadth of the study has produced evidence of the magnitude of external benefits and tested techniques for their measurement. The inclusion of these external

benefits reveals that it is not possible to justify rationalisation of saleyard selling solely on the grounds of economic efficiency. Accordingly, future rationalisation will be determined largely by the relative importance of internal and external benefits in the minds of decision makers. In this regard, the outcome of the current debate surrounding the implementation of competition principles by local government and, more specifically, the interpretation of competitive neutrality principles may prove critical.

Further research would appear to be warranted to test the accuracy of values assigned to the identified external benefits. The relationship between saleyard size and the value of external benefits requires rigorous investigation since it is the value of these external benefits which provides the justification for the continued operation of smaller Victorian saleyards. Finally, the compensation principle has provided the theoretical foundation for summing the net external benefits with internal net benefits. This technique largely ignores distributional issues which may also require investigation with future research. Moreover, the extent to which external benefits are captured by municipalities requires clarification.

## Appendix A

### Eigenvalues and Condition Indexes: Quadratic Long-Run Cost

#### Function; Equation (2.18)

Collinearity Diagnostics:

No.	Eigen- Value	Cond Index	Variance Proportions						
			Constant	Sheep	Wages	CPI	Cattle	Age	Cattle <sup>2</sup>
1	5.2105	1.000	0.0001	0.0078	0.0000	0.0000	0.0002	0.0019	0.0003
2	1.1549	2.124	0.0000	0.0514	0.0000	0.0000	0.0019	0.0102	0.0057
3	0.5668	3.032	0.0000	0.7297	0.0000	0.0000	0.0001	0.0090	0.0007
4	0.0510	10.105	0.0069	0.0006	0.0003	0.0000	0.0003	0.7855	0.0300
5	0.0116	21.167	0.0613	0.0993	0.0010	0.0109	0.0735	0.1825	0.0678
6	0.0050	32.285	0.0612	0.1075	0.0000	0.0015	0.9175	0.0001	0.8821
7	0.0001	216.34	0.8705	0.0036	0.9988	0.9872	0.0066	0.0109	0.0138

## Appendix B

### Survey of “Shop-Front” Firms in Yea

This survey is designed to quantify indirect benefits or costs, relating to the livestock saleyards, which effect your business.

#### ■ Part 1.

**The first part of the survey seeks information about the operation of your business. This section is necessary to prove that the sample used is not biased and to test relationships within the data. *Please note that all answers remain anonymous and confidential.***

##### Question 1.

How long has this business operated in Yea?

\_\_\_\_\_ Years

##### Question 2.

How long has this business been owned/operated by the present owners/operators?

\_\_\_\_\_ Years

**Question 3.**

How many persons are employed by this business, including the owner(s)?

\_\_\_\_\_ Full-time

\_\_\_\_\_ Part-time

**Question 4.**

Please indicate the approximate average weekly turnover of your business.

(Please tick)

- 0 - \$500
- \$501 - \$1000
- \$1001 - \$2000
- \$2001 - \$5000
- \$5001 - \$10000
- More than \$10000

**Question 4.**

List the types of goods / services provided by this business.

---

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**Question 5.**

Listed below are different types of customers as described by their residence. What percentage of your customers would be identified by these different groups?

Residents of Yea \_\_\_\_\_%

Residents of the rural areas near Yea \_\_\_\_\_%

Those living outside the Yea area \_\_\_\_\_%

\_\_\_\_\_

100%

■ **Part 2.**

**This part of the survey requires you to quantify the effects of livestock sales upon your business.**

**Question 1.**

Do you believe that the livestock saleyards at Yea have any impact upon your business?

Yes / No (Please circle)

If 'yes' answer questions 2-5. If 'no' go to question 6.

**Question 2.**

Does the presence of the saleyard increase or decrease your business turnover.

Increase / Decrease (Please delete)

**Question 3.**

What would be the estimated change in turnover for your business if a livestock sale was held on any day?

(Please tick)

- 0 - \$100
- \$101 - \$500
- \$501 - \$1000
- \$1001 - \$2000
- More than \$2000

**Question 4.**

If you know that a livestock sale is scheduled for a particular day, do you arrange for additional staff to be employed to cope with any changed demand?

Yes / No (Please circle)

If 'yes' please answer question 5. If 'no' go to question 6.

**Question 5.**

How many extra work hours would be created by the occurrence of a livestock sale?

