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Economic Statistics including the Economic Census and Business Register in Malaysia

by
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Abstract

Economic statistics play a significant role in enabling policy planners to draw up plans to chart the country's development process while at the same time such statistics are capable of monitoring and evaluating the targets outlined. The collection of economic statistics in Malaysia, either through surveys or censuses, dated as far back as 1950's. Economic censuses, which are conducted at regular intervals of every five years covering a wide spectrum of industries, provide data for benchmarks of basic economic statistics, I-O Tables and rebase for Index of Industrial Production, Producer Price Index and Gross Domestic Product. The concepts and definitions adhere to international classifications and standards such as ISIC Rev. 4, SNA 1993, to enable comparability of data, either internationally or regionally. The Central Register System (CRS) in Malaysia was established in the early 1990's to centralize the registers which had been maintained separately in accordance with the needs of individual surveys. The dynamic updating and maintenance work undertaken on CRS based on results of economic censuses and regular surveys, information obtained through the branch offices of Department of Statistics, Malaysia (DOSM) and regular access to administrative records of statutory bodies and other government agencies will be elaborated. This paper also reviews the measures identified under DOSM's strengthening plans in using administrative data in the survey approach as well as challenges of an updated of business register.

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1. Introduction

Economic statistics pivotal role in providing key data for policy formulation and national economic and social development of a country is very much sought after. Policy makers, planners, economists, academicians and researchers at large actively seek these statistics, with increased demand for timeliness and diversity of such statistics. In Malaysia, the collection of economic statistics, either through surveys or censuses, dates as far back as 1950's. Data from the surveys or censuses provide national key data for the compilation of the Gross Domestic Product (GDP), productivity measures and other indicators of economic performance as well as in the formulation and execution of the various Malaysia Plans.

2. Economic statistics in Malaysia

The Department of Statistics, Malaysia (DOSM) is the premier government agency under the Prime Minister's office entrusted with the responsibility to collect, interpret and disseminate statistics for the purpose of monitoring national economic performance and social development of the country. DOSM was established in 1949 under the Statistics Ordinance 1949 and was then known as Bureau of Statistics. The statistics produced then was limited to external trade and estate agriculture.

In 1965, the name was changed to the Department of Statistics, Malaysia and it operated under the provisions of the Statistics Act 1965 (Revised-1989). The Department's functions and roles have expanded since then whereby data/information collected included the economy and social domain. To operationalize the work, branch offices was set up in all states to decentralize and further strengthen data collection activities.

The area of economic statistics was further expanded with theconduct of DOSM's first manufacturing census in 1959. From the period 1959 to 2005 (reference years), DOSM undertook eight censuses. Subsequent censuses were carried out in 1963, 1968, 1973, 1981, 1988, 1993, 2000 and 2005. The coverage was extended to include the agriculture, mining, quarrying, construction and services sectors. The conduct of the censuses is in line with international recommendations that the national economic census should be undertaken at regular intervals of time (five years) in order to establish sound benchmarks of basic economic statistics. Besides collecting information on establishments in terms of their economic activities, structure and contribution to the respective industry, the results of the census will also establish and supplement the business register and database system. The results from the Economic Census serve basically as benchmark data to the rebases of the Index of Industrial Production and Producer Price Index as well as provide data for the rebase of GDP and Input-Output tables. In addition, the economic census provides official measures of output

for industries and geographic areas, and serves as the cornerstone of the nation's economic statistics.

While the economic surveys/censuses collect data on the operating characteristics of the different economic activities as well as providing inputs to the compilation of GDP, the monthly and quarterly economic surveys aim to provide short-term measures of the economic performance of Malaysia. Among others, these include the Monthly Manufacturing Survey which is used for the compilation of Index of Industrial Production and selected manufacturing statistics; Quarterly Survey of Construction Industries with the indicator Value of work done for the quarterly GDP; Quarterly National Accounts Survey on selected sectors and establishments; Quarterly Distributive Trades Survey; Monthly Survey of Producer Prices and the Quarterly Joint Survey on International Investment Position which is undertaken in collaboration with the Central Bank of Malaysia (CBM) since the first quarter of 2008; Quarterly Survey of International Trade in Services (Transportation) and the Quarterly Survey of Non-Licensed Labuan Offshore Entity.

