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ECONOMIC STATISTICS AND INFORMATION
CONCERNING THE JAPANESE AUTO INDUSTRY

INTERIM REPORT

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16. Abstract <p>This document is an interim report, with preliminary results of a study to identify and collect economic statistics concerning the Japanese auto industry. The report describes the major statistical collection system pertaining to the auto industry. It identifies the location and availability of this material.</p>			
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PREFACE

This document is an interim report for a study concerning the "Economic Statistics and Information Concerning the Japanese Auto Industry." The study is being conducted by The University of Michigan's Highway Safety Research Institute in association with The University's Center for Japanese Studies, and selected consultants. The study sponsor is the Transportation Systems Center of the U. S. Department of Transportation.

Since 1967 Japan has been the second largest producer of motor vehicles in the world. During the 15-year period from 1961 to 1976 inclusive, Japanese motor vehicle production increased 963 percent, a compounded annual growth rate of 16.3 percent. (By comparison, U. S. production during the same period increased 172 percent for an annual compounded growth rate of only 3.7 percent.) In 1976 Japan produced 7.8 million vehicles, which was nearly 70 percent of U. S. production in the same year.

In its motor vehicle exports Japan has advanced more rapidly than any other country in the world. It moved into sixth place in 1959; fifth place in 1963; fourth place in 1965; third place in 1968; second place in 1971; and first place in 1974. It has held that position since, and is continuing to increase its relative share. In the United States, three Japanese firms are among the top four importers. And, the Japanese products are generally considered as among the best designed and attractively priced vehicles available in the United States.

Because of the increasing importance of the Japanese-produced vehicle in the United States, there has been a need to more carefully evaluate "...the impact of the U.S. fuel economy, safety, and emissions control regulations on the Japanese companies and to provide a data base for comparing the performance of the U.S. automobile industry with the Japanese automobile industry..."*

There is generally available in the United States, and to U.S. government officials, information on the Japanese auto industry. However, much additional information exists only in Japan and in the Japanese language. This is especially true of detailed statistical information on capital investment and research and development in the industry. Also, the American policy makers do not have the benefit of much information that is found in the Japanese trade press and other local sources within Japan. And, it is important that these policy makers be aware of the current sentiment within Japan towards that nation's automobile industry. Such information is important in the continuing evaluation of the U.S. government's policy decisions that impact Japan's auto industry.

*RFP TSC/322-0014-GTF, Statement of Work.

Information sought by this study is long overdue. The penetration into the U.S. of the Japanese passenger automobile requires more reliable and detailed information on Japan's automobile industry. Because of the unique peculiarities of the Japanese language, and the shortage of persons within the United States having a working knowledge of Japanese, it is a necessity that unusual steps be taken to collect the necessary information. This has been done by organizing a team of Japanese-speaking specialists with a background and understanding of the automobile industry. They are identifying Japanese statistical data sources, collecting the information, and presenting it in useable form. This interim report presents the preliminary results of this effort.

The study was divided into four task objectives:

Task 1--Locate Statistics. This task involves the identification of Japanese agencies that receive statistical data on the automobile industry; a determination of the rules and laws governing public accessibility of the data; the identification of when, where, and how the data is published; the identification of private sources of business statistics; and a comparison of reports published in Japanese with those made available in English.

Task 2--Determination of Research and Development and Capital Investment Procedures. First, known statistics relating to research and development expenditures by the Japanese auto industry are collected; the same detailed analysis will then be made on capital investment by the Japanese auto industry.

Task 3--Identification of Governmental Incentives. In this task, the assignments were to identify tax advantages and incentives given to industry and to identify research and development projects financed by government.

Task 4--Survey Japanese Economic and Business Literature. This task involves a survey of Japanese literature to locate forecasts of auto demand and prediction capacity changes; there will then be an evaluation of the forecasts for reliability and techniques utilized; and, finally, there will be interviews with Japanese economists and industrial consultants relative to the forecasts.

In the accomplishment of the study objectives the project was divided into three separate phases:

Phase I--Initial Literature Research. The literature search has involved an examination of the reference bibliography cards at The University of Michigan Japanese language library. Significant data has been extracted and filed for compilation into the final reports.

Phase II--Field Investigation in Japan. This phase has included the contacting of governmental agencies and private organizations in Japan for information pertinent to the study. Appendix A shows the organizations that were believed to be the major sources for each task category, and who have been contacted.

Phase III--Documentation Development and Presentation. The final phase is the documentation development and presentation. There are two major reports: the interim report, which is this document, and the final report.

The purpose of this report is to provide a mid-study presentation of the project findings. Since Task I (location of the pertinent statistics) will have been completed, the document contains data related to this task in almost final form. Material relating to the other tasks is preliminary and subject to considerable expansion.

The project director for the study is Howard M. Bunch, Research Project Manager, Highway Safety Research Institute. The principal investigator is Professor Gary R. Saxonhouse, Associate Professor of Economics. Professor Saxonhouse has the responsibility for the study's literature search and field investigations. He has, accordingly, been responsible for the development and presentation of all substantive material in this report. Richard Woodworth, Susumu Saito, and Daniel Citrin have all made substantial contributions to the preparation of this report.

CONTENTS

PREFACE	iii
LIST OF TABLES	vii
1. INTRODUCTION TO JAPANESE GOVERNMENT STATISTICAL ORGANIZATION	1
Coordinating Activities	1
Government Agencies Compiling Automobile-Related Statistics.	3
Statistical Work of Local Branch Offices of National Ministries, Prefectural Governments and City, Town, and Village Governments	5
2. LEGISLATION CONCERNING THE GOVERNMENT'S COLLECTION OF STATISTICS	7
Introduction	7
Laws Governing the Procedures of Statistical Activities	7
Classes of Statistical Surveys	7
3. AUTOMOBILE INDUSTRY-RELATED STATISTICS REGULARLY SUBMITTED TO JAPANESE GOVERNMENT	10
Prime Minister's Office, Bureau of Statistics	10
Kagaku gijutsuchō (Science and Technology Agency)	16
Tsushōsangyōshō (Ministry of International Trade and Industry) Daijin kanbo (Minister's Secretariat).	17
Keizai kikakuchō (Economic Planning Agency)	23
Okurashō (Ministry of Finance)	24
Unyushō (Ministry of Transportation)	30
4. PRIVATE SOURCES OF AUTOMOBILE INDUSTRY-RELATED STATISTICS.	38
Nihon jidōsha kōgyō kai jikōkai (Japan Automobile Manufacturers Association)	38
Nihon jidōsha buhin kyokai (Japan Auto Parts Industry Association)	39
Nihon jidōsha kaigishō (Japan Automobile Chamber of Commerce, JACC).	44

TABLES

1.1.	Government Statistical Organizations Collecting Automobile-Related Statistics	2
3.1.	English Translation of Japanese Government Form for 1978 Survey of Research and Development Questionnaire A (For Companies)	11
3.2.	Classification of Auto-Related Items in Japan's Current Production Survey	19
3.3.	Questionnaire Categories, Japan Census of Manufactures	20
3.4.	Auto-Related Classifications Found in Japan's Foreign Trade Statistics	26
3.5.	Information Required to be Annually Submitted by Publically-Held Corporations by Japanese Government	28
3.6.	Automobile Model Classifications Found in Japan Vehicle Registration Data	34
4.1.	Survey Forms Used by Japan Auto Parts Industry Association to Collect Production Data	40
4.2.	Survey Forms Used by Japan Auto Parts Industry Association to Collect Financial Data	41
4.3.	Survey Form Used by Japan Auto Parts Industry Association to Perform Management Analyses	42
4.4.	Environmental Production Agency Survey Form	47

1. INTRODUCTION TO JAPANESE GOVERNMENT STATISTICAL ORGANIZATION¹

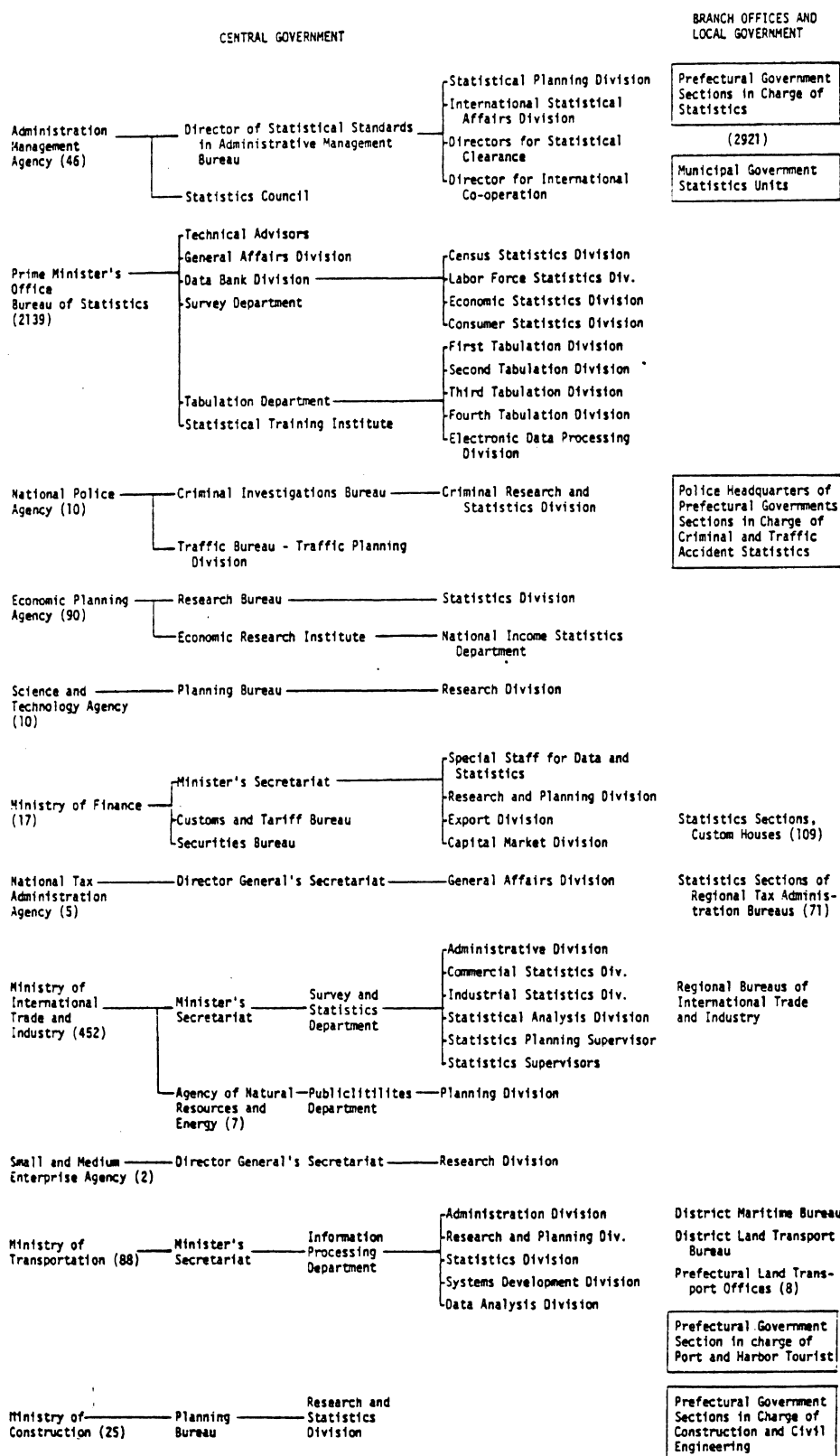
In Japan official statistics collecting and reporting is dispersed among a large number of government units. Virtually all government ministries and agencies, as well as the regional and local governments, have their own statistics organizations. Despite this decentralization, the Japanese government has exerted considerable effort to coordinate these disparate activities. Table 1.1 shows those organizations collecting automobile-related statistics.

a. Coordinating Activities

(1) Gyōsei kanri chō (Administrative Management Agency), Gyōsei kanri kyoku (Administrative Management Bureau). The Administrative Management Agency, an independent government agency, is responsible for the coordination and integration of Japanese statistical services. Legally, this agency has seven specific functions:

- (a) Long-range improvement and development of Japanese statistics and Japan's statistical system.
- (b) Examination and review of all statistics and statistical surveys, coordination of the collection of statistical reports and integration of statistical surveys.
- (c) Establishment of standard classifications and definitions for statistics.
- (d) Development of the system and method of statistical surveys.
- (e) Service as the central point for liaison on international statistical affairs with international organizations and foreign governments and provision of the necessary resources for the Statistical Institute for Asia and the Pacific, ESCAP.
- (f) Initiation and coordination of input-output table compilation.
- (g) Provision of assistance and guidance to heads of local public entities regarding statistical organization, staffing, and financing. The Administrative Management Agency funds personnel expenses for statistical staffs in the prefectural governments.

TABLE 1.1-GOVERNMENT STATISTICAL ORGANIZATIONS COLLECTING AUTOMOBILE-RELATED STATISTICS.



SOURCE: Adapted from Gyosei Kanri-chō, *op cit.* pp. 4-5. () indicates the number of statistical personnel

(2) Tōkei shingikai (Statistics Council). The Statistics Council is an advisory body for the Administrative Management Agency. It investigates and deliberates, at the request of the Director-General of the Administrative Management Agency, issues concerning the examination and clearance of statistical surveys, the establishment of statistical standards, the coordination of statistical surveys and the coordination of statistical reports. Opinions and proposals are sent to the Director-General on this subject. Council members include seven non-governmental statisticians and/or scholars, seven government officials drawn from the various ministerial agencies or local statistical organizations and four individuals representing statistical user interests. The Statistics Council generally meets once a month.

The Council has a considerable number of special committees. Three of these committees have responsibilities which, in part, relate to the collection and reporting of automobile-related statistics. These committees include:

- (a) Kōkōgyō kensetsu tōkeibukai (Mining, Manufacturing and Construction Statistics Committee). This committee advises on issues relating to the collecting and reporting of manufacturing, public utilities and construction statistics.
- (b) Unyu ryūtsu tōkeibukai (Transportation and Distribution Statistics Committee). This committee advises on issues relating to the collecting and reporting of distribution statistics including transport, communication, commerce, foreign trade and price.
- (c) Kigyō tōkeibukai (Incorporated Enterprises Statistics Committee). This committee advises on issues related to the collection, reporting and use of data obtained from incorporated enterprises in Japan.