(Note: If, for example, two casuals were employed for four hours this represents eight work hours)

\_\_\_\_\_ work hours

**Question 6.**

Please specify below any other benefits or costs which you can identify which relate to the activities of the livestock saleyards.

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■ **Part 3.**

An alternative method of assessing values is known as the *contingent valuation method*. This involves asking people how much they would be willing to pay to prevent the loss of a particular amenity. While this scenario is hypothetical, honest responses are necessary to make any estimates meaningful.

*Imagine that the livestock selling complex in Yea required a once-off payment from your business to continue its operation. This payment would be made direct to the committee responsible for the saleyards and would only be used to continue the saleyards operations.*

**What is the maximum amount that this business would be willing to pay to retain the livestock selling facilities at Yea?**

\$\_\_\_\_\_

**If this business is not willing to make a payment to retain the saleyards please give a reason below.**

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## Appendix C

### Telephone Survey of Saleyard Users

The survey has three main parts.

*Part 1: This part of the survey collects some general information about you and your livestock operation. This is needed to make sure that the survey represents all saleyard users. For example, if only large livestock producers were surveyed there would be some bias in the results. **Please bear in mind that all information remains strictly confidential and anonymous.***

1. How many livestock would you normally own at this time of year in the following categories.

Livestock type	Number
<b>Cattle:</b>	
Cows	
Calves	
Steers	
Bulls	
<b>Sheep:</b>	
Ewes	
Lambs	
Wethers	
Rams	
<b>Other livestock, please specify</b>	

*Part 2: The next few questions look at your use of the saleyards over the past twelve months.*

***SELLING LIVESTOCK***

2. How many times have you used the Wodonga yards to **sell** livestock in the last twelve months?

.....

3. Does ‘someone’ attend a sale if **selling** livestock at the Wodonga saleyards? **“Someone” implies either themselves or a representative of their farming enterprise.**

Yes, always

No, never

Yes, sometimes

4. Do you sell all of your livestock through the Wodonga yards or do you use other methods? How important are these different methods when **selling** ? (0% = never used as a method of sale; 100% = all livestock sold this way)

Selling Method	Use (%)
Wodonga saleyards	
Other saleyards	
Direct selling to other farmers	
CALM	
Direct selling to processors including forward sales	
Other (please specify) .....	

**100%**

5. How important do you rate *visits* to saleyards as a source of information when selling livestock? (*As distinct from livestock marketing reports in media*)

Very Important

Important

Of Little Use

Irrelevant

***BUYING LIVESTOCK***

6. How many times have you used the Wodonga yards to *buy* livestock in the last twelve months?

.....

7. Does 'someone' attend a sale if **buying** livestock from Wodonga saleyards? "**Someone**" implies either themselves or a representative of their farming enterprise.

Yes, always

No, never

Yes, sometimes

8. What proportion of your livestock numbers are **bought** through the yards compared to other methods? (0% = never used as a method of purchase; 100% = all purchased this way)

Buying Method	Use (%)
Wodonga saleyards	
Other saleyards	
Direct purchase from other livestock producers	
CALM	
Other (please specify) .....	

100%

9. How important do you rate **visits** to saleyards as a source of information when buying livestock? (*As distinct from livestock market reports in media*)

Very Important

Important

Of Little Use

Irrelevant

10. How many times have you attended the Wodonga yards in the last twelve months *without buying or selling livestock?*

.....

11. What is the approximate travelling *time* from your residence to the Wodonga saleyards?

..... Minutes

12. What is the approximate travelling *distance* from your residence to the Wodonga saleyards?

..... km

*Part 3: This section looks at other spending that you carry out in the Wodonga area.*

13. Do you do anything else in Albury / Wodonga when you come to a sale at the Wodonga yards? *(Try not to lead, but may require some prompting. Looking to distinguish retail spending from other spending. Do not include non-economic activities eg. Visiting mum)*

14. Over a twelve month period what proportion of your household income would you spend within the Wodonga or Albury area?

.....%

15. What proportion of your agricultural spending takes place in the Wodonga or Albury area?

.....%

16. Would these spending pattern change if you did not sell livestock at the Wodonga saleyards?

Yes / No

If so in what way?

*(Looking for % increase/decrease)*

17. Are there any other benefits that you may gain from using the Wodonga saleyards?

.....

.....

.....

18. Do you have any suggestions that may improve the operation of livestock saleyards generally and/or the Wodonga saleyards in particular.

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