Apart from the above, the other economic statistics compiled by DOSM include the monthly merchandise trade statistics, price statistics such as the monthly Consumer Price Index and Producer Price Indices and the monthly Leading, Lagging and Coincident Indices.

The topics below describe the salient points of the economic census/surveys undertaken by DOSM:

2.1 Scope and Coverage

DOSM conducted the latest economic census for reference year 2005 in 2006. Economic activities covered in the census included agriculture; industrial sector of mining as well as petroleum mining and quarrying, manufacturing; construction; service activities of education, health, professionals, transport, telecommunications, related computer activities, restaurants, consultancy and business services, etc. In comparison with the annual/biennial surveys, the coverage of the sectors/industries in the census is more exhaustive with an increase in the number of establishments surveyed. It should also be noted that some industries in the services sector are conducted as annual censuses. DOSM conducts some 42 regular surveys annually/quarterly/monthly to compile statistics pertaining to economic activities.

2.2 Classification of activities

The classification of economic activities follows the International Recommendations of Economic Activities (ISIC) of the United Nations. The first Malaysia Industrial Classification (MIC) was prepared in 1967 and this was subsequently revised over the

years to take into account the revisions to ISIC. Currently, DOSM has updated the Malaysia Standard Industrial Classification (MSIC) 2008 version 1.0 in line with ISIC Rev. 4. In the classification of products by activity, the Malaysia Classification of Products by Activity based on the Central Product Classification (CPC) version 1.0 are currently being used.

2.3 Questionnaire content

In 1975, a standard questionnaire for the annual economic surveys/census known as the Common Questionnaire (CQ) was introduced. This replaces the standard questionnaire of the individual surveys with the aim of reducing processing time. The content of the CQ consisted of two parts: Part A which covered topics such as the operating characteristics of the establishments such as legal status, ownership, employment and compensation of employees, capital expenditure, commencement of business activity while Part B focused on topics which are survey specific. The CQ was further enhanced for the Economic Census of 2000 to take into account new data needs as well as to be more user friendly.

2.4 Data collection and processing

Economic surveys/censuses are basically conducted through mail and respondents are requested to furnish the completed questionnaire within the stipulated time. Field officers assist the respondents in the completion of the questionnaire where applicable in order to speed up the response rate, either through the telephone or field visits. To ensure quality of data, manual as well as computerized procedures on editing and coding have been put in place through validation checks for completeness and consistency. As a follow-up to the successful adoption of the Intelligent Character Recognition (ICR) technology which was first introduced in the Census of Establishments and Enterprises 2005 (conducted primarily to collect statistics on Small and Medium Enterprises (SMEs)), this processing system has been continued for the Economic Census of 2006 and thereafter. With this procedure, automated forms processing shorten the processing time and in the process, eliminate conventional data entry.

2.5 Business registers

DOSM maintains a Central Register System (CRS) of a profile of active business establishments and enterprises which is used as a sampling frame for establishment surveys (economic surveys). The development of the establishment frame was initiated in 1988 as an outcome of a study made by a Special Committee

which looked into the possibility of establishing a unified frame for the economic surveys/censuses. Thus the establishment of a system of unique reference numbers was evolved. This was designed under a PC based system and was subsequently ungraded into a Local Area Network (LAN) Environment. Further enhancements were made in 2002 with the conversion into the Wide Area Network (WAN) Environment as well as incorporate the additional needs of users, the requirement for new survey frames and the expansion of the updated industrial codes.