To accomplish its coordination function, the Administrative Management Agency employs forty-six professional statisticians.²

b. Government Agencies Compiling Automobile-Related Statistics

(1) Sōrifu (Prime Minister's Office), Tōkei kyoku (Bureau of Statistics). The Bureau of Statistics conducts and analyzes the National Population Census. In addition to this primary function, it also conducts periodic surveys such as the Business Establishment Census, the Housing Survey, the Employment Status Survey and the National Price Survey as well as such regular surveys as the Labor Force Survey, the Family Income and Expenditure Survey, the Retail Price

Survey, the Unincorporated Enterprises Survey and the Survey of Research and Development. The Bureau of Statistics also tabulates some of the surveys conducted by other government ministries and agencies. The Bureau employs 2,139 statisticians.

(2) Keizai kikakuchō (Economic Planning Agency), Chōsa kyoku (Survey Bureau), Tōkeika (Statistics Division). The Statistics Division of the Economic Planning Agency's Survey Bureau conducts several statistical surveys, including the Survey on Investment of Incorporated Enterprises. The Keizai kenkyūjō (Economic Research Institute) which is a separate bureau in the EPA compiles Japan's national income statistics and also conducts the National Welfare Survey. The Economic Research Institute also is engaged in fundamental research on national economic structure and business cycles. The Economic Planning Agency employs 90 statisticians.

(3) Ōkurashō (Ministry of Finance), Daijin kambo (Minister's Secretariat), Chōsa kikakuka (Research and Planning Division). The Research and Planning Division of the Minister's Secretariat coordinates the statistical reports produced by the Ministry of Finance. The two main statistical functions performed by this ministry are the conducting of the Survey of Incorporated Enterprises and compilation of international trade statistics. The ministry also receives, under Japan's Securities Markets Law, annual reports from publicly-held enterprises.

The Ministry of Finance employs seventeen professional statisticians. Another 109 are employed in the Statistics Section in the Customs Houses in Japanese ports.

(4) Tsushōsangyōshō (Ministry of International Trade and Industry), Daijin kambo (Minister's Secretariat), Chōsa tokeibu (Research and Statistics Division). The Research and Statistics Section of the Minister's Secretariat conducts statistical surveys on mining, manufacturing and commerce. Some of the major surveys conducted by this ministry are the Census of Manufactures, the Census of Commerce, and the Current Production Survey. MITI also collects commerce and distribution data and has developed a wide variety of indicators of business conditions. In addition, it conducts research on input-output tables. The Ministry of International Trade and Industry employs 452 statisticians.

(5) Unyushō (Ministry of Transportation), Daijin kambo (Minister's Secretariat), Jōhō kanribu (Information Processing Section). The Information Processing Section of the Minister's Secretariat conducts statistical surveys on transport and other matters related to this ministry. The major statistical work of this ministry include the Port and Harbor Survey, Ships and Seamen Survey, Automobile Transport Statistics and Coast-Wise Vessel Transport Statistics. The Ministry of Transportation employs 88 statisticians.

(6) Kensetsushō (Ministry of Construction), Keikaku kyoku (Planning Bureau), Chōsa tōkeika (Survey Statistics Division). The Survey Statistics Division of the Planning Bureau conducts a number of important surveys, including Statistics of Building Works Started, Statistical Survey Construction Works, Survey of Construction Work Orders Received and Statistical Survey of Private Engineering Works Started.

c. Statistical Work of Local Branch Offices of National Ministries, Prefectural Governments and City, Town and Village Governments

(1) Local Branch Offices of National Ministries and Agencies. Many of the national ministries and agencies use their local branch offices to do the field work in connection with many of their surveys. For example, each of the local Customs Houses attached to the Export Division of the Ministry of Finance has a Statistics Section which collects trade data. The Regional Bureaus of International Trade and Industry of the Ministry of International Trade and Industry participate in the Current Production Survey and the District Land Transport Bureaus of the Ministry of Transportation are responsible for Current Production Statistics of Rolling Stock, and Monthly Transport Statistics on Privately-Operated Railways, among other surveys.

(2) Local Governments--Prefecture. The field work for a large number of important national surveys are entrusted to the statistical division or section of Japan's prefectural governments. The Central Government allocates 2921 statisticians to the prefectural governments for this work. Among the surveys whose field work are conducted by these personnel are the National Population Census (for the Bureau of Statistics, Prime Minister's Office), Census of Establishments (for the Bureau of Statistics, Prime Minister's Office), and the Census of Commerce (for the Ministry of International Trade and Industry). Apart from the statistical divisions, other divisions or sections of the prefectural governments carry out the field work for such automobile-related surveys as Automobile Transport Statistics (for the Ministry of Transportation) and Statistical Survey of Construction Works (for the Ministry of Construction).

(3) Local Governments--City, Town, or Village. Governments of cities, towns and villages participate in the field work of such statistical surveys as the National Population Census, the Census of Commerce, the Census of Manufactures, and the Census of Establishments. They also play an important role in the selection, appointment, and guidance of statistical enumerators and in confirming the reliability of surveys for which they have not done the field work. Compared, however, to the statistical sections of the prefectural or central government, the training of the statistical personnel at the sub-prefectural level is relatively weak. Many of the cities, towns and villages do not have special divisions or sections for statistical

surveys and in many of the cities, towns and villages, statistical affairs are dealt with by officials whose main responsibilities lie in other areas.

2. LEGISLATION CONCERNING THE GOVERNMENT'S COLLECTION OF STATISTICS

a. Introduction

Legislation concerning the Government's collection of statistics includes:

- (1) Statistical Organization Laws delineating the character and powers of statistical organizations (for example, the Law Establishing the Administrative Management Agency and the Law Establishing the Prime Minister's Office).
- (2) Laws governing the procedures of statistical activities (for example, the Statistics Law, the Statistical Reports Coordination Law and the prefectural by-laws concerning statistical surveys).
- (3) Substantive laws concerning the conduct of individual surveys (for example, regulations on designated statistical surveys of central government ministries and regulations on the statistical surveys of local governments).

b. Laws Governing the Procedures of Statistical Activities

(1) Statistics Law. The Statistics Law (Law No. 18 of 1947) which took effect in May, 1947 aims at "securing the truthfulness of statistics, eliminating the duplication of statistical surveys, consolidating the system of statistics and planning to improve and develop the statistical system." The law stipulates systems of Designated Statistics and Notified Statistics.

(2) Statistics Reports Coordination Law. The Statistics Reports Coordination Law (Law No. 148 of 1952) took effect in August 1952 with the aim "to relieve the burden imposed in connection with making statistical reports and to contribute to the increase in the efficiency of survey administration." This law stipulates that the Director-General of the Administrative Management Agency shall coordinate the collection of statistical reports. An additional class of statistical reports, "Approved Statistics," are created by this legislation.

c. Classes of Statistical Surveys

(1) Designated Statistics. Designated statistics are those statistics whose collection has been initiated by the central government or local governments and which have "designated and notified to the public" by the Director-General of the Administrative Management Agency. Only statistics which are essential for policy-making are classified under this heading.

(a) Approval of Designated Statistical Surveys. The surveys conducted to compile Designated Statistics are called Designated Statistical Surveys. The agency which is going to conduct a Designated Statistical Survey submits the survey plan for approval to the Director-General of the Administrative Management Agency.

(b) Obligation to Report. The agency which conducts a Designated Statistical Survey may impose the obligation to report on the responding person or juridical person. Penal regulations including imprisonment are provided for the non-observance of this obligation. Only Designated Statistical Surveys can impose such obligations.

(c) Confidentiality. While the obligation to respond is imposed on the respondents, the confidentiality of the response is strictly protected. If the personnel who are engaged in the statistical survey reveal the confidential responses they are liable to punishment.

The questionnaire forms collected for the purpose of compiling Designated Statistics should not be used for purposes other than those of a statistical nature which are described in Article 15 of the Statistics Law. It should be noted, however, that much of the information obtained as a result of Designated Statistical Surveys, while administratively most important, may be tabulated by area and classification in ways which are often unhelpful for any but the original purpose for which the survey was conceived. In order to promote administrative efficiency and decrease the burden of respondents, it was considered desirable to open a way for making use of the questionnaires for other than their original purpose. To this end, Item 2, Article 15 of the Statistics Law provides that completed questionnaires can be used for other purposes with the approval of the Director-General of the Administrative Management Agency and provided that public announcement of these new purposes is made.

(d) Publication of Survey Results. Unless the Director-General of the Administrative Management Agency grants an exception, the results of Designated Statistical Surveys should be published as quickly as possible. Prior to and during the World War II, statistics which showed the actual situation in Japan were generally kept secret and not made public. In reaction to this practice, the Statistics Law contains this explicit provision. Survey results are published either in Japan's Official Register or in other publications readily available to the public. In order to encourage wider use of survey results at an earlier stage, the possibility of releasing magnetic tapes of survey results is currently under discussion.

(2) Notified Statistics. In cases where the central government, the three largest public corporations, prefectural governments, city governments, the Bank of Japan, and the Chamber of Commerce and Industry of Japan wish to conduct statistical surveys other than those for Designated Statistics and Approved Statistics Reports, they must first notify the Director-General of the Administrative Management Agency (Article 8, Statistics Law, Article 2, Cabinet Order relating to Statistical Survey Notification Requirement). Note that both the Bank of Japan and the Chamber of Commerce and Industry of Japan are also under the application of this Cabinet order. This is because the statistical surveys conducted by these two entities are in size and importance comparable to central government activities. It is not normally the intention, however, of the central government to intervene or control statistics collected by private groups.

For the most part, statistical surveys conducted by the administrative organs of the central government are under the application of the Statistical Reports Coordination Law and the statistical surveys approved by the Director-General of the Administrative Management Agency are exempt from notification. Notification of 134 surveys was made during calendar year 1976.

When necessary, the Director-General of the Administrative Management Agency may request the surveying agency to suspend or change a Notified Statistical Survey.

(3) Approved Statistical Reports. The Statistical Reports Coordination Law stipulates that national administrative organs should obtain prior approval of the Director-General of the Administrative Management Agency when they collect statistical reports from ten or more persons or juridical persons (Article 4, the Statistical Reports Coordination Law). During 1976, 547 statistical reports were approved. A total of 10,985 reports have been approved since the law first went into effect in 1952.

3. AUTOMOBILE INDUSTRY-RELATED STATISTICS REGULARLY SUBMITTED TO JAPANESE GOVERNMENT

a. Prime Minister's Office, Bureau of Statistics

The Bureau of Statistics of the Prime Minister's Office conducts Kagaku gijutsu kenkyū chōsa (Survey of Research and Development).³ Under the Statistics Law this survey is Designated Statistics No. 61. As with all such surveys, a special ordinance was promulgated (Prime Minister's Ordinance No. 38), specifying the coverage, survey data, subject of survey, kind of survey, survey items, obligation of reporting results, personnel to be engaged in the survey, and the further use and maintenance of questionnaires.

The survey is conducted April 1st of each year for the settlement period nearest to that date. Among many other companies, the survey covered all the Japanese automobile and truck assemblers. It also surveys all auto parts manufacturers with a capitalization of over ¥ 3 million reporting research and development in the two most recent surveys. For other auto parts companies the survey uses stratified sampling procedures. All auto parts companies with a capitalization of over ¥ 100 million are sampled. In addition, a 14 percent sample is taken of auto parts companies with capitalization between ¥ 30 million and ¥ 100 million; a 7 percent sample is taken of auto parts companies with capitalization between ¥ 100 million and ¥ 30 million; and a 1 percent sample is taken of auto parts companies having a capitalization between ¥ 3 million and ¥ 10 million. Auto parts companies capitalized at less than ¥ 3 million are not sampled at all.

Table 3.1 is a translation of the questionnaire used in the survey.

Completed survey questionnaires are tabulated by the Bureau of Statistics. In the resulting statistical tables, companies are classified by industry and size (amount of capital, number of persons employed, amount of sales, amount of operating profits, number of researchers or expenditures on R & D). Thus, all the information collected in the survey questionnaire translated above is available in aggregate for the automobile industry. This information for the automobile industry is also disaggregated by the following size classes:

Classes of Regular Researchers

- (1) 0 employed
- (2) 1-29 employed
- (3) 30 ~ 90 employed
- (4) 100 or more employed

Classes of Total Employees

- (1) 1-299
- (2) 300-999
- (3) 1000-2999
- (4) 3000-9999
- (5) 10000 or more

TABLE 3.1.-ENGLISH TRANSLATION OF JAPANESE GOVERNMENT FORM FOR 1978 SURVEY OF RESEARCH AND DEVELOPMENT QUESTIONNAIRE A (FOR COMPANIES).



