34

IMPROVING THE COMPARABILITY OF AUSTRALIAN TRANSPORT STATISTICS AT THE MACRO AND MICRO LEVELS, WITH SPECIAL REFERENCE TO TRANSPORT ORIENTED COMMODITY AND PACK CLASSIFICATIONS

J. R. HAMBLEY
Director,
Central Statistical Unit,
Department of Transport,
Australia.

R. V. BARNARD
Chief Statistical Officer,
Australian Bureau of Statistics.

ABSTRACT: *Statistics are frequently subject to problems which impede their usage in decision making. Use of different classifications for the same variable in different transport statistical collections is an example of a problem affecting the comparability and usefulness of Australian transport statistics; a problem which all associated with transport statistics should overcome through co-operation. Development of the Australian Transport Freight Commodity Classification and the interim Australian Pack Classification, is considered. It is anticipated that the classifications will be implemented steadily and that their availability will influence changes in information systems which will lead to greater comparability in Australian transport statistics.*

COMPARABILITY IN AUSTRALIAN TRANSPORT STATISTICS

INTRODUCTION

The objective of this paper is to review a large area of development to which many people and organisations have contributed. Thus while the authors have played important roles from their respective vantage points, many others have also made significant contributions to the work covered in this paper.

Some of the researcher's problems in the use of transport statistics are self inflicted and some community inflicted, but both should be avoidable. The value of the community's collective effort in producing transport statistics is diminished because there are few accepted and observed standards in transport statistics. A conscious determined effort to define and use statistical standards in this area would be of considerable benefit.

PROBLEMS IN THE USE OF STATISTICS

Evaluating development proposals in transport, or other spheres, often leads to comparison of a particular case with other similar cases, or with other State, national or international experience. Sooner or later the need arises to resort to numerical comparisons and statistics.

Appropriate statistical data will often not be available and it will be necessary either to use some related but more general data, and be forced to make some (sometimes heroic) assumptions, or it will become necessary to organise one's own data collection. Even a special purpose collection will often not satisfy the whole of a project's requirements, and a need will remain to refer to existing data.

In comparing similar cases (e.g. data for one Local Government Authority versus other LGA's in the same State) the most desirable situation might be to have relevant statistics for a large number of cases (e.g. for every LGA in the State). Often such data will not be available, but several alternatives may exist, for instance:

(i) broad average statistics may be available which can be compared with the results for a particular case
(ii) detailed data may exist for a variable which can be related to the variable being studied
(iii) case studies may have been done on some of the elements for which detailed information is required.

Considerable difficulties, and sometimes insurmountable barriers, often exist with the comparisons which are sought. One source of these would be differing concepts and definitions. Another source would be differences in the variable being collected, e.g. tonnes mass, volume, 'revenue' tonnes,(1) or tonne-km

1. 'Revenue', 'cargo' or 'freight' tonnes are derived by adding weight and volume measures depending on the parameter on which revenue is charged.

Each variable has its strengths, weaknesses, and idiosyncracies, and one would have to be very careful before accepting an analysis which compared statistics for different areas using different variables.

Another source would be misaligned classifications, which can completely obscure a real difference, unless that difference is gross; and even then the difference might be rendered ill defined and questionable. In particular, significant effort may be put into detailed area (city or region) transportation studies, however, failure to use consistent or compatible classifications frequently means that the data collected at considerable expense cannot later be compared, or used in conjunction with other local or national statistics.

Motor vehicle registration data is a good example of information originally collected for administrative purposes according to classifications appropriate to those purposes, but which is also used to produce statistics. Australia's various motor vehicle registries do not use the same classification system for vehicle type, and for their individual purposes there is no particular reason why they should. However, when a statistician tries to assemble this information into national statistics, considerable problems arise. Examining Australia's motor vehicle population statistics by type of vehicle during the 1970's will reveal major problems in aligning different classification systems.

It needs to be recognised that much of the transport statistical data available will be outside the direct control of the analyst.