The statistical unit adopted for the economic surveys/censuses is the establishment. According the United Nation's ISIC, an establishment is defined as an "economic unit which engages, under a single ownership or control, in one or predominantly one kind of economic activity at a single physical location". As mentioned earlier, the principles of classification of economic activities follows the MSIC which are regularly reviewed to take cognizant of the changes in the economic structure and to ensure international comparability of data.

In Malaysia, all businesses and companies are required to register with the Companies Commission of Malaysia (CCM) except professionals, institutional and government agencies. The main data contributor to the CRS is the CCM. Other data contributors include the Employees Provident Fund (EPF), Construction Industry Development Board (CIDB), other government agencies, statutory bodies, professional associations, internet, newspapers, administrative records and current survey data of DOSM. The CRS contains information relating to individual establishments or enterprises such as name, business location, correspondence address, type of business activity, number of employees, revenue, date of commencement, date of business registration and organization type.

Currently, the CRS has about 1.9 million records of establishments. Incidentally, not all establishments in the database are active nor that they can be traced. As such there are several problems and issues pertaining to the application of the existing CRS for sampling purposes have been identified. These include inaccuracy in the databases as a result of frequent changes in the characteristics of the establishments; low response rate due to non-existent respondents or wrong addresses, data obtained from the Other Government Agencies (OGAs) do not contain updated contact information of respondents, and data collection, processing and dissemination (involving extensive manual intervention) are time and resource consuming, more so when the sample sizes are excessively large.

Respondents selected for coverage in the economic census or surveys are registered establishments involved in specific sectors. In preparing the sampling units for the annual surveys, the Department of Statistics selects samples of establishments from the CRS depending on the accuracy required of the survey and the sampling methodology employed. In the annual manufacturing survey, a single stage stratified sampling using the variable sales value is utilized while for the biennal construction survey, cut-offs based on the value of work done is adopted. Surveys in the services sector use the variable revenue where applicable. In order to maintain the efficacy and accuracy of the sampled units, DOSM regularly update the establishment records in the CRS using information obtained from various sources.

2.6 Dissemination of survey/census results

The results of the economic census/surveys were released eighteen months after the reference period. As for the monthly and quarterly surveys and external trade data, these are released within the quarter/month after the survey reference quarter/month. Press releases and reports and publications as well as DOSM's website are the main channels of data dissemination.

3. Use of administrative data for supplementing or replacing the census or surveys

Data from statistical surveys continue to play a leading role in business statistics systems almost everywhere but increasingly, using administrative sources are growing in number and scale. This is particularly true as administrative sources contain statistics that are likely to be beyond the capabilities of statistical surveys alone.

Administrative data is used as a direct statistical source in business surveys and economic censuses by replacing survey data, thus reducing costs and response burden. The advantages of using administrative data relative to survey data are that it is invariably cheaper for DOSM to acquire data from the administrative source rather than to conduct a survey. Administrative sources, in addition, provide complete coverage of the population and generally have high response rates. The constraints, however, in using such data hinge on the fact that the administrative processes are not under the statistical office control, thus limiting the data coverage, content, quality and consistency. Thus, administrative data alone are not sufficient to meet all the needs of the basic programme. As such, they must be supplemented by statistical surveys i.e. direct collections by the statistical office data for statistical purposes.

DOSM has embarked into the possibility of obtaining data directly from relevant administrative sources to update CRS. The basis of identifying the Other Government Agencies (OGA) and the type and size of records, regularity of updating, system that generate the data, process involved in manipulating the data and the ICT infrastructure have commenced. Table 1 below denotes eleven OGAs that have been identified together with the information that can be sourced.

