

Transport Industry Statistics

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Abstract:

Information about businesses that provide transport services in Australia are dated or hard to come by. But what information do users need and how do we collect them?

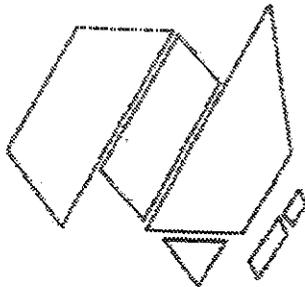
This paper looks at some of the issues involved in collecting industry statistics in relation to transport. In particular, it discusses the differences between businesses that undertake transport activities on the one hand, and transport businesses on the other. This distinction has a significant impact on the collection and interpretation of industry statistics.

The paper then covers previous and current measures of the transport industry and outlines proposals for the future collection of these data.

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1. INTRODUCTION

The importance of transport in an advanced economy is widely acknowledged, particularly in Australia in light of the vast distances between the major centres of population. Information to assist in the planning of major infrastructure works and in the administration of transport activities and the organisations responsible for their provision is a major requirement by decision makers in the government and private sectors alike.

Over the last few years there has been a strong and growing demand for the ABS to upgrade the range of Transport statistics it produces. Demand for transport statistics includes requirements both for data on the size of the transport task and how it is actually carried out (eg, passengers and tonnes moved by origin, destination and mode) as well as requirements for data in respect of the economic units that perform the transport task - eg, employment, revenue, costs, profitability, fuel consumption, number of vehicles, capacity, etc.

At the 17th Australasian Transport Research Forum, Cosgrove and Gargett (1992) presented estimates of the Australian domestic transport task during the period 1970-71 to 1990-91. The significance of this paper is that it draws together otherwise disparate series of data and extrapolates for missing data to present information on the aggregate transport task over time. While much remains to be done to improve the availability of such measures, there is also a need to broaden the range of information on the industry side of transport in Australia.

The ABS has a major role in filling these information needs. Generally, the Bureau is well placed to cover activities involving a large number of homogeneous participants, where the information required is routinely compiled by respondents as part of their normal business activity, such as maintaining standard accounting records. However, the Bureau is increasingly finding itself having to deal with more complex issues, where there are sometimes problems in identifying the appropriate population from whom information is to be obtained, defining the appropriate concepts and data items required, and in compiling meaningful results without divulging the sensitive aspects of individual business' activities.

In particular, the collection of transport statistics involves a number of difficulties for the statistician. This paper focuses on some aspects of the work associated with developing a forthcoming survey on the economic, financial and structural characteristics of participants in the transport industry. The 1994-95 Transport Industry Survey (TIS) is intended to provide a comprehensive new data set in its own right, particularly to enable the Australian National Accounts to be updated to better reflect the importance of transport in the economy. However, it is also intended to complement the existing Survey of Motor Vehicle Use and a proposed Freight Movements Survey to provide three "views" of transport in Australia. It is further expected that the TIS can be linked to another new survey recently developed by the ABS, the annual Economic Activity Survey, which will enable the economic performance of the transport industry to be monitored on a regular and consistent basis over time.

2. INDUSTRY STATISTICS - WHAT ARE THEY?

In general, the term '*industry statistics*' refers to measures that relate to the businesses involved in the relevant activity - in this case, transport. Usual measures include:

- counts of businesses by industry, size, type of legal organisation, etc;
- number of employees;
- value of turnover (from transport activities);
- selected costs (of transport activities);
- composition of transport assets (number and type of vehicles, etc);
- selected performance measures (eg, return on assets, freight task borne per vehicle, etc);
- principal activities undertaken; and
- measures of value added.

Information of this type is regularly compiled in Australia for a number of industries. By contrast, there is a dearth of such information about businesses associated with the provision of transport services.

From an economist's point of view, the reason for this lies in the supply and demand issues.

Intuitively, the demand for these data should be quite strong:

- government agencies need to have an understanding of the participants involved in transport if sound policies are to be developed, legislation enacted and administered effectively.
- industry associations similarly need a statistical profile of the participants they represent, and possibly those that they don't represent but who are nevertheless involved in similar activities, if they are to provide effective representation of their members. For example, it is often useful to provide an authoritative measure of their members' collective contribution to the economy, as measured by Industry Gross Product.
- transport businesses themselves can use this information to help determine appropriate strategies to ensure their long term survival. For example, how many competitors do they have and what are their characteristics? How does their performance compare?
- other businesses can use this information to determine how they can best cater to the commercial requirements of transport operators or to be in a position to make an informed decision about which transport service and provider best meets their requirements.
- researchers and analysts also need this information if they are going to be in a position to interpret and comment on trends, changes and issues in relation to transport matters.

While the potential uses of such information are strong, although rarely articulated, supply side issues also play a significant part in explaining deficiencies in the availability of data.