Transport Australia, as a major user of transport statistics from across Australia, is probably affected most by the problems outlined above. While organisations such as ABS and Transport Australia must have a major role in seeking remedies to these problems, smaller organisations and individual researchers can assist significantly by seeking and using such standards as are already available. They can exploit the full potential of extending data that they intend to collect by linking with data already available.(1) This will require predicting the full range of analysis to be undertaken before collection design is finalised, so as to ensure that any necessary linking questions, using appropriate classifications, are included. As an example, with personal income as a classification variable, it is important to give careful consideration to the classification used to ensure that any necessary comparability with Population Census income data, or award rates is allowed for.

The availability of standards in transport statistics is a long term project which requires the co-operation of a wide range of data gatherers as well as changes in the record keeping practices of transport firms. It is important for all organisations and individual researchers to support the development as well as use of statistical standards, including standards in classifications.

1. Work by the Bureau of Transport Economics developing the Australian Transport Literature Information System (ATLIS), the Australian Transport Information Directory (ATID) and the Australian Transport Research in Progress (ATRIP) will facilitate knowledge of what information is, and is likely to become available.

COMPARABILITY IN AUSTRALIAN TRANSPORT STATISTICS

FRAMEWORK FOR TRANSPORT STATISTICS

Attempts to avoid poor statistical comparability through better co-ordination are often aimed at having a statistical framework adopted. A framework sets out standard data concepts, data items, classifications, variables and tabulation groups. Such frameworks exist for a number of topics internationally from the United Nations Statistical Office, or nationally from the Australian Bureau of Statistics, either as a national standard related to an international standard, or as an interim national standard pending decision at the international level.

There is no international framework for transport statistics, but in 1978 ABS released widely a national transport statistics framework discussion paper for comment by Government and academic sources. As a result of the comments provided to the ABS revision and re-development is proceeding but, by its nature, this also is a long term project.

Australian transport statistics are not currently highly developed and this presents an opportunity to ensure that subsequent development is orderly and uses the concept of statistical standards to the fullest as a means of ensuring that the greatest primary (intended) and secondary (ad hoc, or other purposes) value is obtained from effort at the national or State level, or for some quite local specialised purpose. Apart from the intrinsic value of achieving the greatest degree of comparability, it is much easier to adopt or adapt a standard approach or classification than it is to design from first principles.

CLASSIFICATION USED IN TRANSPORT STATISTICS

The ABS 1978 discussion paper on a framework for transport statistics mentioned a number of classifications of particular relevance to transport issues, including industry, occupation, area, commodity and type of vehicle. Some of these already have standard classifications, others have standard classifications but need updating, and others have no specified standard.

A revised Australian Standard Industrial Classification (ASIC) was released by ABS in 1978 but it was realised at that time that further modifications to the section dealing with transport industries might be needed before the 1982-83 Transport Industry Survey. Better information was needed on which to base decisions. The ABS has been actively seeking such information via its 1980 Transport Industry Units Survey.

Transport Australia and ABS have recently completed significant work (see below) on transport statistical classifications for commodity and pack

Occupation classification is currently the subject of a joint exercise between ABS and the Department of Employment and Youth Affairs, to which Transport Australia is contributing on transport aspects. Area classification is being re-evaluated by ABS and will be the next major parameter to be studied by Transport Australia. Vehicle type may receive some attention shortly.

BACKGROUND TO THE DEVELOPMENT OF THE COMMODITY AND PACK CLASSIFICATIONS

The Department's interest in statistical classification sharpened following a study of its statistical services by the authors in 1978. This led to a significant re-grouping of these services, to the creation of a Central Statistical Unit to look at statistical programs, co-ordination and standards, and to the confirmed provision by ABS of a full time outposted officer to assist with co-ordination, liaison and usage of statistics. The Department also set up a comprehensive internal consultative apparatus to discuss statistical matters.