Table 1: OGAs Targeted as Sources for Administrative Data

OGA	Frequency of Update (No. Times/year)	Data Elements	Records available
Companies Commission of Malaysia (CCM)	1	1, 2, 3	1.5 million
Employees Provident Fund (EPF)	1-3	1, 2, 3, 4, 5, 6, 7	1 million
Social Security Organization (SOCSO)	1-2	1, 2, 4, 7	5 million
Federal Land Development Authority (FELDA)	3	1, 3, 4, 5	130,000
Department of Fisheries	2	1, 4, 6	30,000
Subang Jaya Town Council	1-2	1, 2, 3	56,606
National Tobacco Board	1-2	1, 3, 4, 5, 6, 7, 8, 9	11,700
Black Pepper Marketing Board	1-2	1, 2, 8, 9	16,650
Malaysian Timber Board (MTIB)	1-2	1, 2, 3, 4, 5, 6, 7, 8, 9	36,000
Agricultural Bank of Malaysia	1-2	1, 3, 4, 5, 6, 7, 8, 9	10 million
Inland Revenue Board (IRB)	1	5, 7	

Note :
1 – Address 2 – Contact Information 3 – Business Activity 4 – No. of Employees 5 – Gross Income,
6 – Total Output 7 – Total Wages 8 – Total Export 9 – Capital Expenditure

Tax records obtained from the Inland Revenue Board (IRB) can be used to determine the revenues and expenses of businesses, thus eliminating the need to canvass such information through the statistical surveys. Compilation of GDP using the income approach can be facilitated through the tax records, thus reducing respondent burden and the need to fill up another set of survey data. Information from the Employees Provident Fund (EPF) can be used to obtain information on number of people employed as well as jobs in the businesses through the monthly remittances by the companies. Discussions with IRD and EPF are underway in the context of data sharing; however, issues such as type of data accessibility, confidentiality and frequency need to be smoothed out. Currently, aggregate data on salaries & wages, business tithes, interest and dividends, donations and income tax paid are obtained. However, breakdowns by detailed classification have to be pursued further. For the other OGA's, exploratory discussions are on-going.

It is worthwhile to mention that DOSM and the Central Bank of Malaysia (CBM) are cooperating actively in the collection of Balance of Payments statistics. While DOSM is tasked to provide an updated frame for the survey, CBM's role is to operationalise the survey. This cooperation will be extended to other areas of data collection.

4. Barriers to overcome

4.1 Quality issues

An important determinant of how a particular administrative source will be used is the perceived quality of the administrative records compared to corresponding survey information. The quality of the administrative records has to be assessed as follows:

i. the definitions used
ii. the intended coverage
iii. the quality with which data are reported and processed

There are both inherent and operational issues of quality associated with the use of administrative data as basis for official statistics, with respect to coverage, timeliness, frequency, validity, reliability and consistency.

4.2 Frequency

Statistics produced from administrative registrations will depend upon the type of reporting and registration procedures which are being followed by the responsible agency and method its records are stored. Once recorded, the frequency whereby statistics can be produced will depend on the cost of processing the records to statistical tables, whether through manual procedures or the use of computers.

4.3 Validity

Administrative collected may be rather different from those variables and categories which are most valid for statistical description and analysis.

4.4 Reliability and consistency

This will depend on the incentives for respondents to give correct (or incorrect) information. The reliability of the data will then depend on the probability of errors being discovered and the costs to the respondent. Are the OGA's equipped into checking the reliability and consistency of data with the huge volume received on a regular basis? Consistency will have to be evaluated both in space and in time. Such rules will influence

who should report, what should be reported and how the reporting should be done, and changes to them have sometimes resulted in the complete disappearance of the basis for important statistical series.

4.5 Legislations

Most of the OGA's are governed by their own legislations which might hinder the process of data sharing. They have the responsibility to make sacrosanct the data they received from the clients in much the same way that DOSM is governed by the Statistics Act 1965 (updated 1969) which governs the confidentiality of data received.

5. Harmonization with international statistical standards

Changes in the economic and social structure of a country imply a continuous revision of existing terminology and classifications used to record already existing data into new formats. The harmonization of existing statistical classifications requires a process of reconciliation of different classifications and statistical standards into a common framework.