The range of industry measures can be quite extensive and may vary depending on the specific industry under observation. However, a particular problem arises in relation to measuring transport activities. In general, certain measures relevant to, say, the road freight transport industry will be readily available from businesses that provide road freight transport services for hire or reward.

On the other hand, similar measures are more difficult to obtain from businesses that only undertake road freight transport activities on their own account. In such cases, their accounting procedures are usually geared towards their other (predominant)

activities, even though they may undertake similar transport activities. The range of transport data available from these businesses tend to cover the "physically" identifiable variables such as the number and composition of vehicles, number of drivers, etc. Comprehensive financial data on their transport activities tends to be more difficult to dissect, while inclusion of details relating to all of these businesses' operations would substantially overestimate the value of their transport activities.

The term *transport industry* is often used to refer to all businesses engaged in the provision of transport services. However, this practice presents a number of problems since there is often little agreement on the constituency being referred to. For example, does the transport industry only refer to road haulers (that is, operators of "heavy" freight vehicles)? Where do the other modes of freight movement fit? How do we treat freight forwarders - who may not operate any vehicles? Should we include (bus and coach) passenger movements? What about passenger car travel - how should this be treated within a classification of transport? And so on.

Clearly, to enhance the usefulness of transport statistics we need to have a common definition of the range of activities that will be included in the transport industry.

However, even this doesn't fully resolve the problem of defining a transport industry. The main purpose of developing an industry classification is to be able to classify various businesses. When referring to a particular industry we are actually referring to the business units "which have been classified to it" (ABS 1992).

Unfortunately, even this is not clear-cut in relation to transport because of the differences between businesses that undertake transport activities for hire and reward and those that do so on their own account as described above. In particular, many manufacturers, wholesalers, retailers, farmers, etc, also run vehicles to meet some or all of their transport requirements. Notwithstanding the need to take account of the transport activities undertaken and services provided by such businesses, it is misleading to include them in our counts of businesses in the transport industry. To do so would lead to overestimating the size and significance of the transport industry.

Similarly, we should also recognise that it would be misleading to include the non-transport activities of transport businesses as contributing to the transport industry. Fortunately, however, the incidence and significance of this in the road freight industry is believed to be small.

Without going into detail about how to account for these factors, suffice to say that a set of (statistical) rules has been developed and are applied by the ABS to uniquely classify businesses to one class of industry. In essence, businesses are classified by the ABS to the Transport Industry on the basis of their predominant activities.

Nevertheless, while it is important to be able to uniquely classify businesses to the appropriate industry, the problem remains for an industry such as transport to obtain measures of relevant (transport) activities, regardless of the industry to which respective businesses belong. Given that it is not possible to obtain a full set of (transport) industry statistics from all transport operators, the sensible approach to follow is twofold:

- (1) define a core set of (mainly) physical measures of transport activity to be collected from all businesses that undertake transport activities; and
- (2) obtain a more comprehensive set of financial, structural and physical measures in respect of businesses whose principal activity is transport.

Such an approach should enable comprehensive and authoritative statistics on the transport sector (comprising businesses engaged in transport activities) as a whole to

be provided, as well as a full economic, financial and structural profile of the transport industry (comprising businesses whose principal activity is transport).

3. Previous Measures of Australian Transport Industry Statistics: The 1983-84 Transport Industry Survey

As noted earlier, only minimal structural data relating to transport business units have been available in Australia, even though transport is a large industry that is fundamental to the operations of many economic sectors.

In the early-mid 1980's, the ABS developed and conducted a Transport Industry Survey (TIS) for the twelve month period ending 30 June 1984. The scope of the TIS was restricted to the modal transport industries (road, rail, water and air transport industries) plus the freight forwarding industry. The TIS was conducted as part of the ABS' integrated economic statistical program whereby economic and structural data are collected on a consistent and comparable basis across all industries. Traditional integrated economic and structural data items (eg, employment, turnover, selected expenses, capital expenditure, etc) were collected together with some industry specific activity items (eg, numbers of trucks, number of aircraft, freight carried, numbers of passengers carried). The following table provides details of operations of transport establishments by industry in 1983-84.