Transport Australia had earlier assumed responsibility for the statistical collections of the Australian Stevedoring Industry Authority, when that body was disbanded. Other information sources available to the Sea Transport Policy Division to assist it perform its policy formulation, implementation and monitoring role include overseas trade statistics compiled by ABS and a range of information from port authorities and commercial bodies. To handle the resultant information flows, the concept of the Sea Transport Information System was developed.

Unfortunately, the available information sources use a variety of classifications, geared to their individual needs and frequently based on revenue related considerations. It was recognised that an important means of unifying these information sources was through a series of common classifications, and an early decision was made to adopt existing national and international standards and classifications where possible, e.g. for port codes and trade area classifications. One area in which it was judged that an appropriate classification did not exist was commodity, since the standard classifications were too detailed and had not been compiled with a view to producing transport statistics.

In addition, as ports represent the interface between land and sea transport, an appropriate commodity classification would need to be equally relevant to both modes. Thus a transport oriented commodity classification was needed to facilitate comparison or aggregation of land, sea and port commodity flows.

With the close co-ordination links which had been established, it was agreed that Transport Australia, in conjunction with ABS, would investigate development of a suitable classification. It was recognised that the ability of the industry to supply the information would vary greatly both within and between modes, but it was considered necessary to ensure that a start was made somewhere, even if the resulting classifications were ahead of their time. The alternative was that when development of extensive new collections did occur, the necessary standards infrastructure would not be available and the opportunity for orderly development would slip by.

DEVELOPMENT OF THE COMMODITY CLASSIFICATION

The objective was to provide a transport oriented hierarchical commodity classification aimed at the mode with the most detailed information need coupled with an expected capacity to supply the data. Other modes could then use either less detailed levels of this classification or aggregations of its basic items. While each of these approaches will be less satisfactory than using the full classification, if this had been practicable, both achieve better comparability than if two disparate classifications were used whose item boundaries bore no resemblance to each other. It was anticipated that over time increasing sophistication in record keeping and management technique would lead to the classification gaining similar acceptance and use by all transport modes.

The new classification was to be keyed to the much larger international and national overseas trade classifications, to be able to exploit the facility to re-code and use the very detailed ABS Overseas Trade Statistics. It was also to take cognisance of industry of origin, that is, the industry in Australia in which a commodity or service would most likely be produced. This emphasis was intended to recognise that the need for freight transport arises from the production and distribution of goods and that many transport analyses need to be put into the context of broader economic analyses which are often performed at an industry level. Similar emphasis on industry of origin is also seen in ABS work on input/output analyses, and on development of an Australian Standard Commodity Classification (ASCC).

Linking with the overseas trade commodity classifications and taking into account industry of origin required much detailed work, for which ABS and Transport Australia did not have sufficient resources if the new classifications were to be available for the early stages of the Department's Sea Transport Information System. Its Sea Transport Policy Division therefore commissioned a consultant, Mr R.G. Walker, a former New South Wales ABS Deputy Commonwealth Statistician, to undertake this work guided by a steering group chaired by Mr I. Williams of Transport Australia and included the authors and other Departmental and ABS officers, and a representative of the Australian Association of Port and Marine Authorities, Mr J. Hayes from the Maritime Services Board of New South Wales.

The draft Transport Freight Commodity Classification (TFCC) which resulted from this collaboration, was successfully linked with the Standard International Trade Classification (SITC) the Australian Import and Export Commodity Classification (AICC and AECC), and the Australian Standard Industrial Classification (ASIC) and included an example of how the classification might be adapted to suit a particular application. The draft TFCC was distributed for comment through the Transport Australia government/industry consultative system, and by ABS through its State Statistical Co-ordination Councils to other areas of State Government. Comments received were studied, and for the most part accepted.

At that stage ABS advised that it was prepared to adopt TFCC as an Australian national standard. It thus acquired the prefix Australian and became ATFCC. ABS then proceeded to reformat ATFCC according to standard ABS classification practices for printing as a manual for general distribution.