DESIGNATED STATISTICS #61

THIS SHALL NOT BE USED FOR ANY PURPOSE SUCH AS TAXATION. YOU ARE THEREFORE REQUESTED TO PROVIDE VALID INFORMATION

BUREAU OF STATISTICS
PRIME MINISTER'S OFFICE

AS OF APRIL 1st, 1978

YOU ARE KINDLY REQUESTED TO COMPLETE THIS PAGE OF THE QUESTIONNAIRE AND RETURN IT TO THE BUREAU NOT LATER THAN JUNE 15TH WHETHER OR NOT YOU ARE ENGAGING IN RESEARCH ACTIVITIES. GIVE INFORMATION AS OF APRIL 1ST, 1978 ABOUT EMPLOYEES AND FOR A YEAR ENDING ON THE LATEST SETTING DAY PRIOR TO APRIL 1ST, 1978 ABOUT FINANCIAL STATUS. UNIT IN CHARGE: SURVEY OF RESEARCH AND DEVELOPMENT UNIT, ECONOMIC STATISTICS SECTION, SURVEY DIVISION, TELEPHONE 202-1111 EXT. 312

	PRESENT STATUS OF COMPANY
	DESCRIPTION OF BUSINESS (1977 FISCAL YEAR)
	PRODUCTS OR KIND OF BUSINESS (IN ORDER OF SALES)
	(1) (2) (3)
PERSON REPRESENTING THE COMPANY	
TITLE	
NAME	
PERSON FILLING OUT THE QUESTIONS	
SECTION NAME	NAME
TELEPHONE	()

TOTAL NUMBER OF PERSONS ENGAGED (AS OF APRIL 1ST)	CAPITAL (AS OF APRIL 1ST)	TOTAL SALES (1977 FISCAL YEAR)	OPERATING PROFIT (1977 FISCAL YEAR)
NUMBER OF PERSONS	¥ MILLIONS	¥ MILLIONS	¥ MILLIONS

THE TOTAL NUMBER OF PERSONS ENGAGED: REFERS TO ALL EMPLOYEES OF THE COMPANY WHETHER OR NOT ENGAGED IN RESEARCH INCLUDING THOSE IN BRANCH OFFICES AND IN FACTORIES, REGARDLESS OF OCCUPATIONS, WHETHER FULL-TIME OR OR PART-TIME AND REGULAR AS WELL AS TEMPORARY OR DAILY EMPLOYEES IF EMPLOYED, FOR AT LEAST A MONTH. OPERATING PROFIT: REFERS TO THE PROFIT EARNED BY BUSINESS WHICH IS COMPUTED BY DEDUCTING PURCHASE COST, GENERAL MANAGEMENT COST AND SALES EXPENSES FROM TOTAL SALES. IF THE PROFIT IS A DEFICIT PLEASE ENTER

(1) ENGAGED IN INTERNATIONAL EXCHANGE OF TECHNOLOGY,

YES NO

ENTER THE NUMBER OF CASES AND THE AMOUNT OF TECHNOLOGY EXCHANGE IN ACCESS TO OR ACQUIRING OF PATENTS, KNOW-HOW, AND TECHNICAL GUIDANCE BY COUNTRY OR TERRITORY OF DESTINATION OR ORIGIN DURING THE 1977 FISCAL YEAR. THE NUMBER OF CASES IS IRRESPECTIVE OF ACTUAL MONETARY TRANSACTIONS.

	COUNTRY OR TERRITORY OF DESTINATION OR ORIGIN		NEW PROGRAMS				CONTINUED PROGRAMS				
			CODE	NUMBER OF CASES	AMOUNT		CODE	NUMBER OF CASES	AMOUNT		
	CODE	¥ TEN THOUSAND			CODE	¥ TEN THOUSAND					
	150	TOTAL TECHNOLOGY EXPORTS	151		152			153		154	
TECHNOLOGY EXPORT			151		152			153		154	
			151		152			153		154	
			151		152			153		154	
			151		152			153		154	
			151		152			153		154	
	155	TOTAL TECHNOLOGY IMPORTS	156		157			158		159	
TECHNOLOGY IMPORT			156		157			158		159	
			156		157			158		159	
			156		157			158		159	
			156		157			158		159	
			156		157			158		159	

TABLE 3.1. (CONT.)

(2) WHETHER CONDUCTING R&D, YES OR NO, CIRCLE THE APPROPRIATE NUMBER

- 1. CONDUCTING INTRAMURAL R&D GO TO PAGE 2
- 2. CONDUCTING INTRAMURAL R&D AND FUNDING EXTERNAL R&D GO TO PAGE 2
- 3. FUNDING EXTERNAL R&D GO TO PAGE 4
- 4. NOT CONDUCTING R&D END OF QUESTIONNAIRE

FILL IN RESEARCH LABORATORIES, RESEARCH DIVISIONS, RESEARCH SECTIONS OF THE COMPANY

NAME	LOCATION

(3) INDIVIDUALS ENGAGED IN R&D (AS OF APRIL 1st)

TOTAL (003 007)	INDIVIDUALS	CODE	TOTAL	FEMALE
		001		
RESEARCHERS	REGULAR	003		
	EXTERNAL CONSULTANTS	004		
	ASSISTANT RESEARCH WORKERS	005		
	TECHNICIANS	006		
	CLERICAL AND OTHER SUPPORTING	007		
	INTERNAL CONSULTANTS	008		

(4) NUMBER OF REGULAR RESEARCHERS BY SPECIALITY

TOTAL (010 025)		CODE	TOTAL	FEMALE
		009		
NATURAL SCIENCE	PHYSICAL SCIENCE	MATHEMATICS AND PHYSICS	010	
		CHEMISTRY	011	
		BIOLOGY	012	
		GEOLOGY	013	
	ENGINEERING SCIENCE	MACHINERY SHIP-BLDG & AERONAUTICS	014	
		ELECTRICITY & COMMUNICATIONS	015	
		CIVIL ENG. & ARCHITEC.	016	
		METALLURGY & METAL ENG.	017	
		TEXTILE ENG.	018	
	AGRICULTURAL SCIENCE	AGRICULTURE & FORESTRY	019	
		VETERINARY SCIENCE AND ANIMAL HUS.	020	
		FISHERY	021	
	HEALTH SCIENCE	MEDICAL SCI. DENTISTRY	022	
PHARMACY		023		
OTHER NATURAL SCIENCE		024		
SOCIAL SCI./HUMANITIES		025		

(3) INDIVIDUALS ENGAGED IN R&D: ALL EMPLOYEES WHO ARE MAINLY ENGAGED IN THE WORK OF RESEARCH UNITS (INCLUDING BOTH CLERICAL AND OTHER WORKERS). INTERNAL CONSULTANTS ARE NOT INCLUDED.

RESEARCHERS: INDIVIDUALS WHO HOLD A UNIVERSITY DEGREE (OR INDIVIDUALS WHO HAVE AN EQUIVALENT OR MORE KNOWLEDGE OF A SPECIALITY) WHO HAVE RESEARCH EXPERIENCE OF AT LEAST TWO YEARS AND WHO ARE WORKING ON THEIR OWN RESEARCH PROJECTS.

REGULAR: RESEARCHERS WORKING PRIMARILY FOR THE COMPANY.

EXTERNAL CONSULTANTS: RESEARCHERS ENGAGED BY THE COMPANY WHERE PRIMARY WORK IS OUTSIDE THE COMPANY.

ASSISTANT RESEARCH WORKERS: INDIVIDUALS WHO ASSIST RESEARCHERS AND WHO ARE ENGAGED IN RESEARCH ACTIVITIES UNDER THEIR DIRECTION AND WHO HAVE THE POSSIBILITY OF BECOMING RESEARCHERS IN THE FUTURE. FOR EXAMPLES, INDIVIDUALS WHO HOLD A UNIVERSITY DEGREE OR ITS EQUIVALENT BUT WHO HAVE RESEARCH EXPERIENCE OF LESS THAN TWO YEARS OR PERSONS WHO HOLD A UNIVERSITY DEGREE OR ITS EQUIVALENT WHO HAVE RESEARCH EXPERIENCE OF TWO YEARS BUT WHO ONLY ASSIST RESEARCHERS.

TECHNICIANS: INDIVIDUALS OTHER THAN RESEARCHERS AND ASSISTANT RESEARCH WORKERS, WHO ARE ENGAGED IN TECHNICAL SERVICES RELATED TO RESEARCH ACTIVITIES UNDER THE GUIDANCE AND SUPERVISION OF RESEARCH AND ASSISTANT RESEARCH WORKERS.

CLERICAL AND OTHER SUPPORTING PERSONNEL: EXCEPTING THOSE MENTIONED ABOVE, INDIVIDUALS WHO ARE ENGAGED IN MISCELLANEOUS ACTIVITIES, CLERICAL WORK, ACCOUNTING, ETC. RELATING TO RESEARCH ACTIVITIES. AS TO THE INDIVIDUALS ENGAGED IN THE ADMINISTRATION OF RESEARCH ACTIVITIES, INDIVIDUALS WITH RESEARCH EXPERIENCE ARE INCLUDED AS RESEARCHERS AND THE REST ARE IN "CLERICAL AND OTHER SUPPORTING PERSONNEL."

INTERNAL CONSULTANTS: INDIVIDUALS WHO ARE ENGAGED IN R&D ACTIVITIES PART-TIME WHILE REGULARLY PERFORMING SOME OTHER PRIMARY FUNCTION FOR THE COMPANY.

(4) CLASSIFY THE NUMBER OF REGULAR RESEARCHERS (CODE 003) ENTERED IN [3] BY SPECIALITY.

TABLE 3.1.-(CONT.)

EVEN IF EXPENDITURE ON R&D IS NOT SEPARATED IN COMPANY ACCOUNTS, SEGREGATE AND REPORT IT. EXPENDITURE AND RECEIPT IN KIND SHOULD ALSO BE INCLUDED BY ESTIMATING IT FROM CURRENT PRICES

(5) INTRAMURAL EXPENDITURE ON R&D

TOTAL (029, 030, 032, 036)		CODE	¥ 10,000
		027	
WAGES AND SALARIES		029	
MATERIALS		030	
EXPENDITURE ON TANGIBLE FIXED ASSETS		032	
ITEMS	LANDS, BUILDINGS, ETC.	033	
	MACHINERY, UTENSILS, EQUIPMENT, ETC.	034	
	OTHER TANGIBLE FIXED ASSETS	035	
OTHER EXPENSES		036	
DEPRECIATION OF TANGIBLE FIXED ASSETS		031	

(5) ENTER EXPENDITURES ON R&D PERFORMED IN THE COMPANY DURING THE LAST YEAR, INCLUDING WHAT IS FINANCED BY OUTSIDE FUNDS.

WAGE AND SALARIES: WAGES AND SALARIES AND OTHER ALLOWANCES (BEFORE DEDUCTING TAXES AND INSURANCE) PAID TO INDIVIDUALS ENGAGED IN R&D (EXCLUDING INTERNAL CONSULTANTS) DURING THE YEAR INCLUDING RETIREMENT PAYMENTS, BONUSES, ETC.

MATERIALS: EXPENSES ON RAW MATERIALS, PROCESSED MATERIALS, PARTS, ETC. NEEDED FOR R&D.

EXPENDITURE ON TANGIBLE FIXED ASSETS: EXPENDITURES ON TANGIBLE FIXED ASSETS INCLUDES ALL THE FOLLOWING FIXED ASSETS NEEDED FOR R&D:

•LAND, BUILDINGS, ETC. LAND, BUILDINGS INCLUDING AUXILIARY STRUCTURES, CONSTRUCTION, SHIPS

•MACHINERY, UTENSILS, EQUIPMENT: MACHINERY, EQUIPMENT OTHER TRANSPORT EQUIPMENT AND TOOLS, IMPLEMENTS AND FIXTURES WHICH ARE DURABLE FOR ONE YEAR OR MORE AND COST AT LEAST ¥100,000.

•OTHER TANGIBLE FIXED ASSETS: CONSTRUCTION IN PROCESS.

OTHER EXPENSES: INCLUDES ELECTRICITY, FUEL AND WATER, TRAVEL, COMMUNICATION, INSURANCE, PRINTING, OFFICE SUPPLIES, FIXTURES, ETC.

DEPRECIATION OF TANGIBLE FIXED ASSETS: TOTAL AMOUNT OF DEPRECIATION ON SUCH TANGIBLE FIXED ASSETS USED IN R&D AS BUILDINGS, STRUCTURES, SHIPS, MACHINERY, APPARATUS EQUIPMENT, VEHICLES, TRANSPORT, EQUIPMENT, ETC.

(6) EXPENDITURE ON R&D BY TYPE

TOTAL (039-041)	CODE	¥ 10,000
	037	
BASIC RESEARCH	039	
APPLIED RESEARCH	040	
DEVELOPMENT	041	

(6) ALLOCATE "TOTAL (CODE 027)" OF [5] ACCORDING TO THE TYPE OF RESEARCH.

BASIC RESEARCH: RESEARCH UNDERTAKEN PRIMARILY FOR THE ADVANCE OF SCIENTIFIC KNOWLEDGE. SPECIFIC PRACTICAL APPLICATION ONLY SOUGHT INDIRECTLY.

APPLIED RESEARCH: RESEARCH UNDERTAKEN PRIMARILY FOR THE ADVANCE OF SCIENTIFIC KNOWLEDGE WITH A SPECIFIC PRACTICAL APPLICATION AIMED AT DIRECTLY.

DEVELOPMENT: USE OF AVAILABLE KNOWLEDGE OBTAINED AS THE RESULT OF BASIC AND APPLIED RESEARCH AND/OR PRACTICAL EXPERIENCE WHICH IS DIRECTED TO THE INTRODUCTION OF NEW MATERIALS, EQUIPMENT, PRODUCTS, SYSTEMS AND PROCESSES, ETC. OR THE IMPROVEMENT OF WHAT IS ALREADY AVAILABLE.

NOTES ON FILLING OUT:

1. CLASSIFICATION IF MADE IN PRINCIPLE FOR EACH RESEARCH PROJECT. OTHERWISE EITHER OF THE FOLLOWING MAY BE ADOPTED:

(1) CLASSIFICATION IS MADE FOR EACH RESEARCHER OR RESEARCH UNIT (2) CLASSIFICATION IS MADE ON THE BASIS OF RESEARCHER OPINION AND SYNTHETIC JUDGMENT.

2. RESEARCH ON NEW PRODUCTS UNDERTAKEN IN VARIOUS COMPANIES IS INCLUDED IN "DEVELOPMENT."

TABLE 3.1 (CONT.)

(7) R&D FUNDS RECEIVED FROM OUTSIDE THE COMPANY

TOTAL (044 054) (057 067)		TOTAL INTRAMURAL EXPENDITURES OF R&D FUNDS RECEIVED			
		CODE	¥ 10,000	CODE	¥ 10,000
		042		055	
FROM CENTRAL AND LOCAL GOVERNMENTS	FROM CENTRAL GOVT.	044		057	
	FROM LOCAL GOVT.	045		058	
	FROM NATIONAL AND PUBLIC UNIVERSITYS AND COLLEGES	046		059	
	FROM NATIONAL AND PUBLIC RESEARCH INSTITUTES	047		060	
	FROM OTHERS	048		061	
FROM PRIVATELY OWNED	FROM OTHER COMPANYS	050		063	
	FROM PRIVATE UNIV. AND COLLEGES	051		064	
	FROM PRIVATE RESEARCH INSTITUTES	052		065	
	FROM INDIVIDUALS AND OTHERS	053		066	
FROM FOREIGN COUNTRIES		054		067	

(7) ENTER ALL THE FUNDS ON R&D RECEIVED SUCH AS TRUST MONEY, SUBSIDIES, ALLOCATIONS, INVESTMENT, DUES, CONTRIBUTIONS, ETC. IN THE RIGHT COLUMN ENTER THOSE INTRAMURALLY EXPENDED.