Malaysia's data collection strategies and methodologies have adhered to the recommendations of international statistical standards. Statistical classification standards of the United Nations and other international bodies such as ISIC Rev. 4, CPC Rev. 1.1, SNA 1993, International Recommendations for Industrial Statistics (IRIS) 2008, Balance of Payments Manual Fifth Edition and International Merchandise Trade Statistics: Concepts and Definitions (IMTS), Rev. 2 1998 are applied in surveys/censuses/data compilation so as to ensure (i) unification and comparability of data, (ii) harmonized definitions adopted, (iii) appropriate data sources used. At the regional levels, comparability among countries in ASEAN and East Asia are also promulgated.

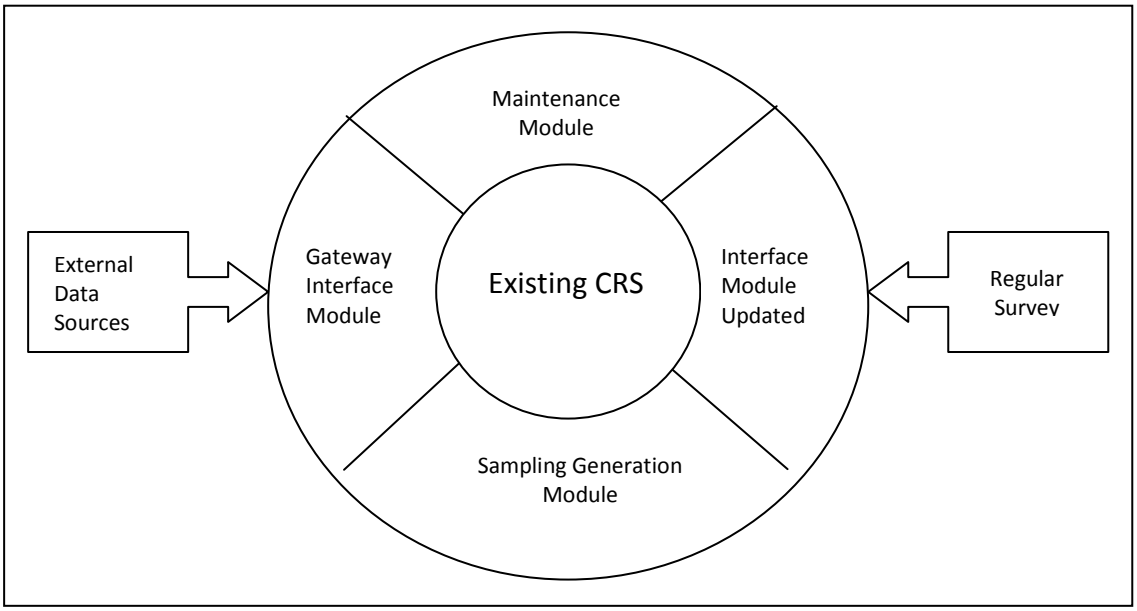
The MSIC 2000 has recently been revised to be consistent with ISIC Rev. 4 until the fourth digit and the new MSIC 2008 Rev. 1.0 is ready for implementation. The revisions and updates to any codes and classifications are done with consultations and discussions with relevant OGA's to take cognizance of local conditions as well as the needs of these agencies. The aim of such consultations was to seek uniformity in the application of such codes and classifications in the country so as to enable meaningful comparisons of data. An Inter-Agency Technical Committee (IATC) chaired by the Chief Statistician of Malaysia has been set up with relevant OGA's as its members. The IATC meets every quarter to discuss issues as well as to seek endorsement of the codes and its implementation.

6. Challenges for DOSM

6.1 Enhancement of the current CRS

With two decades of economic changes taking place at a fast pace where the CRS has been the cornerstone of Malaysia's economic surveys coupled with a processing environment that has naturally aged, the time has come to upgrade the system. The proposed upgraded system consists of four components namely, the Gateway Interface Module, the Sampling Generation Module, the Update Interface Module and the Maintenance Module. There are two entities that form the basis for updating the frame databases namely, the Regular Survey and External Data Sources. The detailed components of the upgraded CRS are shown in Figure 1.