Table 1 Transport Establishments: Summary of Operations by Industry Class, Australia, 1983-84

ASIC Code	Description	Establishments operating during the year	Average Employment	Wages and Salaries	Turnover	Value Added
		No.	No.	\$m	\$m	\$m
511	Total road and freight transport	32,943	99,606	902.5	5,187.3	2,267.8
512	Total road passenger transport	10,017	44,691	566.3	1,486.3	920.5
5200	Rail transport	12	86,721	1,688.5	3,315.7	1,899.2
53	Total water transport	167	9,001	210.7	1,217.3	418.3
54	Total air transport	334	23,603	600.9	2,958.4	1,142.0
	Total modal transport	43,473	263,622	3,968.9	14,165.0	6,647.8
5742	Freight forwarding	135	7,545	140.3	1,114.1	265.8

Source: ABS (1985a)

Concurrent with the TIS, a Business Vehicle Survey (BVS) was conducted to obtain a more complete picture of road freight transport activity in Australia. The scope of the BVS included all private sector enterprises in Australia which operated a registered truck with a gross vehicle mass of 2.7 tonnes or more and used that truck to carry freight on public roads. Data collected from respondents in the BVS were

restricted to information relating to the operation of their truck fleets (eg, number of trucks, number of truck drivers, truck running expenses).

Estimates from the BVS were combined with estimates from private road freight establishments included in the TIS and published as estimates of private sector road freight transport activity.

Table 2 Road Freight Activity of Enterprises by Industry, Australia 1983-84

ASIC Code	Description	Enterprises at 30/6/84	Trucks operated	Total truck drivers	Salaries paid to drivers	Truck running expenses
		No.	No.	No.	\$m	\$m
A	Agriculture, forestry, fishing and hunting	85,796	113,609	15,143	35.3	313.6
B	Mining	557	2,575	1,872	37.6	34.4
C	Manufacturing	8,109	24,413	16,743	279.0	217.9
D	Electricity, gas and water	42	4,037	3,245	59.4	18.3
E	Construction	12,387	20,459	7,294	86.1	148.7
F	Wholesale and retail trade	19,334	37,779	20,966	298.1	303.2
511	Road freight transport	32,709	58,073	56,158	503.0	1260.5
512-580	Other transport and storage	791	2,266	1,114	17.0	18.7
G	Total transport and storage	33,499	60,339	57,271	520.0	1279.2
H	Communication					
I	Finance, property and business services	1,737	4,647	2,710	51.0	50.9
71	Public administration	518	4,914	3,988	63.7	25.5
K	Community services	1,120	2,742	1,891	24.0	26.2
L	Recreation, personal and other services	1,798	2,706	949	10.0	12.3
	Total	164,898	278,220	132,072	1464.2	2430.1

Source: ABS (1985b)

In producing these statistics, the Bureau had to overcome a number of difficulties. Most of these derive from the fact that transport industries are not homogeneous, so that special procedures and measures had to be devised for respective industries.

A further major problem in relation to the TIS and the BVS was finding a comprehensive list of road transport operators from which the respective samples could be drawn.

Nevertheless, each of the various problems was eventually overcome and the first results were released on 29 October 1985. Final results became available nearly twelve months later.

In the absence of more recent data, these estimates appear to have formed the basis of various counts still cited as measures of the transport industry in Australia.

4. Other Measures of the Transport Industry

For the purposes of this paper, it is only proposed to discuss three ABS sources pertaining to the transport industry:-

- (1) the Australian National Accounts;
- (2) Economic Activity Survey; and
- (3) Survey of Motor Vehicle Use.

(The ABS has other data beyond these on this industry. Details are available on request.)

(1) The Australian National Accounts

The Australian National Accounts are compiled on a quarterly and annual basis by the ABS to provide a set of measures of key macro-economic variables. One of these, Gross Domestic Product (GDP), shows estimates of the contribution to the national economy attributed to the various major industry divisions. Thus, the Transport and Storage Industry Division accounted for \$18,220m in 1991-92 at average 1989-90 prices, or 5 per cent of Gross Domestic Product (ABS 1993a).

A wide range of sources are used to update these figures. Wherever possible, information from various ABS statistical collections are used - for example, details of earnings in the various industries are derived from ABS surveys of employment and earnings, while the annual manufacturing census provides estimates of value added attributable to the manufacturing industries. However, for other industries such as transport, less direct measures of and proxies for industry gross product are incorporated into the National Accounts, including statistical information from records lodged for taxation purposes.

While their measurement does leave room for refinement, the Australian National Accounts provide the ultimate measure of the transport industry's importance to the national economy.

However, this measure only relates to the contribution by the transport industry - that is, it represents an estimate of the total value added from all activities undertaken by businesses classified as belonging to the Transport Industry. This explains why transport appears to reflect such a low proportion of GDP (5 per cent). No allowance is made for the value of transport activities undertaken by businesses in the non-transport industries. As seen from the Transport Industry Survey and Business Vehicle Survey results above, such activities are quite significant.

A further limitation of the National Accounts is that information compiled for these purposes is not normally released for individual industry classes or groups. This means that any relative changes between industries within industry divisions (Transport and Storage) and subdivisions (Transport) will not show up in the National Accounts.