OTHER COMPANIES INCLUDE THE JAPAN NATIONAL RAILWAY, THE NIPPON TELEGRAPH AND TELEPHONE PUBLIC CORPORATION, THE JAPAN MONOPOLY CORPORATION, AND THE METROPOLITAN EXPRESSWAY CORPORATION IN ADDITION TO RESEARCH INSTITUTIONS WITH COMPANY SLATERS AND RESEARCH UNITS OF COMPANIES.

PRIVATE RESEARCH INSTITUTIONS ARE CORPORATIONS PRIMARILY ENGAGED IN RESEARCH AND RESEARCH ASSOCIATIONS ESTABLISHED BY INDUSTRIAL GROUPS.

HOSPITALS ATTACHED TO UNIVERSITIES AND GENERAL HOSPITALS ARE INCLUDED SEPARATELY IN "UNIVERSITIES AND COLLEGES AND RESEARCH INSTITUTIONS."

(8) EXTERNAL R&D SUPPORTED COMPANY FUNDS

TOTAL (070 078) (081 089)		TOTAL OF WHICH SELF-FINANCED			
		CODE	¥ 10,000	CODE	¥ 10,000
		068		079	
TO CENTRAL AND LOCAL GOVERNMENTS	TO NATIONAL AND PUBLIC UNIV. AND COLLEGES	070		081	
	TO NATIONAL AND PUBLIC RESEARCH INSTITUTIONS	071		081	
	TO OTHERS	072		083	
TO PRIVATELY OWNED	TO OTHER COMPANYS	074		085	
	TO PRIVATE UNIV. AND COLLEGES	075		086	
	TO PRIVATE RESEARCH INSTI.	076		087	
	TO INDIVIDUALS & OTHERS	077		088	
TO FOREIGN COUNTRIES		078		089	

TABLE 3.1.-(CONT.)

(9) EXPENDITURE ON R&D BY KIND OF PRODUCT

TOTAL (093-123)	CODE	¥ 10,000
	091	
AGRICULTURE, FORESTRY AND FISHERY	093	
MINING PRODUCTS	094	
BUILDING CONST./CIVIL ENGINEERING	095	
FOOD PRODUCTS	096	
TEXTILE PRODUCTS	097	
PULP AND PAPER PRODUCTS	098	
PRINTING AND PUBLISHING	099	
CHEMICAL FERTILIZERS & INORGANIC & ORGANIC CHEMICAL PRODUCTS	100	
CHEMICAL FIBERS	101	
OIL AND PAINTS	102	
DRUGS AND MEDICINE	103	
MISCELLANEOUS CHEMICAL PRODUCTS	104	
PETROLEUM PRODUCTS	105	
RUBBER PRODUCTS	106	
CERAMIC PRODUCTS	107	
IRON AND STEEL	108	
NON-FERROUS METAL	109	
FABRICATED METAL PRODUCTS	110	
ORDINARY MACHINERY	111	
HOUSEHOLD ELECTRICAL APPLIANCES	112	
ELECTRONIC COMMUNICATION EQUIPMENT AND ELECTRIC GAUGES	113	
OTHER ELECTRIC EQUIPMENT	114	
AUTOMOBILES	115	
SHIPS	116	
AIRCRAFT	117	
OTHER VEHICLES	118	
OTHER TRANSPORT EQUIPMENT	119	
PRECISION INSTRUMENTS	120	
OTHER MANUFACTURING PRODUCTS	121	
ELECTRICITY AND GAS	122	
OTHER (SPECIFY)	123	

(9) THIS QUESTION EXAMINES ALLOCATION OF EXPENDITURE IN [5] BY KIND OF PRODUCTS. IN CASE OF EXPENDITURES WHICH ARE DIFFICULT TO IDENTIFY BY TYPE OF PRODUCT, DIVIDE EXPENDITURES PROPORTIONALLY ON THE BASIS OF THE NUMBER OF RESEARCHERS.

(10) EXPENDITURE ON R&D BY SPECIAL PURPOSE

TOTAL	CODE	¥ 10,000
SPACE DEVELOPMENT	132	
MARINE DEVELOPMENT	133	
INFORMATION	134	
PROTECTION OF ENVIRONMENT	135	

(10) IF YOUR COMPANY CONDUCTS ANY R&D ON SPACE DEVELOPMENT, OCEAN DEVELOPMENT, INFORMATION, OR PROTECTION OF THE ENVIRONMENT, ENTER THOSE EXPENDITURES.

SPACE DEVELOPMENT: INCLUDES RESEARCH ON ROCKETS AND ARTIFICIAL SATELLITES AS WELL AS RESEARCH ON TRACING OR COMMUNICATION STATIONS FOR THEM.

MARINE DEVELOPMENT: INCLUDES OCEANIC RESEARCH AND TECHNICAL DEVELOPMENTS RELATING TO UTILIZATION OF SEA-WATER MINERAL RESOURCES AND OCEAN-SPACE.

INFORMATION: INCLUDES RESEARCH ON HARDWARE AND SOFTWARE.

PROTECTION OF THE ENVIRONMENT: INCLUDES RESEARCH ON THE EFFECT OF POLLUTED NATURAL ENVIRONMENT ON LIFE/LIFE CYCLE AND PROPERTY, PROTECTION OF THE NATURAL ENVIRONMENT FROM POLLUTION AND DESTRUCTION AND ACHIEVEMENT OF NON-POLLUTED ENVIRONMENT.

Capital Size Classes

- (1) ¥ 3 ~ ¥ 10 million
- (2) ¥ 10 ~ ¥ 100 million
- (3) ¥ 100 million ~ ¥ 1 billion
- (4) ¥ 1 billion ~ ¥ 10 billion
- (5) greater than ¥ 10 billion
- (6) public corporation

Total Sales Classes

- (1) under ¥ 100 million
- (2) ¥ 100 million-¥ 1 billion
- (3) ¥ 1 billion-¥ 10 billion
- (4) ¥ 10 billion or more

Operating Profits Classes

- (1) Under ¥ 10 million
- (2) ¥ 10 million-¥ 100 million
- (3) ¥ 100 million-¥ 1 billion
- (4) ¥ 1 billion or more

The tabulated survey is published in March of the year following the survey year by the Bureau of Statistics under the title Kagaku gijutsu kenkyū chōsa hōkoku (Report on the Survey of Research and Development). This report contains the most comprehensive quantitative information on Japanese company research and development available anywhere. Most other Japanese government and private reports on Japanese research and development rely on this report as their primary source. For example, the Science and Technology Agency's annual white paper Kagaku gijutsu hakushō (Science and Technology White Paper) and the Ministry of International Trade and Industry's Institute of Industrial Technology annual survey Waga Kuni no kenkyū kaihatsu katsudo dōkō (The State of National R & D) both heavily analyze the Bureau of Statistics' data but neither report provides primary data of its own. This is also true of the Science and Technology Agency's statistical annual Kagaku gijutsu yoran (Indicators of Science and Technology) which is almost entirely a reprinting of relevant sections of the Bureau of Statistics Report.

b. Kagaku gijutsuchō (Science and Technology Agency)

(1) Keikaku kyoku (Planning Bureau). Almost every year the Planning Bureau of the Science and Technology Agency conducts a survey on the R & D activities of private enterprises. The survey, Minkan kigyō no kenkyū katsudo ni kansuru chōsa, deals with a different R & D topic each year. In 1974, for example, the survey emphasized energy R & D and R & D on environmental pollution controls. There was also considerable stress in the survey on how more Japanese technology might, in the future, rest on basic research conducted by Japanese. By contrast, the 1977 survey dealt primarily with the use of imported technologies and the development of new products from existing technologies.

Because of its topical quality, this survey serves as a supplement to the more general Bureau of Statistics survey. It is particularly useful as a supplement because it tabulates its results using the industrial breakdown taken from the Bureau of Statistics survey. Thus, the results of each survey question for the automobile industry are available for each year that the survey has been conducted.

Note that, unlike the almost 12,000 companies sampled for the Bureau of Statistics, the 1977 Minkan kigyō no kenkyū ni kansuru chōsa uses a sample of 663 companies. This sample does include all the automobile assemblers and the important parts suppliers.

(2) Kenkyū chosei kyoku (Research Coordination Bureau). The Research Coordination Bureau of the Science and Technology Agency each year compiles Kuni no shiken kenkyū gyōmu keikaku (National Research and Development Projects). This annual report is a complete census of all research and development projects being carried out in government facilities and/or by government personnel. The 1978 edition of this report comes in two volumes, the first volume of which gives an overview of government research and development activities and the second gives details of individual projects. Unfortunately, the first volume contains no summary of automotive-related research and development conducted by the government. The second volume is so comprehensive, however, giving budgetary and other details of individual research projects with budgets as small as \$500, that aggregate measures for government-sponsored research in automobiles are easily constructed.

Kuni no shiken kenkyū gyōmu keikaku does not report details of government-financed research conducted by the private sector.

c. Tsushōsangyōshō (Ministry of International Trade and Industry) Daijin kanbo (Minister's Secretariat)

(1) Chōsa tōkeibu (Research and Statistics Department). The Ministry of International Trade and Industry conducts the monthly survey Tsushosangyōshō seisan dōtai tōkei chōsa (Current Production Survey of Ministry of International Trade and Industry). In connection with this survey, reports are obtained on all automobile assemblies and all automobile parts by manufacturers employing more than fifty workers. The automobile and automobile parts industries are surveyed each month and the results of these surveys are published by the Ministry of International Trade and Industry on the twenty-fifth day of the second month following the survey in Kikai tōkei geppō [monthly report is considered final and the same data subsequently appears in Kikai tōkei nenpō (Yearbook of Machinery Statistics)]. A preliminary version of the monthly survey data is released on the 24th day of the month following the survey in Kikai tōkei sokuhō (Preliminary Report on Machinery Statistics). The data collected in the Ministry of International Trade and Industry's Current Production Survey are Registered Statistics No. 11 under the Statistics Law.

In general, the Current Production Survey includes items on the volume of production, the value of shipments, the value of inventory and where necessary raw materials, fuel, motive power, workers, machinery and equipment. For the automobile industry, there is industry data on both the volume and value of production, the volume and value of shipment and the value of auto parts production. The automobile shipment, production and inventory data is broken down in Table 3.2.

The volume of automobile production data and the shipments data which is published in the Ministry of International Trade and Industry reports is identical with the data published in Nihon jidōsha kōgyō kai (Japan Automobile Manufacturer's Association), Jidōsha tōkei geppō (Monthly Report on Automobile Statistics) and Jidōsha tōkei nempō (Yearbook of Automobile Statistics). The Ministry of International Trade and Industry data on volume and value of automobile production and shipment and the volume of inventories also appears in Jidōsha nenkan (Automobile Yearbook), a joint publication of Nihon jidōsha kaigishō (Japan Automobile Chamber of Commerce) and the Nikkan jidōsha shimbunsha (Daily Automotive News).

The Current Production Survey also contains considerable information on automobile industry and auto parts industry consumption and inventory of raw materials, orders for machinery and employment of workers. In particular, for the automobile and automobile parts industries, the survey contains their monthly consumption of and inventories of standard steel and steel material and specialty steels. For the automobile industry, there is also data on consumption and inventory of tires and glass panes. All this inventory and consumption data is given in physical terms. The Current Production Survey also contains data on automobile industry orders of engines and motors, heavy electrical appliances, electronics and communication equipment, industrial machine tools, railway cars, airplanes, ships, cast metals, bearings, and electric wire and cables, all in value terms. Finally, for the automobile and automobile parts industries, the Current Production Survey contains export and import information as well as total numbers of regular employers and the month's total hours for all employees.

(2) Daijin kanbo (Minister's Secretariat), Chōsa tōkeibu (Research and Statistics Department), Kōgyō tokeika (Industrial Statistics Division). The Industrial Statistics Division of the Research and Statistics Department conducts Japan's Census of Manufactures. The Census of Manufactures is Designated Statistics No. 10 under Japan's Statistics Law.

The Census is conducted each year on the status of Japan's manufacturing establishments as of December 31. The Census categories are shown in Table 3.3. The Census includes three different schedules depending upon the size and function of the manufacturing enterprise.

TABLE 3.2.-CLASSIFICATION OF AUTO-RELATED ITEMS IN JAPAN'S CURRENT PRODUCTION SURVEY.

Passenger Cars	Bus Chassis
Light Passenger Cars (cylinder volume less than 550 cc)	Small Bus (less than 30 passengers)
Small Passenger Cars (cylinder volume 550 cc to 2000 cc)	Large Bus (30 passengers or more)
Ordinary Passenger Cars (cylinder volume greater than 2000 cc)	Truck Chassis
	Light Trucks
	Small Trucks
	Gasoline engine trucks
	Diesel engine trucks
	Four-Wheel-Drive Trucks
Tractors	
Special Automobiles	
Trailers	

There is also production, shipment and inventory data available on auto bodies. It is broken down as follows:

<u>Bodies</u>	
Passenger Car Bodies	Standard Size Specially Equipped Automobile Body
Bus Bodies	Standard-size dump truck body
Small Bus Bodies	Standard-size tanker truck body
Large Bus Bodies	Standard-size refrigerator truck body
Truck Bodies	Limousine
Small Truck Bodies	Standard-size fire engine bodies
Cab of small truck	Other standard-size specially equipped automobile bodies
Bed of small truck	
Standard Truck Bodies	
Cab of standard truck	
Bed of standard truck	
Specially Equipped Automobile Body	
Small specially equipped automobile body	
Freight-passenger automobile body	
Small dump truck body	
Small refrigerator truck body	
Small limousine	
Small fire engine body	
Other small specially equipped automobile bodies	

The value of auto parts production is given by the following categories:

<u>Automobile Parts</u>	
Engine Parts	Clutch, Transmission, Rear End and Steering System Parts
Piston	Clutch
Piston cylinder	Automatic transmission
Cylinder liner	Universal joint
Air in-take valve and exhaust valve	Propeller shaft
Bearing nutal	Wheel
Bushings	Steering wheel
Gaskets	Steering system
Oil seals	Tie rods and tie rod ends
Fuel pumps	Suspension and Brake System Parts
Carburetor	Shock absorber
Fuel jet	Power brake system
Air filter	Brake cylinder
Oil filter	Brake pipe
Oil pump	Brake shoes
Radiator	Other Parts
Chassis and Body Parts	Switches
Fuel tank	Horn
Exhaust pipes and muffler	Heating system
Window frames	Seat
Door hinge, handle and lock	Windshield washer
Power window system	

TABLE 3.3.-QUESTIONNAIRE CATEGORIES, JAPAN CENSUS OF MANUFACTURES.