Figure 1: System Architecture of the Upgraded CRS



The following four modules need to be developed to support the enhanced CRS:

a. The Maintenance Module serves as an application to provide support and feedback to the Methodology Division who is responsible in managing the database. The database of the Upgraded CRS system will be centrally managed using a Database Management System (DBMS) in a server that is housed at DOSM headquarters.

b. Gateway Interface Module

   A gateway interface module will allow the database to be automatically updated with data from OGAs. An updating

system will be programmed to perform systematic update according to a specified schedule. With the mechanism installed, the process of updating will be automated and this will significantly reduce the need for updating through fieldwork. A detailed study of the system will be carried out in order to develop interfacing system for tapping data from OGAs.

c. Sampling Generation Module

This module provides the decision support system for frame users to obtain samples from the system with minimal professional assistance. This will reduce the dependency of the users on professional inputs. The module also includes a modeling feature, so that users will be able to simulate various options of sampling methods and to arrive at an optimal sample size that fits their requirements.

d. Update Interface Module

In addition to tapping administrative data from the relevant OGAs, DOSM also uses relevant data from the internal surveys to update the CRS. Among the internal surveys that have been used for updating CRS include the Economic Census 2006, annual surveys/censuses. It is suggested that the updating process be automated to increase efficiency. This module is proposed to include all the surveys and their relevant data fields in the updating process.

6.2 Integrated Economic Statistics

Availability of a good business register is a prerequisite to ensure the successful implementation of an integrated approach to the compilation of economic statistics. Here, it includes the evolvement of an integrated system and processes and the related infrastructure. This is more pertinent when data collection strategies are being reviewed not only basing on economy-wide surveys but also the use of administrative data.

Increasing demand for more timely statistics from the stakeholders and reducing respondent burden has led DOSM to review its questionnaire content of the economic surveys so as to stay relevant to the needs of the national accountants and the policy makers. At the same time, mapping of economic concepts to accounting concepts and the relationship to questions in the survey form will be formulated during this exercise. Discussions and consultations with the private sector at large will be instituted. Preliminary responses from the establishments have indicated their willingness to place their data on a central portal for the use of the different agencies, thereby eradicating the need for reporting of duplication of same

data items and the personnel involved in the extraction of data.

New technologies of scanning and technology advancement mean that data collection strategies have to be reviewed. E-surveys such as the Survey of International Trade in Services (ITS) and the Monthly Manufacturing Survey are being put in place involving automated approaches to data collection and validation and ultimately data generation.

7. Conclusion

The systems of economic surveys/censuses supplemented by other areas of economic statistics such as data on external trade, balance of payments, national accounts and price statistics has enabled DOSM to meet the needs of the government and the business community. However, data needs do not stay static; the diversity of users' needs keeps on increasing and timelines in the production of statistical data are becoming shorter.

The approach in using administrative records to complement data obtained from surveys/censuses has been actively pursued by DOSM. Currently it has entered into signing of Memorandum of Understanding (MoU) with a few OGAs to ensure a guarantee of regular access to the administrative records to avoid interruptions in the supply of such data. Nonetheless, it is important to evaluate the major aspects of administrative records relating to quality, coverage, and definition of concepts, methodologies, classifications and the variables investigated, among other things, before adopting them as a source for keeping the statistical register up-to-date and also as a means of data sharing.

Thus for a statistical organisation to stay relevant, an integrated and wholesome approach in statistical data collection has to be adopted. DOSM has been responsive to the challenges that lie ahead and the needs of the government and OGA's through implementation of DOSM's Strengthening Plans which commenced in June 2006. As part of these Strengthening Plans, DOSM will actively pursue the integration of an economic statistics data base and the increasing use of administrative data to reduce respondent fatigue as well as maintaining good communication channels with its users. To maintain close rapport with the government, users and the business community, various technical committees have been established with specific functions. This is supplemented with interactive sessions with the respondents and industry organizations. Last but not least, close interaction and communication with international statistical organizations are vital for maintaining international data comparability.

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