(2) Economic Activity Survey

More recently, the ABS has developed and implemented a new, annual economy-wide survey to provide consistent information on the structure and performance of businesses in the Australian economy based on, as far as possible, standard commercial accounting principles. Although the Economic Activity Survey (EAS) and the National Accounts attempt to measure overall economic activity (notwithstanding that the EAS is substantially narrower in scope and coverage), differences occur in the industry dissection of the two sets of statistics. Nevertheless, the EAS produces conceptually similar measures of industry value added/gross product. Thus, the EAS estimate of Industry Gross Product for the Transport and Storage Industry of \$14,488m in 1990-91 compares with the Gross Domestic Product estimate at current prices of \$18,653m (ABS 1993b). The difference is mostly accounted for by the exclusion of non-employed businesses (mainly self-employed businesses) from the EAS.

However, the EAS also provides a rich source of industry-based performance measures on an annual basis. Thus, the 1990-91 EAS shows information on various measures including incidence of business reporting profit, average profit per operating business unit, return on assets and return on net worth. Information is also available according to the size of the business, providing access to a substantial range of both macro and micro level business indicators.

Once again, of course, from a transport point of view the data have some limitations - being industry-based rather than providing measures of transport activity. Also, self-employed activity in transport is important. Nevertheless, the data are now available on a consistent basis for comparison purposes across industries and will become available over time, making it potentially a very powerful data source.

(3) Survey of Motor Vehicle Use

A third data collection widely known among the transport research fraternity is the Bureau's Survey of Motor Vehicle Use (SMVU). In contrast to the Transport Industry Survey, National Accounts and the Economic Activity Survey, the SMVU is a pure "activity" collection: it provides measures of motor vehicle usage, regardless of the industry of the business to which the vehicle belongs. It only covers road transport activities.

Nevertheless, an attempt is made to classify the industry served in the case of freight carrying vehicles. In 1991, the SMVU estimated that 207.6 million tonnes of freight was carried by/for the transport industry, about 20 per cent of total tonnes carried (ABS 1993c).

The SMVU data (and the BVS table, earlier) illustrates that measures of the transport industry alone do not adequately reflect the extent of (road) freight transport activity undertaken in the Australian economy.

Clearly, we need to collect both industry and activity based data to provide an appropriate information source on Australian transport.

5. 1994-95 Transport Industry Statistics

The ABS is developing a survey to collect structural, activity and performance data on transport operators in Australia in respect of 1994-95. Once again it is proposed to

conduct concurrent surveys: one in respect of businesses classified to the various transport industries; the other in respect of road freight operators. In relation to the transport industry component, traditional economic and structural data will be collected which, among other things, will enable the methodology underlying these estimates in the National Accounts to be updated (re-based) to better reflect its relative importance to the Australian economy. It is also expected that the development work undertaken for the TIS will lead to improved coverage and representation of the transport industry in the annual Economic Activity Survey.

In addition, the Bureau will investigate the feasibility of collecting a number of industry specific activity items and performance measures in the TIS. Some of these have been mentioned earlier, but we will be inviting interested users to suggest additional measures.

Regarding the Business Vehicle Survey component, our intention is to focus again on road freight activity. (In general, the other transport industries (that is, excluding road freight transport) are characterised by businesses whose predominant activity is transport, while few non-transport businesses play a significant role in these activities.)

Data to be collected in the BVS will relate to the operation of truck fleets, and user views on the scope and content will be canvassed before testing for data availability commences.

At the same time as development of the TIS/BVS is proceeding, the ABS is also pursuing two other major transport collections. The next (triennial) SMVU is due to be conducted in late 1994. In addition, a freight movements survey is being proposed to be conducted in 1994, covering the four major modes of freight transport - road, rail, sea and air. (A separate report on the feasibility of mounting such a collection will be presented at the 18th ATRF.) These three data collections will provide complementary "views" of transport in Australia.

6. Conclusion

This paper has attempted to describe the statistician's concept of industry statistics and the difficulties and limitations associated with their collection and use, when related to the transport task. In particular, with an activity such as road freight transport, where large numbers of non-transport businesses account for a substantial proportion of the road freight task, it is not possible to collect a full range of economic, structural and performance measures pertaining to the road freight transport activity. Instead, it has been suggested that a set of industry measures and a set of activity measures need to be collected to provide an appropriate set of statistics on transport in Australia.

The paper has also outlined some of the methodological issues associated with the collection of such data. Results from the 1983-84 TIS/BVS collections have been presented and proposals for a similar 2-component approach for the collection of transport industry/activity data in respect of 1994-95 are being pursued.

In addition, the potential to relate the proposed TIS/BVS statistics to other data sources has been noted as a way of enhancing and extending the usefulness of these measures.

Finally, the opportunity exists for users and potential users of these data to make their requirements for transport data known to the ABS for consideration during the development of these new collections. It is hoped that many users will accept the invitation to submit their views to the ABS.

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