Schedule A (30 or Under Employees)

1. Name and location of establishment
2. Name and location of head office
3. Existence of other establishments
4. Type of organization
5. Value of capital or investment
6. Number of employees (by sex) (includes total number of regular workers, self-employed and unpaid family workers as of December 31)
7. Total number of regular workers at the end of each month
8. Total cash wages and salaries
9. Value of raw materials, fuels and electricity consumed and payment for contract production. (The value of raw materials consumed includes the consumption of principal materials, supplementary materials, parts purchased, receptacles, packing materials, and materials and other supplies to maintain factories. The value of electricity consumed means the value of electricity purchased only and excludes electricity self-generated. The payment for contract production includes the expenses paid or to be paid for contract and commission work by other enterprises on raw materials and products supplied by the contracting enterprise.)
10. Value of tangible fixed assets at the beginning of this year by kinds, acquisition, cost, liquidation and depreciation; increase or decrease in temporary construction accounts.
11. Value of manufactured products in stock, value of semi-manufactured products and of work in process and value of raw materials and fuels in stock. (The value of products/raw materials and fuels in stock and the value of semi-manufactured products and products in process are in book value or estimated city prices and include the value of supplies sent to other enterprises for contract production.)
12. Value of shipment and of stocks by commodities and receipts from contract work and for repairing. (Finished products are those products produced with raw materials owned by the establishment including what was produced by other establishments with by-products, scraps or raw materials supplied. The value of shipments is factory or selling prices or estimated market prices.
13. Value of excise duties
14. Principal raw materials
15. Manufacturing process
16. Land and building area
17. Area of land required
18. Amount of industrial water consumed by sources and by uses

Schedule B (29 or Less Employees)

1. Name and location of establishment
2. Name and location of head office
3. Existence of other establishments
4. Type of organization
5. Value of capital or investment
6. Number of employees
7. Total cash wages and salaries
8. Volume of raw materials, fuels and electricity consumed and payment for contract production
9. Value of shipments by commodity and receipts from contract work and for repairing
10. Value of excise duties
11. Principal raw materials and manufacturing process
12. Value of tangible fixed assets at the beginning of the year and acquisition cost, liquidation and depreciation (only for establishments with 10 or more employees).

Schedule C (Head Offices with Facilities in Different Places)

1. Name and location of head office
2. Name and position of enterprise representator
3. Relationship to manufacturing facilities
4. Type of organization
5. Value of capital or investment
6. Kind of business
7. Number of regular workers
8. Value of cash wages and salaries
9. Value of manufactured products, raw materials and fuels in stock
10. Value of tangible fixed assets at the beginning of the year by kinds, acquisition cost, liquidation and depreciation, increase or decrease in temporary construction accounts
11. List of manufacturing facilities

Schedule A is used for establishments with 30 or more employees (excluding head offices which have no direct relation to manufacturing processing or repairing), Schedule B for establishments with 29 or less employees (again excluding head offices), and Schedule C for head offices with one or more facilities in different places.

While the Census of Manufactures is conducted on the basis of shipment value, production value and value added are also calculated by the following formula:

$$\text{Value of production} = \text{Value of shipments} + (\text{value of products in stock at the end of the year} - \text{Value of products in stock at the beginning of the year}) + (\text{Value of semi-manufactured products and goods in process at the end of the year} - \text{Value of semi-manufactured products and goods in process at the beginning of the year})$$
$$\text{Value added} = \text{Value of production} - \text{Value of raw materials, fuels and electricity consumed and value of contract production} - \text{Value of excise duties} - \text{Value of depreciation}$$

The results of the Census of Manufactures are published in the following volumes:

Kōgyō tōkei hyō sangyō hen (Census of Manufactures Report by Industries)

Kōgyō tōkei hyō himmoku hen (Census of Manufactures Report by Commodities)

Kōgyō tōkei hyō kigyō hen (Census of Manufactures Report by Enterprises)

Kōgyō tōkei hyō yōchi yōsui hen (Census of Manufactures Report on Industrial Land and Water)

Kōgyō tōkei hyō bumpu sōkan hen (Census of Manufactures Report on Distribution)

Kōgyō tōkei hyō shi machi mura hen (Census of Manufactures Report by Cities, Towns and Villages)

Prior to the publication of these reports the results of tabulating the forms of establishments of 30 or more employees are published as Kōgyō tōkei sokuho (Preliminary Report on the Census of Manufactures). The results of Schedule A and B are also released in preliminary form as Kōgyō tōkei gaisū hyō (General Results on the Census of Manufacturers).

The Report by Industries consists of:

- (a) a general statistical table
- (b) statistical tables by industries
- (c) statistical tables by number of workers
- (d) statistical table by prefectures
- (e) statistical table on manufacturers per establishment and per worker.

Included in the Report by Commodities are:

- (a) statistical tables on shipments
- (b) statistical tables on receipts of processing for classified by commodities. The Report by Establishments presents detailed activity indicators by unit of enterprises.

The Report on Industrial Land and Water includes:

- (a) the number of establishments and workers, value of shipments, land and building area of establishments and area of land acquired
- (b) number of establishments, amount of consumption of industrial water by sources and by uses.

The Report on Distribution is designed to clarify quantitatively the structure of distribution of manufacturing products. It includes:

- (a) tables on principal indicators of distribution by number of establishments and number of workers
- (b) tables on distribution by number of establishments and cash payments per worker cross-classified by capitalization and by productivity per worker.

Finally, the Report by Cities, Towns and Villages shows tabulation of main survey items by cities, towns and villages.

All data in all the above reports are further cross-classified by 4 digit and 6 digit SIC and automobile parts categories. For the automobile industry, twenty-five sectors are included.

(3) Sangyō seisaku kyoku (Industry Policy Bureau). The Industry Policy Bureau of the Ministry of International Trade and Industry twice each year (in February and September) surveys company investment programs. All the automobile assemblers are included in the survey as are all auto parts producers employing at least 300 workers. The survey asks the name of each company investment project, its expected starting month and year, its expected date of completion and its purpose. The survey also asks for funds necessary for equipment investment (amount of payments for the year before last and last year, estimated amount of investments for the current year and estimated amount of payment for next year and the year after next). This survey is called Setsubi toshi jisseki oyobi keikaku chōsa (Survey on Actual and Planned Equipment Investment).

The Industry Policy Bureau also conducts a related survey Setsubi shikin chōtatsu jisseki oyobi keikaku chōsa (Survey on Actual and Planned Raising of Investment Funds). The results of both these surveys are tabulated separately for automobile assemblers, auto body manufacturers and other auto parts manufacturers of special interest. The surveys separate out for each of these industries investment in research and development facilities. For the last ten years, the results of these surveys have been published by the Industry Policy Bureau in Shuyō sangyō no setsubi toshi keikaku (Equipment Investment Plans of Principal Manufacturing Industries).

d. Keizai kikakucho (Economic Planning Agency)

(1) Chōsa kyoku (Research Bureau). Each quarter, the Research Bureau of the Economic Planning Agency surveys enterprises capitalized at ¥ 100 million or more on their investment plans. The same survey is carried out semi-annually for enterprises capitalized at less than ¥ 100 million but more than ¥ 10 million. The quarterly survey reaches all the more than 2,500 enterprises capitalized at more than ¥ 100 million. The semi-annual survey selects at random about 3000 enterprises from among those capitalized between ¥ 10 million and ¥ 100 million. The items in both these surveys include:

- (a) Equipment investment and its funding by quarter for the preceding year
- (b) Forecast on equipment investment and its funding for the current year
- (c) Qualitative response on whether equipment in the enterprise and the enterprise's industry is excessive in light of present and future demand
- (d) Present value of inventory
- (e) Forecast on value of inventory
- (f) Qualitative response on whether present inventory is excessive.

This survey is published as Hōjin kigyō toshi yosoku tōkei chōsa hokoku (Report on the Forecast Survey of Investment of Incorporated Enterprises).

In the past, as a means of checking the results of this survey, the Research Bureau at the end of March every year conducts the Hōjin kigyō toshi jisseki tōkei chōsa (Survey on the Actual Investment of Incorporated Enterprises). This survey is Designated Statistics No. 91. Enterprises to be surveyed are selected at random out of the enterprise registers compiled by the Establishment Census stratified by industry (including automobile industry) and size of capital. All firms capitalized at more than ¥ 1 billion are included. The amount of equipment investment covered by the survey is equivalent to approximately 70 percent of private producers durable equipment as shown in the national income accounts.

e. Okurashō (Ministry of Finance)

(1) Kanzei kyoku (Customs Bureau), Yūshutsu-ka (Export Division). Foreign trade statistics in Japan have been collected at a number of different points in the process between contract and final clearance of goods and settlement of accounts. Export statistics have been collected on (1) export contracts concluded, (2) letters of credit received, (3) certification of export declarations by foreign exchange banks, and (4) clearance of goods exported. Similarly, import statistics have been collected on (1) import contracts concluded, (2) import licenses approved, (3) opening of letters of credit for imports, and (4) clearance of imported goods.

Of the above four sets of statistics, the most continuously collected and the most generally useful are the data on the actual clearance of exports and imports. These data are compiled by the Statistics sections of the Customs Houses in Japan's ports which, in turn, submit them to the Export Division of the Customs Bureau of the Ministry of Finance. The statistics are compiled on the general trade system in conformity with the International Convention Concerning Economic Statistics. Re-exported and re-imported goods are shown, however, as separate series.

Statistics on external trade refer to the movement of goods through the border of a customs area. Even if ownership of goods is transferred across borders if goods themselves are not transferred, the transaction does not appear in the external trade statistics.

Presently, the customs area for Japan includes Honshu, Shikoku, Kyushu, Hokkaido and the islands which belong to these main islands, excluding the Habomai-gunti Archipelago and the islands of Shikotan, Kunashiri and Etorofu (all under the occupation of the Soviet Union).

The basic information for compiling the statistics includes for exports: (1) export declaration (including re-export declaration) and (2) re-shipment declarations; and for imports: (1) import declaration (including re-import declarations), (2) applications for approval of entrance of foreign goods into bonded warehouses, (3) applications for approval of entrance of foreign goods into bonded factories, and (4) application for receiving goods to be imported before formal approval.

(a) Dating of Transaction. Exports: the date of clearance of a loaded vessel or airplane. Imports: for foreign goods directly brought into domestic commerce it is the date of the import permit; for foreign goods brought into bonded warehouses and factories it is the date of entrance approval; and for foreign goods delivered prior to issuance of import permit it is the date of transaction approval.

(b) Classification of Commodities. The classification of commodities for the compilation of trade statistics generally conforms to the Standard International Trade Classification (SITC, Revised). Demands peculiar to Japan require the use of a six-digit classification system instead of the usual five-digit groups of SITC, Revised. Japan six-digit groups can be re-arranged easily to fit the five-digit SITC groups.

(c) Province and Destination. Exports are classified by countries or areas of destination while imports are classified by their primary source.

(d) Quantity Units. The quantity units of goods are in principle those widely employed in commerce. The quantum units for an individual commodity are presented in Yushutsunyū tōkei himmoku hyō (Commodity Classification for Foreign Trade Statistics).

(e) Valuation. The value of exports is based on f.o.b. value and for imports on c.i.f. value. The value is appraised at customs houses on the basis of the value reported. In tabulation, total values of goods imported or exported are presented, regardless of whether the payment of the goods is done at once or several times as a deferred payment.

Quite apart from ten-day press releases on preliminary foreign trade returns and delivery of updated computer tapes, foreign trade statistics are published monthly in Gaikoku bōeki gaikyō (Summary Report on Foreign Trade) and in Nihon bōeki geppōhyō (Annual Report on Japan's Foreign Trade).

The automobile classifications used in Japan's foreign trade statistics are shown in Table 3.4.

Table 3.4

AUTO-RELATED CLASSIFICATIONS

FOUND IN JAPAN'S FOREIGN TRADE STATISTICS

- Passenger motor cars, unassembled or disassembled
- Passenger motor cars with engines of a piston displacement of not more than 1000 cm³.
- Passenger motor cars with engines of a piston displacement of more than 1000 cm³ but not more than 2000 cm³.
- Passenger motor cars with engines of a piston displacement of more than 2000 cm³.
- Passenger motor cars, n.e.s.
- Buses (trolley buses included), unassembled or disassembled
- Buses (trolley buses included) with seating capacity of not more than 30 passengers.
- Buses (trolley buses included) with seating capacity of more than 30 passengers.
- Trucks, vans or lorries other than shuttle cars, unassembled or disassembled.
- Trucks, vans or lorries other than shuttle cars, with engines of a piston displacement of not more than 360 cm³.
- Trucks, vans or lorries other than shuttle cars, with engines of a piston displacement of more than 360 cm³ but not more than 2000 cm³.
- Trucks, vans or lorries other than shuttle cars, with engines of a piston displacement of more than 2000 cm³.
- Trucks, vans or lorries other than shuttle cars n.e.s.
- Motor Chassis fitted with cabs, ambulances or other special purpose motor cars.
- Special purpose motor lorries and vans (such as breakdown lorries, fire-engines, fire-escapes, road-sweeper lorries, snow plows, spraying lorries, crane lorries, search-light lorries, mobile workshops and mobile radiological units).
- Chassis fitted with engines for buses.
- Chassis fitted with engines for trucks, vans or lorries with engines of a piston displacement of not more than 2000 cm³.
- Chassis fitted with engines for trucks, vans or lorries with engines of a piston displacement of more than 2000 cm³.
- Chassis fitted engines for passenger cars, buses, truck, lorries, vans and special purpose vehicles n.e.s.
- Bodies for passenger cars, buses, trucks, lorry vans and special purpose vehicles n.e.s.
- Parts and accessories for passenger cars, buses, trucks, lorries, vans and special purpose vehicles n.e.s.