DEVELOPMENT OF THE PACK CLASSIFICATION

While development of ATFCC was undertaken first, it was recognised that transport operators, economists and policy makers are often as interested in the form in which goods are presented for transport, as what commodities are being transported. For some purposes commodity is irrelevant and often it is unknown. Many suggestions made for improving the commodity classification had involved incorporating pack concepts, however it was decided that the two concepts should be kept separate and suggestions of this type were put aside to await the development of a separate pack classification.

Unlike commodity, for which there were extensive detailed international and national classifications, there was very little similar material available relating to pack. The Conference of European Statisticians has been considering a number of approaches but it is likely to be some time before a recognised world standard emerges. While learning from the European experience it was considered that Australia could make a clean start. ABS agreed to include a pack classification in the ATFCC manual on an interim basis pending the emergence of a world standard and the possible consequent need to amend or replace the interim Australian national standard.

Work then commenced on the new classification, to be known as the interim Australian Pack Classification (APC). Again the draft classification was exposed to external comment before development was finalised and again most comments were accepted. This time the comments made generated significant rethinking and the final interim APC differed significantly from the draft in appearance.

UPDATING THE CLASSIFICATIONS

ABS is the agency responsible for the creation, adaptation or adoption of Australian national standard statistical classifications, their distribution and maintenance. This includes both the ATFCC and the interim APC. Transport Australia and other users will be consulted by ABS when changes are necessary.

Because the national overseas trade commodity classifications (AICC and AECC) are updated annually, the linkages to ATFCC will also need to be updated annually. Although this will also provide an annual opportunity for updating ATFCC and the interim APC, it is not expected that the basic structure of these classifications will change as frequently. While the initial version of ATFCC is expected to be published in bound form and become available by the end of 1981, a second version will be made available to regular users in about July 1982 in the form of a loose leaf binder to which replacement pages for both classifications can be added in succeeding years.

Apart from amendments resulting from changes to the AICC and AECC, it is intended to review the classifications within a few years. It can be expected that any new classification will have anomolies and other problems that will need to be found and corrected after users have had experience in using the classifications. Some of this experience will come from collections run by ABS and Transport Australia. Other experience is likely to come from railway and port authorities, both of which are actively considering the use of ATFCC in aspects of their work.

CONCLUSION

There are good reasons for attention being paid to the development and use of statistical standards in transport statistics as a way of improving the comparability and thereby usefulness of current and future transport statistical data. While the development and implementation of standards is a slow process, it is considered that such attention is an important investment for transport statistics.

Many transport authorities maintain statistical and other data collections compiled in accordance with their own separate or combined commodity and pack classifications. Ihus it may not be practicable for some authorities to adopt the new classifications quickly, except where new collection or analysis systems or major modifications are being implemented. At the national level, it is expected that the integrated statistics based on ATFCC and the interim APC will be developed fairly rapidly consonant with data availability, and that the classifications will also find their way into a wide range of transport data recording systems. It is anticipated that these classifications will make an important contribution to the compatibility and thus the utility of future Australian transport statistics.

REFERENCES

Australian Bureau of Statistics. (1978). A Framework for Transport Statistics : An Introductory Paper for Discussion (Unpublished)

Australian Bureau of Statistics. (1979). Australian Standard Industrial Classification, 1978 Edition. Volumes 1 and 2 (Catalogue No. 1201.0)

Australian Bureau of Statistics. (1980). Australian Standard Commodity Classification, 1977-78. Parts 1 and 2 (Catalogue No. 1207.0)

Australian Bureau of Statistics. (1980). Australian Export Commodity Classification, 1980-81. (Catalogue No. 1203.0)

Australian Bureau of Statistics. (1981). Australian Import Commodity Classification, 1981-82. (Catalogue No. 1204.0)

Australian Bureau of Statistics. Australian Iransport Freight Commodity Classification and the Australian Pack Classification (Not yet published)

Commonwealth Department of Transport. (1979). Draft Transport Freight Commodity Classification (TFCC)

United Nations Statistical Office. (1975). Standard International Trade Classification, Revision 2 (Statistical Papers Series M No. 34, Revision 2)