While lacking a company-by-company breakdown, the Ministry of Finance external trade statistics on automobiles provide a far more detailed commodity and country breakdown than are available in the Japan Automobile Manufacturers Association's Monthly Jidōsha tōkei geppō or in its annual Jidōsha tōkei nenpō. Unfortunately, the Ministry of Finance only publishes a single aggregate figure for auto parts external trade. The Nihon jidōsha buhin kōgyōkai (Japan Automobile Parts Industry Association) also only publishes this same single aggregate figure.

(2) Shukeikyoku (Budget Bureau) sōmuka (General Affairs Division). In connection with its administrative responsibilities, the Ministry of Finance's Budget Bureau each year compiles a listing of all subsidies and grants paid by all agencies and ministries of the Japanese Government. This compilation is published each year as Hojokin benran (Compendium of Subsidies and Grants). Each listing includes the purpose or project for which the grant or subsidy was made, rate of subsidy (last year and this year), total size of grant or subsidy (last year and this year) and organization to which grant or subsidy was given. Among many other uses, Hojokin benran, because it gives project details on grants for research conducted outside the government, complements nicely the Science and Technology Agency's Kuni no shiken kenkyū gyōmu keikoku which gives project details only for R & D conducted in government facilities.

(3) Shoken kyoku (Security Bureau), kigyōzaimuka (Enterprise Financial Records Division). In accordance with the provision of Securities Market Law No. 24, each year publicly-held Japanese corporations submit a comprehensive report on their business activities to the Securities Bureau. The Securities Market Law was passed in 1948 during the period of the American occupation of Japan and is modeled on American legislation. The annual comprehensive report is the Japanese equivalent of the 10-K Report which is submitted each year by American publicly-held companies to the Securities and Exchange Commission. The Ministry of Finance publishes these individual company reports in the series Yūka shōken hokukushō sōran (Negotiable Securities Overall Reports). The required information for these reports is listed in Table 3.5.

With the exception of Mitsubishi Motors which is not a publicly-held company, Negotiable Securities Reports are available for all Japanese automobile assemblers and for a number of the parts suppliers. All the reports include most of the twenty-one items listed in Table 3.5, but only the reports for the Nissan Motor Company includes all the items. Even with a few items missing, these reports are invaluable sources of information about the Japanese automobile industry. As such, they are widely used in Japan for financial and technical analysis.

Table 3.5

INFORMATION REQUIRED TO BE ANNUALLY SUBMITTED BY
PUBLICALLY-HELD CORPORATIONS BY JAPANESE GOVERNMENT

1. Education background, work history, and shareholdings of from fifteen to twenty of the company's leading officers.
2. Disaggregation of shareownership in company by six categories
 - a. Government institution
 - b. Bank and insurance companies
 - c. Securities companies
 - d. Other legal institutions
 - e. Foreigners
 - f. Individuals
3. Size distribution of shareownership in company.
4. Size, average age, experience and monthly compensation of labor force disaggregated by sex.
5. Specification of product line.
6. Organizational Chart
7. Technical Assistance Agreements with Foreign Firms - Technology purchased, from whom, summary terms of the agreement.
8. Actual Production
9. Production plans over the next six months.
10. Price of Various Company Products (Automobile model sales prices)
11. Raw Materials and Parts Use, Inventories and Prices (variously in value or physical units)
12. Sales by model and market including exports.
13. Present Capital Stock
 - a. Land (by area and value)
 1. Used in automobile assembly
 2. Used in auto parts production
 3. Used in research
 - b. Building (by area and value)
 1. Used in automobile assembly
 2. Used in auto parts production
 3. Used in research
 - c. Machinery (by value and type)
 1. Used in automobile assembly
 2. Used in auto parts production
 3. Used in research
 - d. New Investment Planned or In Process
 1. When will come on stream
 2. Location
 3. Value
 4. Purpose
 - e. Workers at each company facility
14. Balance Sheet
15. Income and Expenditure Statement
16. List of major shareholders
17. List of major lenders
18. Statement of how new investment is being financed
19. Share holdings of assemblers in affiliated companies
20. Loans to affiliated companies
21. Names of other related companies

Unfortunately, there are no comparable reports for Japanese automobile bodies available in English. Of course, there are annual reports available in English for Toyota Motor Company, Nissan Motor Company, Toyo Kogyo Company, Honda Motor Company, Daihatsu Motor Company, Hino Motors and Suzuki Motor Company. (Such annual reports apparently are not available for Isuzu, Fuji Heavy Industries, Nissan Diesel, and Mitsubishi Motors). With one exception, these reports contain considerably less information than is available in the Yūka shoken hōkokushō. With one exception, these reports reproduce in slightly more aggregated form the unconsolidated balance sheet and the income and expenditure tables from YSH. Because Honda Motor Company has listed its shares on the New York Stock Exchange, it is required to issue a consolidated balance sheet. This consolidated balance sheet is published in its English language report, but is not available in Japanese.

In addition to the unconsolidated balance sheet and the income and expenditure statement, the English-language Japanese automobile company annual reports contain the following quantitative information:

Toyota Motor Company

aggregate production data
aggregate domestic sales
aggregate overseas sales
domestic market shares

Nissan Motor Company

aggregate production data
aggregate domestic sales
overseas sales by market
foreign suppliers of auto parts

Toyo Kogyo Company

employees, age and work experience
aggregate production data
domestic sales
overseas sales by market

Honda Motor Company

aggregate production data
domestic sales
overseas sales

Daihatsu Motor Company

aggregate production data
production disaggregated by model
domestic sales
overseas sales by market

Hino Motor Company

aggregate production data
domestic sales
overseas sales by market and model
list of major shareholders
distribution of shareholders by type
distribution of shareownership by number of shares held

Suzuki Motor Company

aggregate production data
domestic sales
overseas sales by market

f. Unyushō (Ministry of Transportation)

(1) Jōhō kanribu (Minister's Secretariat, Research and Data Processing Department). As Designated Statistics No. 99, the Research and Data Processing Department of the Minister's Secretariat conducts monthly surveys each year on passenger car, truck and bus use. Two of these surveys are considered large-scale and follow a sample of 36,000 trucks and passenger cars and all buses and line-haul trucks for seven days each year in October and in one other month. A smaller survey following 9000 trucks and passenger cars and again all buses and line-haul trucks for three days is conducted during one other month of each year.

Items in these surveys include:

- (a) type maximum loading or seating capacity and main use of car;
- (b) freight tonnage on number of passengers carried;
- (c) transport distance, running distances, freight-ton kilometers or passenger kilometers;
- (d) place of dispatch and destination;
- (e) number of freight, kind of commodity, type of packing and kind of fuel, amount of fuel consumed; and
- (f) reasons for not being used for transportation, legal type of organization being managed by user, distinction whether main or branch office, number of workers, kind of activity of the organization where the car user worked, and kind of work the car user is engaged in.

The monthly results from the small survey are published in Riku-un tōkei geppō (Monthly Statistics on Land Transport) and in Riku-un tōkei nenpō (Annual Statistics on Land Transport). The detailed results from the two large-scale surveys are published in Jidōsha tōkei hōkokushō (Report on Automobile Statistics) and in Rōsen turokku hōkokushō (Report on Line-Haul Truck Survey).

The Research and Data Processing Department of the Minister's Secretariat also conducts Unyushō kanjigyō setsubi toshi keikaku chōsa (The Survey on Investment Programs for Equipment) supervised by the Ministry of Transportation. This survey is conducted every March and includes among other enterprises:

- (a) incorporated enterprises engaged in bus service capitalized at ¥ 50 million or more;
- (b) incorporated enterprises in the hire cars or taxi business capitalized at ¥ 50 million or more, with at least 100 taxis for business use;
- (c) incorporated enterprises engaged in trucking capitalized at ¥ 50 million or more or with 100 or more trucks for business use;
- (d) incorporated enterprises engaged in transportation capitalized at ¥ 30 million or more;
- (e) incorporated enterprises engaged in an expressway service capitalized at ¥ 50 million or more; and
- (f) incorporated enterprises engaged in automobile terminal service capitalized at ¥ 50 million or more.

The following items are included in this survey:

- (a) name of incorporated enterprises;
- (b) address of home office;
- (c) actual investment in equipment for last year and the year before last and investment plan for this year; and
- (d) breakdown of funds raised for new investment.

This survey, which is an important component in forecasting automobile demand, is published each April as Unyushō kanjigoto setsubi toshi keikaku chōsa hōkoku (Report on the Survey on Investment Program for Equipment Supervised by the Ministry of Transportation).

(2) Administrative Division, Automobile Road Transport Bureau. Data on the number of automobiles in use classified by model, model year, prefecture and industry, are compiled from automobile registration data. This is done in conformity with the Road Transport Vehicle Law. Models in the compilation are shown in Table 3.6.

Where motor vehicles are used for commercial purposes, their use is cross-classified by model, prefecture and by the following 62 economic sectors:

Agriculture	Forestry
Fishing and Fisheries	Metals Mining
Coal Mining	Oil and Natural Gas
Non-Metals Mining	Construction
Food Processing	Tobacco
Textiles	Textile Products
Wood and Wood Products	Furniture
Paper	Printing and Publishing
Oil Refinery and Coal Products	Chemicals
Glass	Rubber
Ceramics	Iron and Steel
Non-Ferrous Metals	Metal Products
Machinery	Electric Machinery
Transportation Equipment	Precision Instruments
Other Industrial	Wholesalers
General Merchandising Stores	Retail Clothing Stores
Grocery Stores	Food and Drink Establishments
Furniture Stores	Other Shop
Brokerage Business	Finance
Real Estate	Transportation and Communication
Electricity, Water and Gas	Public Offices
Industrial Other Classified	Industrial Unknown
Engineers	Scholars
Artists, Entertainers	Accountants, Statisticians

Free-Lance	Priests
Doctors	Driving
Household Help	Officials
Blue Collar Workers	Others

This data is published in the Ministry of Transportation publications Jidōsha hoyū sharyōsū geppō (Monthly Report on Number of Automobiles in Use) and Riku-un tōkei yoran (Summary of Land Transport Statistics). Some of the same data is also published in the Japanese Automobile Manufacturers Association's Jidōsha tōkei geppō (Monthly Report on Automobile Statistics).

Table 3.6

AUTOMOBILE MODEL CLASSIFICATIONS FOUND IN JAPAN
VEHICLE REGISTRATION DATA

PASSENGER VEHICLES

Standard Sized Vehicle

Mitsubishi	
Debonair	
Others	
Nissan	
President	Cedric
Gloria	Fairlady Z (280Z)
Others	Lauri
Mazda	
Mazda	
Toyota	
Century	Crown
Others	Mark II
Foreign Vehicles	
Buick	Oldsmobile
Pontiac	Chevrolet
Ford	Mercury
Plymouth	Chrysler (Dodge, Plymouth)
Mercedes Benz	BMW
Opel	Volvo
Cadillac	Lincoln
Jaguar	Audi
Porsche	Citroen
Others	

Small Scale Vehicles

Daihatsu	
Berlina	Consort
Consort	Sherman
Sherman van (remodelled light van)	
Others	
Fuji Heavy Industries	
Subaru	Leone
Leone Coupe	Others
Hino	
Contessa	Others
Honda	
Honda	Honda 145
Honda 145 Coupe	Honda Civic
Honda Civic Van	Accord
Others	
Isuzu	
Florian	Bellet (Bellelle)
117 Coupe	Florian Van
Femini	Gemini Coupe
Others	
Mitsubishi	
Debonair	Colt
Gallant	Gallant Hardtop
Gallant Coupe GTO	Colt Van
Gallant PTO	
Lancer (Celeste)	Lancer Van
Gallant Sigma	Gallant Lambda
Others	

Table 3.6 (Cont.)

Nissan	
Cedric	Cedric Hardtop
Gloria	Gloria Hardtop
Laurel	Laurel Hardtop
Fairlady	Bluebird Hardtop (Coupe)
Bluebird U	Bluebird Hardtop
Violet	Violet Hardtop
Skyline	Skyline Hardtop
Sunny	Sunny Coupe
Cherry	Cherry Coupe
Cedric Van	Gloria Van
Bluebird Van	Bluebird U Van
Datsun Van	Skyline Van
Sunny Van	Cherry Van
Violet Van	Silvia
Others	

Suzuki	
Fronti 800	Others

Mazda	
Capella	Capella Coupe
Capella Rotary	Capella Rotary Coupe
Luce	Luce Hardtop
Luce Rotary Hardtop	Savannah
Savannah Coupe	Cosino
Grand Familia	Grand Familia Coupe
Familia	Familia Coupe
Familia Rotary	Familia Rotary Coupe
Luce Van	Familia Van
Grand Familia Van	
Others	

Toyota	
Crown	Crown Hardtop
Corona	Corona Hardtop
Mark II	Mark II Hardtop
Carina	Carina Hardtop
Celica	Celica LB
Corolla	Corolla Coupe
Sprinter	Sprinter Coupe
Publica	Starlet
Toyota Sports 800	Toyota Sports 2000
Crown Van	Corona Van
Mark II Van	Corolla Van
Public Van	Carina Hardtop
Carina Van	Corolla 2B
Others	

Foreign Vehicles

Vauxhall	Volkswagen
Opel	BMW
Ford Europa	Alfa Romeo
Fiat	Volvo
Audi	Citroen
VW & Porsche	Triumph
Others	

Table 3.6 (Cont.)

SMALL-SIZE THREE WHEEL VEHICLES

Trucks

Standard Size (five tons or less)

Daihatsu	Hino
Isuzu	Toyota
Mitsubishi	Mazda
Nissan	
Others	

Five tons and over

Hino	Isuzu
Mitsubishi	Nissan Diesel
Nissan	Toyota
Others	

Small Size

Daikatsu

Delta 1500-2000	Delta 750
Hi-lini	Compaino
Taft	Sherman Van
Delta-wide	
Others	

Fuji Heavy Industries

Subaru Van	Leone Van
Others	

Hino
Hino

Honda

Civic Van	Honda
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Isuzu

Elf	Florian Van
Bellef Van	Uni-cab
Faster	
Others	

Mitsubishi

Canter	Colt
Delica	Gallant Van
Corona	Corona Mark II
Corolla Van	Publica
Carina Van	Town-Ace
Others	

Small-size Three Wheeled Trucks

Daihatsu	Mazda
Others	

BUSES

Standard-Size (30 passengers or more)

Hino	Isuzu
Mitsubishi	Nissan
Nissan Diesel	Toyota
Others	

Small-Size (29 passengers or less)

Daihatsu	Hino
Isuzu	Mitsubishi
Nissan	Mazda
Toyota	
Others	

Table 3.G (Cont.)

Speciality-Use Vehicles

Daihatsu	Fuji Heavy Industries
Hino	Honda
Buzu	Mitsubishi
Nissan	Nissan Diesel
Mazda	Toyota
Foreign Vehicles	
Others	

LARGE SPECIAL VEHICLES

TRAILERS

4. PRIVATE SOURCES OF AUTOMOBILE INDUSTRY RELATED STATISTICS

a. Nihon jidōsha kōgyō kai jikōkai (Japan Automobile Manufacturers Association)

The Japan Automobile Manufacturers Association is the largest, best financed and most important of all automobile-related trade associations in Japan. Not surprisingly, Jikōkai is the major private source for quantitative information on the industry. Jikōkai publishes a monthly statistical report, Jidōsha tōkei geppō (Monthly Reports on Automobile Statistics) and an annual, Jidōsha tokei nenpō, which aggregates the monthly survey statistics. The Jikōkai reports contain both its own survey statistics and material it receives from government agencies and from other trade associations.

(1) Production Statistics. Jikōkai publishes the production data which comes from MITI's Current Production Survey. Jikōkai also makes its own monthly automobile production survey. The aggregate figures from the two monthly surveys are identical but the two surveys have different levels of disaggregation. Unlike MITI's Kikai tōkei geppō, Jikōkai's Jidōsha tōkei geppō disaggregates passenger car, truck and bus assembly data by fourteen different assemblers, including:

Toyota	Honda	Nissan Diesel
Nissan	Hino	Aichi
Mitsubishi	Suzuki	Prince
Toyo Kogyo	Daihatsu	
Fuzu	Fuji Heavy Industries	
Others		

Also unlike MITI, Jikōkai does not gather data on trailer production, but it does report MITI survey data. It also reports from MITI, but does not collect on its own, statistics on auto body production.

(2) Shipment Statistics. Jikōkai does its own survey of automobile shipments of passenger car, trucks and buses to overseas and domestic markets. Jikōkai statistics are consistent with MITI survey data.

(3) Inventory. Jikōkai does not collect assembler inventory data, but again it does publish the results of MITI's Current Production Survey.

(4) New Car Registrations. Jikōkai publishes the surveys of new car registrations conducted by the Nihon jidōsha hanbai kyoku rengōkai (Japan Automobile Sales Association) and by the Zenkoku keijidōsha kyokai rengōkai (National Light-Vehicle Association). These surveys, in their original tabulation, include new registration by manufacturer's model classifications cross-classified by prefectures. When they are published in the Jidōsha tōkei geppō and the Jidōsha tōkei nenpō, they include new registration by make cross-classified only by the categories used in the production surveys by MITI and by

Jikōkai. Similarly, JASA's original tabulation of new car registration by economic status of owner cross-classified by MITI product categories uses the sixty-two economic sector classification taken from the Ministry of Transportation user surveys. When these survey results are published by Jikōkai, the MITI categories are retained but the sixty-two sectors are aggregated up to twelve sectors, including agriculture, construction, manufacturing, passenger and freight transport service, government, professional government official, office worker, blue collar and other. The new car registration survey results are published in greatest detail in the Jidōsha nenkan (Automobile Yearbook) which is jointly compiled by the Nihon jidōsha kaigisho (Japan Automobile Chamber of Commerce) and the Nikkan jidōsha shimbunsha (Daily Automobile News Company).

(5) Exports. Jikōkai conducts its own survey on automobile exports. Using the product category taken from its production surveys, it cross-classifies exports by assemblers. Exports are also classified by overseas market. Finally, an aggregate export figure on value of auto parts is also given. These latter figures come from the Nihon jidōsha buhin kyokai (Japan Auto Parts Industry Association). Jikōkai statistics on exports of vehicles and parts are consistent with Ministry of Finance trade data (also published in Jikōkai monthly and annual statistical reports).

(6) Dealer Inventories. Complementarily with the MITI survey of producer inventories, Jikōkai conducts a survey of domestic dealers' inventories. This data is tabulated using MITI and Jikōkai automobile classifications.

(7) Vehicle Use. Jikōkai conducts no surveys of its own on automobile use. Jidōsha tōkei geppō and Jidōsha tōkei nenpō publish, however, in somewhat aggregated form, the results of the various Unyūsho (Ministry of Transportation) surveys.

b. Nihon jidōsha buhin kyokai (Japan Auto Parts Industry Association)

Most auto parts manufacturers in Japan are relatively small. As such, they almost inevitably rely on their trade association for information and guidance. In keeping with this role, JAPIA is an energetic collector of industry production and financial data. All JAPIA members are surveyed semi-annually on their performance. Tables 4.1, 4.2, and 4.3 are English translations of the survey forms used. In addition to the production and management analysis surveys carried out with the use of the survey forms just presented, JAPIA also conducts telephone surveys on investment expenditures and research and development expenditures.

Table 4.1
 Survey Forms Used by Japan Auto Parts Industry Association to
 Collect Production Data

AUTOMOBILE PARTS PRODUCTION
 TRENDS REPORT
 FORM 1

1		NAME	4						REGISTERED TRADEMARK		
2		ADDRESS	NUMBER OF EMPLOYEES (3/31/78)								
3		PLANT ADDRESS AND NAME	THE DISTINCTION BETWEEN DIRECT AND INDIRECT LABOR IS BASED ON ACTUAL DUTIES PERFORMED RATHER THAN ON RANK OR TITLE. TEMPORARY OR DAILY LABOR EMPLOYED OFF AND ON FOR MORE THAN 30 DAYS ARE INCLUDED BELOW.								
3		Paid in Capital: or Total Invested (3/31/78)	MALE		FEMALE		TOTAL				
5		CLASS	10/77	11/77	12/77	1/78	2/78	3/78	FY 1977 2nd Half	UNITS	000Y FY1977 2nd Half Product. Vol
		CLASSIFI- CATION #									
		(a)									
		(b)									
		(c)									
		(d)									
		(e)									
		(f)									
		(g)									
		(h)									
		(i)									
		(j)									
		SUBTOTAL									
		SHIPMENTS OF OTHER PRODUCTS									
		TOTAL SHIPMENTS									

NOTES: 1. The second half of the fiscal year covered in the reports refers to 10/1/77-3/31/78.
 2. Goods shipments are separated into auto parts and other products. Auto parts should be recorded individually in separate tables. Thus, individual parts are to be listed here by their classification tables rather than by name.
 3. In the space for registered trademarks affix or record that which is indicated in the company's product.
 4. Units for production volumes may be individual units sets or weights according to product.

Table 4.2

Survey Forms Used by Japan Auto Parts Industry Association to Collect Financial Data

AUTO PARTS PRODUCTION TRENDS REPORT FORM 2

THIS TABLE SHOULD BE PREPARED SEPARATELY FOR EACH AUTO PART, ACCORDING TO THE AUTO PARTS CLASSIFICATION TABLE

PLEASE RECORD THE NAMES (OF OTHER RELEVANT PARTS)

1 FISCAL YEAR		2 PART				3 CLASSIFICATION NUMBER AS PER PARTS CLASSIFICATION TABLE						
SHIPPING ORIGIN	DESTINATION	DOMESTIC USE				LIGHT FOUR-WHEEL VEHICLES		THREE-WHEEL VEHICLES (INCLUDES LIGHT 3-WHEELS)		TWO-WHEEL VEHICLES (INCLUDES MOTORCYCLES)		TOTAL VALUE ('000's)
		MAKER	UNITS	VALUE ('000's)	MAINTENANCE VALUE ('000's)	MAKER	VALUE ('000's)	MAKER	VALUE ('000's)	MAKER	VALUE ('000's)	
(a)	TO AUTO MAKERS	TOTAL	UNITS	VALUE ('000's)	TOTAL VALUE ('000's)	DAIHATSU		DAIHATSU		HONDA		
		TOYOTA				TOYO KOITO		TOYO KOITO		SUZUKI		
		NISSAN				MITSUBISHI		MITSUBISHI		FUJI H.L.I.		
		ISUZU				AIWA		AIWA		YAMAHA		
		HINO				DAIHATSU		OTHERS		BRIDGESTON		
		NISSAN DIESEL				SUZUKI				KAWASAKI		
		MITSUBISHI				HONDA				OTHERS		
		TOYO KOITO				OTHERS				TOTAL		
		DAIHATSU				TOTAL						
		HONDA										
		OTHERS										
(b)		① TOTAL										
(c)		② CHASSIS MAKER										
(d)		③ FOREIGN CARS USE										
(e)		④ GENERAL WHOLESALE, RETAILERS, MAINTENANCE PLANTS, LARGER PUBLIC USERS EXPORT INDUSTRY (INCLUDES EXPORT WITH PROFIT), ETC. (DOMESTIC CARS ONLY)										
(f)		EXPORT DIRECTED SALES: PORTION OF DELIVERY TO WHOLESALE AND EXPORTERS THAT IS KNOWN TO BE FOR EXPORT										
(g)		SUM	① + ② + ③ + ④									

NOTES: VALUE OF SHIPMENTS FOR SECOND HALF OF FISCAL YEAR 1977.
 1. RECORD SHIPMENT VALUES FOR THE HALF-PERIOD 10/17-3/31/78. THE GRAND TOTAL IN THE LOWER RIGHT CORNER CORRESPONDS TO TOTAL GOODS SHIPMENTS IN TABLE 1 FOR THE SECOND HALF OF FY 1977.
 2. WHEN ONE CANNOT DISTINGUISH DELIVERIES FOR MAINTENANCE USE, AND UNDER DOMESTIC VEHICLES WHEN ONE CANNOT DISTINGUISH BETWEEN SALES FOR 4-WHEEL, 3-WHEEL, OR 2-WHEELBASE, FOR THREE AND TWO WHEEL VEHICLES WHEN ONE CAN IDENTIFY VALUES FOR THREE AND TWO WHEEL VEHICLES BUT CANNOT DISTINGUISH FURTHER ENTER UNDER "UNDETERMINED" VALUES. FINALLY, WHEN ONE CANNOT DISTINGUISH BETWEEN 4 AND 3 WHEEL

VEHICLE USE, ENTER THE COMBINED VALUE UNDER 4-WHEEL VEHICLES.
 3. WHEN ONE CANNOT DISTINGUISH BETWEEN PARTS FOR DOMESTIC AND FOREIGN USE WITHIN A COUNTRY, BUT CAN IDENTIFY SEPARATELY 4-WHEEL, 3-WHEEL AND 2-WHEEL VEHICLE USE, ENTER ALL VALUES UNDER DOMESTIC VEHICLE USE.
 4. 4-WHEEL VEHICLES APPLIES TO VEHICLES WITH 551 C.C. PLUS ENGINE DISPLACEMENT AND LIGHT 4-WHEEL VEHICLE APPLIES TO THOSE UNDER 551 C.C.

Table 4.3
Survey Form Used by Japan Auto Parts Industry
Association to Perform Management Analyses

FIRM:
END OF MARCH LABOR FORCE:
ACCOUNTING PERIOD:
DEPARTMENT IN CHARGE:
EMPLOYEE IN CHARGE:

MANAGEMENT ANALYSIS SURVEY

PHONE:

	FY 1975	FY 1976	FY 1977		FY 1975	FY 1976	FY 1977
ACCOUNTING PERIOD	4/75-3/76	4/76-3/77	4/77-3/78	ACCOUNTING PERIOD	4/75-3/76	4/76-3/77	4/77-3/78
ACCOUNTING ITEM				ACCOUNTING ITEM			
LIQUID ASSETS (STOCK) FIXED ASSETS (TANGIBLE ASSETS) DEFERRED ASSETS TOTAL ASSETS				LIQUID LIABILITIES FIXED LIABILITIES SPECIAL RESERVE FUND TOTAL CAPITAL REQUIRED RESERVE FUND SURPLUS FUND (RETAINED EARNINGS) TOTAL CAPITAL AND LIABILITIES			
(UNITS-MILLION YEN)	$\text{PERCENTAGE OWNED CAPITAL} = \frac{\text{OWNED CAPITAL}}{\text{TOTAL CAPITAL}} \times 100$						
ACCOUNTING PERIOD	FY 1975	PERCENT OF TOTAL SALES	FY 1976	PERCENT OF TOTAL SALES	FY 1977	PERCENT OF TOTAL SALES	
ACCOUNTING ITEM	4/75-4/76		4/76-3/77		4/77-3/78		
1. TOTAL SALES (TOTAL AUTO PART SALES)		100.00		100.00		100.00	
2. COST OF GOODS SOLD (1) COST OF GOODS PURCHASED DURING PERIOD (2) PERIOD PRODUCTIONS COSTS (1) RAW MATER. (2) PUNCH/PARTS (3) SUBCONTRACT PROCESSING (4) LABOR (5) OVERHEAD (6) DEPRECIAT. (7) UNFINISHED GOODS (8) OTHERS (SUCH AS TRANSFERS FROM OTHER ACCOUNTS) (3) GOODS STOCK ADJ (4) OTHERS (COMMODITY TAX)							
3. SALES & GENERAL ADMIN. EXPENSES							
4. OPERATING PROFIT [1-(2+3)]							
5. NON-OPERATING INC. (RECEIVED PROFIT & DIVIDENDS)							
6. NON-OPERATING EXPEN							
7. ORDINARY PROFITS							
8. SPECIAL PROFITS							
9. SPECIAL LOSSES							
10. PRE-TAX PERIOD PROFITS							
11. CORPORATE TAXES AND OTHER APPROPRIATION							
12. LIQUID PROFITS							
4. OPER. PROFIT TOT. CAPITAL x 100	FY 1975	FY 1976	FY 1977	PERIOD PROFITS TOTAL CAPITAL x 100	FY 1975	FY 1976	FY 1977
TOTAL LABOR COSTS							

NOTES:

- (1) PLEASE RECORD THE FIGURES FROM THE FIRM'S CORPORATE REPORT OF FY 1975-FY 1977 (MARCH, 1978)
- (2) FOR FIRMS WHOSE ACCOUNTING PERIODS DO NOT END IN MARCH PLEASE RECORD FIGURES FOR PERIODS AS CLOSE AS POSSIBLE TO THE ABOVE
- (3) UNITS - MILLION OF YEN. PLEASE ROUND THE REMAINDER TO THE NEAREST MILLION
- (4) IF CERTAIN LABOR COSTS ARE INCLUDED IN SPECIAL COSTS, NON-OPERATING EXPENSES, ETC., INCLUDE THEM IN CALCULATING TOTAL LABOR COSTS.

While the investment and R & D surveys are not published, some of the aggregate results of the production and management surveys are published twice each year in Jidōsha buhin seisan dōkō chōsa (Survey on the Trend in Auto Parts Production). The Survey does not provide individual firm data, but it does provide highly detailed monthly statistics on auto parts production. These statistics are much more detailed than what is available in MITI's Kikai tōkei geppō.

The following are JAPIA parts classifications.

Engine Parts

101 Pistons	118 Valve Springs
102 Piston Pin	119 Radiator
103 Piston Rings	120 Thermostats
104 Cylinder Lines	121 Bearings Bronze
105 Gaskets	122 Bearings White Metal
106 Valves (Int. & Ext.)	124 Timing Chains
107 Fuel Pumps	125 Timing Gears
108 Diaphragm	126 Crank Shafts
109 Carburetors	127 Cam Shafts
110 Fuel Injection Equipment	128 Connecting Rods
111 Plungers	129 Valve Guide
112 Nozzles	130 Tappets
113 Fuel Filters	131 Valve Rocker Arms
114 Air Cleaner	132 Fly Wheels
115 Oil Cleaner	133 Cylinder Head Bolts
116 Water Pumps	134 Fans
117 Oil Pumps	199 Other Engine Parts

Electrical Equipment

201 Starting Motor	207 Ignition Coils
202 Generators	208 Spark Plugs
203 Voltage Regulators	209 Heater Plugs for Diesel Engines
204 Distributors	210 Condensers
206 Distributor Points and Arms	211 Magnets
	299 Other Electrical Equipment

Steering Drive and Transmission Parts

301 Steering Wheels	314 Propeller Shafts
302 Power Steering Drivers	315 Transmission Gears & Shafts
303 Clutch Assemblies	316 Differential Gears
304 Clutch Parts	317 Steering Arm Sectors & Shafts
305 Clutch Facings	318 Oil Seals
306 Clutch Springs	319 Wheels
307 Front Axles	320 Hub Bolts and Nuts

308 Knuckles	321 King Pins
309 Tie Rods	322 Bushings
310 Tie Rod Ends	323 Transmission Housings
311 Rear Shafts	324 Differential Housing and Axle Tabs
312 Universal Joints	325 Needle Roller Bearings
313 U-Joint Spiders	399 Other Steering, Drive and Transmission

Chassis Stamping Parts

601 Frame	606 Dashboards and Panels
602 Fuel Tanks	607 Bonnet Covers & Panels
603 Mufflers and Silencers	608 Rubber Dampers
604 Bumpers	609 Brackets
605 Side Steps	699 Other Chassis Stamping Parts

Chassis Parts and Accessories

701 Window Frames	711 Panels for Truck Chassis
702 Window Regulators	721 Panels for Bus Chassis
703 Door Handles and Locks	731 Panels for Passenger Car Bodies
704 Door Hinges	741 Panels for Motorcycle Bodies
705 Seat and Seat Springs	799 Other Chassis Parts and Accessories
706 Moldings	

Service Tools

801 Greasing Pumps	804 Pliers
802 Tacks	899 Other Service Tools
803 Spanners	

In addition to its production data, JAPIA also presents some data on the destination of auto parts shipment—whether original equipment, replacement, body manufacturers, wholesalers, retailers, service garages, fleets and exporters. Finally, size distributions of auto parts firms by employees and capitalization are also regularly published.

Detailed annual JAPIA auto parts production data also appears in Jidōsha nenkan.

c. Nihon jidōsha kaigishō (Japan Automobile Chamber of Commerce, JACC).

The JACC is a relatively small trade group which brings together assemblers and parts manufacturers, dealers and vehicle users associations primarily for lobbying purposes. The JACC does little research

and conducts no surveys, but it does sponsor, together with Nikkan jidōsha shimbunsha (Daily Automotive News Co.), the compilation of Jidōsha nenkan (Automobile Yearbook). This yearbook publishes a large amount of survey material received from JACC member organizations and from the government.

(1) Production and Shipments. Jidōsha nenkan publishes both the MITI and the Jikōkai statistics on production and shipment of automobiles.

(2) Exports. Jidōsha nenkan publishes both the Jikōkai and the Ministry of Finance compiled automobile export statistics.

(3) Automobile Emissions. Reports of the following regular Kankyōchō (Environmental Production Agency) survey are published in Jidōsha nenkan. The survey form is shown in Table 4.4 (page 47).

(4) Sales and Use. Jidōsha nenkan reports finely detailed Japanese Automobile Sales Association data on new car registrations and equally finely detailed Ministry of Transportation data on the age profile of automobiles in use. Jidōsha nenkan also publishes detailed statistical analyses of the financial condition of automobile dealers cross-classified by size of dealership, geographic location and type of vehicle sold. Statistics on many individual dealerships are also provided. Finally, data is also given on the inter-prefectural movement of used cars.

(5) Market Shares. Prefectural and city market shares for Japanese and foreign automobile manufacturers and individual models are published in Jidōsha nenkan.

(6) Automobile Imports. Both the Ministry of Finance and Nihon jidōsha yūnyū kumai (Japan Automobile Importers Association) provide Jidōsha nenkan with detailed monthly information on automobile imports. Along side this information, Jidōsha nenkan also contains imported vehicle use data by prefecture which is taken from the Ministry of Transportation use surveys.

(7) Automobile Parts. JAPIA production and management survey data is published in Jidōsha nenkan. Jidōsha nenkan also contains a complete listing of technical tie-ups of any kind between Japanese parts manufacturers and assemblers and foreign firms.

(8) Road Use. The Ministry of Transportation conducts detailed surveys on the use to which passenger cars, trucks, buses, rent-a-cars, and taxis are put. Parts of these elaborate surveys are also published in Jidōsha nenkan. The National Police Agency statistics on the accidents and deaths which results from automobile use are also found in this section.

(9) Labor Force. Jidōsha nenkan contains individual automobile assembler and parts manufacturers data on number of employees, average age, years of service, sex, fixed and overtime compensation.

Table 4.4 Environmental Production Agency Survey Form

AUTO EMISSIONS SURVEY

VEHICLE TYPE (MODEL NAME)	ENGINE TYPE	(EQUIVALENT INERTIAL) WEIGHT (KG)	PRIMARY MEASURES FOR REDUCTION OF EXHAUST GAS	AUTOMOBILE EXHAUST DISCHARGE LEVELS						10-MODE RATE OF FUEL CONSUMPTION (TEST RESULTS) KM/L	MANUFACTURER'S REPORTED RATE OF FUEL CONSUMPTION KM/L
		TOTAL DIS- PLACEMENT (CC)		10 MODE g/km			11 MODE g/test				
				NO _x	HC	CO	NO _x	HC	CO		
				COMPLETION TEST TARGET VALUES							10 MODE "TRAVEL"
				ACTUAL TEST RESULTS							60 KM/HR "TRAVEL"
TOYOTA			ENGINE IMPROVEMENT & TERNARY CATALYTIC AGENT & EXHAUST FUME RECYCLING (ELECTRONI- CALLY) CONTROLLED FUEL PROPUL. DEVICE)								
E-M5105(CROWN)											
E-MX40(CORONA MARK II) (CHASER)			AS ABOVE								
E-MX41(CORONA MARK II (CHASER)			AS ABOVE								
E-TX40(CORONA MARK II) (CHASER)			ENGINE IMPROVEMENT & OXIDIZED CATALYTIC AGENT & SECONDARY AIR INTRODUCTION & EXHAUST RECYCLING								
E-TT126(CORONA			AS ABOVE								
E-TT125(CORONA			AS ABOVE								
E-TA46 (CARINA (CELICA)			AS ABOVE								
E-TA41(CARINA) (CELICA)			AS ABOVE								
E-TE56(COROLLA			AS ABOVE								
E-TE66 (SPRINTER)			AS ABOVE								
E-KE55(COROLLA			AS ABOVE								

Table 4.4 (Continued)

VEHICLE TYPE (MODEL NAME)	ENGINE TYPE	(EQUIVALENT INERTIAL WEIGHT (KG))	PRIMARY MEASURES FOR REDUCTION OF EXHAUST GAS	AUTOMOBILE EXHAUST DISCHARGE LEVELS						10-MODE RATE OF FUEL CONSUMPTION (TEST RESULTS) KM/ GD	MANUFACTURER'S REPORTED RATE OF FUEL CONSUMPTION KM/ GD
		TOTAL DIS- PLACEMENT (CC)		10 MODE g/km			11 MODE g/test				
				NO _x	HC	CO	NO _x	HC	CO		
				COMPLETION TEST TARGET VALUES							10 MODE "TRAVEL"
				ACTUAL TEST RESULTS							GD KM/HR "TRAVEL"
NISSAN											
E-11252 (PRESIDENT)			ENGINE IMPROVEMENT & TERNARY CATALYTIC AGENT & EXHAUST RECY- CLING (ELECTRONIC FUEL PROPUL. DEVICE)								
E-PJ811 (BLUEBIRD)			RAPID COMBUSTION ENGINE & OXIDIZED CATALYTIC AGENT & SECONDARY AIR INTRO. & EXHAUST RECYCLING								
E-P811 (BLUEBIRD)			AS ABOVE								
E-B310(SUNNY)			ENGINE IMPROVEMENT & OXIDIZED CATALYTIC AGENT & SECONDARY AIR INTRODUCTION & EXHAUST RECYCLING								
TOYO IND.											
E-CD3MC(COSMO)			ENGINE IMPROVEMENT & TERNARY CATALYTIC AGNT & SECONDARY AIR INTRO. & EXHAUST RECYCLING								
E-CD2VC(COSMO)			AS ABOVE								
E-LAYMS(LUCE)			AS ABOVE								
E-FAYTS (FAMILIA)			AS ABOVE								

Table 4.4 (Continued)

VEHICLE TYPE (MODEL NAME)	ENGINE TYPE	(EQUIVALENT INERTIAL) WEIGHT (KG)	PRIMARY MEASURES FOR REDUCTION OF EXHAUST GAS	AUTOMOBILE EXHAUST DISCHARGE LEVELS						10-MODE RATE OF FUEL CONSUMPTION (TEST RESULTS) KM/ HR	MANUFACTURER'S REPORTED RATE OF FUEL CONSUMPTION KM/ HR	
		TOTAL DIS- PLACEMENT (CC)		10 MODE g/km			11 MODE g/test					
				NO _x	HC	CO	NO _x	HC	CO			
				COMPLETION TEST TARGET VALUES								10 MODE "TRAVEL"
				ACTUAL TEST RESULTS								60 KM/HR "TRAVEL"
ISUZU AUTO												
E-PF50 (GEMINI1)			ENGINE IMPROVEMENT & OXIDIZED CATALYTIC AGENT & SECONDARY AIR INTRO. & EXHAUST RECYCLING									
FUJI H.I.												
E-A32 (LEONE)			ENGINE IMPROVEMENT & EXHAUST RECYCLING & SECONDARY AIR INTRO.									
E-A33 (LEONE)			AS ABOVE									
E-A34 (LEONE) (4-WHEEL DRIVE SEDAN)			AS ABOVE									
E-K24 (REX 550)			AS ABOVE									
SUZUKI												
E-5512 (FRONTE)			ENGINE IMPROVEMENT & OXIDIZED CATALYTIC AGENT & SECONDARY AIR INTRODUCTION									
E-5520 (FRONTE)			AS ABOVE									
CERBO			AS ABOVE									

Table 4.4 (Continued)

VEHICLE TYPE (MODEL NAME)	ENGINE TYPE	(EQUIVALENT INERTIAL WEIGHT (KG))	PRIMARY MEASURES FOR REDUCTION OF EXHAUST GAS	AUTOMOBILE EXHAUST DISCHARGE LEVELS						10-MODE RATE OF FUEL CONSUMPTION (TEST RESULTS) KM/ HR	MANUFACTURER'S REPORTED RATE OF FUEL CONSUMPTION KM/ HR
		TOTAL DIS- PLACEMENT (CC)		10 MODE g/km			11 MODE g/test				
				NO _x	HC	CO	NO _x	HC	CO		
				COMPLETION TEST TARGET VALUES							10 MODE "TRAVEL"
				ACTUAL TEST RESULTS							GO KM/HR "TRAVEL"
HONDA MOTOR			STRATIFIED VENTILATED COMBUSTION SYSTEM W/ SECONDARY CHAMBER								
E-SG			AS ABOVE								
E-SH (CIVIC)											
DAIHATSU			"WEAK" OR "DILUTED" COMBUSTION SYSTEM & OXIDIZED CATALYTIC AGENT & SECONDARY AIR INTRO. & EXHAUST RECYCLING								
E-G10(CHARADE)											
MITSUBISHI			WEAK COMBUSTION SYSTM & OXIDIZED CATALYTIC AGENT & EXHAUST RECYCLING								
E-A131A (GALLANT SIGMA (GAL. LAMBDA)			AS ABOVE								
E-A132A (GALLANT SIGMA			AS ABOVE								
E-A133A (GALLANT SIGMA (GAL. LAMBDA)			AS ABOVE								
E-A144A (LANCER) (LANCER CELEST			AS ABOVE								
E-A141A (LANCER)			AS ABOVE								

FOOTNOTES

¹This section is adapted from Gyosei kanri chō (Administrative Services Agency), Tōkei seido to tokei chōsa (Statistical System and Statistical Research), 1977.

²These and other employment figures are for fiscal year 1976.

³The following discussion is adapted from Sōrifu (Prime Minister's Office), tōkei kyoku (Bureau of Statistics), kagaku gijutsu kenkyū chōsa hokoku (Report on the Survey of Research and Development), 1977, pp. 1-16.