THE MEASUREMENT OF GROSS NATIONAL PRODUCT IN KOREA

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South Korea began its measurement of Gross National Product during the turbulent 1950's, a period of postwar rebuilding and of political and social changes. With only a small and largely inexperienced staff, and with little support from other statistical agencies whose data were essential to adequate GNP measurement, the Bank of Korea began this task in the early 1950's. Early estimates were extremely rough; over the years, the statistical staff was trained and other statistical agencies were upgraded. Measurements of output in the large agricultural sector and in manufacturing have gradually but consistently been strengthened as recent input-output data has been developed. Gaps still persist, particularly in the wholesale and retail sectors, but certain strengths are present: an outstanding job has been done in product pricing. The author describes the evolution of Korea's improving GNP program, presents its sources of data and its methodologies, and gives an assessment of problems of the past and prospects for the future.

The difficulties—both conceptual and statistical—involved in the process of measuring gross national product in the underdeveloped countries have been cited on numerous occasions. This paper will attempt to recount, as a case study, the problems encountered by Korea over the years in its measurement of GNP. Only that portion of the work that measures GNP by industrial origin will be appraised.

Korea, as is the case in other underdeveloped countries, was hastened into this complex statistical aggregation years before the economics and statistics community was adequately prepared for such a sophisticated undertaking. Trained staff was unavailable and basic statistical data was fragmentary and unreliable at best. The premature launching of the GNP program, before adequate preparation could be undertaken, was largely at the insistence of the varied aid organizations operating in Korea in the early 1950's whose understandable appetites for some kind of GNP "numbers" were not to be denied. Much has been learned about this difficult task in the twelve years since these earliest efforts. Now, major revisions, based on newly available data, are being made by the Bank of Korea which has handled the GNP work since its beginning.

The Bank of Korea makes estimates of GNP on an annual basis only; there are no published figures for quarterly rates. Prior to 1964 four major estimates

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were made: (1) a projection in January or February, (2) a preliminary estimate in August, (3) a preliminary final estimate in January, and (4) a final figure in July. Since 1964 the Economic Planning Board plan (or target) figure has replaced the projection; the preliminary estimate now comes out in December, and the final figure, as before, comes out in July.

Agriculture

With some 40% of Korea's GNP originating in agriculture, it is, of course, critical that this sector be accurately measured. Until 1964, however, rice production was the perennially unsolved statistical mystery of Korea. At transplanting time in July the village chief made an intuitive survey of acreage planted in comparison with previous years which likewise were not actually measured. The village chief's next concern was with the health of the plants and with growing conditions generally. No technical figures were recorded, and no standard report form was used. The village chief was not required to submit a written report; typically, an oral report was passed on to the myon office.

At the myon level, the myon chief put together these oral reports and came up with an estimate of his own. The myon chief was required to submit a written report on a standard form but estimates were put in such terms as "better than last year," or "worse than last year." This required a considerable memory problem because the previous year's estimate was equally non-quantitative. Political considerations and tax implications tempered the estimates at all levels as they flowed up to the province level and thence to the Ministry of Agriculture and Forestry (MAF).

In September the process began again. The procedure, although it varied considerably between years, was roughly as follows. A single pyong of rice land was selected and a local political figure, or occasionally an "expert" from a higher political division, went out and performed a cutting. On the basis of appearance of the grain, color, moisture content, etc., a report on "production" was composed and sent forward. This report, although more technical than the July estimate, was essentially a comparison with the previous year.

In 1961, each provincial governor was asked to make a sample survey of the myon in his province. Some did not follow these instructions and the MAF sent representatives from the central office to make the estimates. Although a single pyong cutting was to be made in each of the 1,407 myon, only 200 pyong were actually cut. Although this survey was quite incomplete, the resulting coverage and information for 1961 was recognized as being the most reliable estimate of rice production up to that time. But even this remained basically a comparison with earlier years of "rice in the field." As in earlier years these qualitative judgments of crop conditions flowed through the political hierarchy and were finally parlayed into an official estimate of "rice production."

In 1964 the first bonafide statistical measurement of rice production was made by the Ministry of Agriculture. In 1964, cuttings were made on the basis of a competent, well designed sample. This measurement showed rice production to be some 35% more than the official "administrative" estimate which used the techniques described above. Because of the 35% discrepancy between the statistical and administrative estimates, it was decided not to disclose the

larger statistical figure in 1964. Instead, the administrative figure was used for official purposes and was also used in GNP calculations. Rice production figures as measured by the new statistical method, although available for 1964, were first released in September of 1965.

This great advance from a political estimate of rice production to a statistical measurement should not be underestimated; it is indeed revolutionary. One weakness, however, remains: there is no exact measurement of total acreage. This weakens the sample design, particularly in the matter of stratification. The political approach to rice crop measurement has not died. Rather, it coexists with statistical measurement; total acreage is now "negotiated" by the political and statistical camps.

The degree of understatement of rice production by the political figures have been estimated approximately as follows:

1960	24%
1961	22%
1962	24%
1963	26%
1964	26%

Data for early years were arrived at by working back through administrative records using administrative-statistical relationships discovered in the 1964 and 1965 statistical surveys. Once released, the Bank of Korea revised their GNP series to reflect, among other things to be discussed later, the new rice production figures.

For the pricing of the rice crop, the Bank of Korea obtains "producer price" figures from the Federation of Agricultural Cooperatives. Pricing of the crop over the total marketing period is a tenuous operation—as it is in all countries—because the Korean farmer sells to wholesalers, retailers, final consumers, and to the government which uses part of its stock for price stabilization. In addition, about half of the rice is not marketed for a price but is consumed on the farm. An average figure is obtained by a two-way weighting system: it is weighted by type of sale and by months. Gross value is then obtained by multiplying the average annual price times estimated production.

In 1964 MAF also began a statistical survey of wheat and barley, which prior to that time had been measured only by "administrative" methods. For political reasons the figures resulting from the statistical survey were withheld an additional year, i.e. they were not released in 1965, and were used for GNP purposes for the first time in 1966. This called for another revision in GNP, although other revisions were also made at the same time, particularly in manufacturing. The degree of understatement of the administrative measurements of wheat and barley has been estimated as follows.

1960	28%
1961	28%
1962	26%
1963	50%
1964	31%
1965	32%

There is no statistical measure of vegetables and other non-grain farm products. The administrative figures for these items are still used in GNP calculations. Pricing methods are essentially the same as for rice.

Home consumption of rice and other agricultural products is based on a farm family income-expenditure survey which was until recently conducted by the Bank of Korea but which has now been transferred to the Ministry of Agriculture. It is interesting to note that for a number of years before the transfer, BOK used the income-expenditure sample of 600 farms to make its own unofficial estimates of rice production; each year these estimates were approximately 30% higher than the administrative figures for those years. The recent statistical measurements now bear out these earlier unofficial BOK estimates. However, BOK, for political reasons, used the "administrative" figures in its GNP work in these earlier years.

Mining and Quarrying

In the Mining and Quarrying sector, most data comes from the Mining Bureau of the Ministry of Commerce and Industry. The major companies, representing about 70% of the industry, submit monthly reports on production and shipments. Value of production is obtained by multiplying quoted price of the various minerals times reported production or shipments. In addition, financial statements of a few major companies come in once a year and afford additional information (such as wages and salaries, certain costs, and profits) for checking the general accuracy of the monthly reports. The most important information on the financial statements are the cost of production figures used to arrive at value added. The few value added adjustments that are available are all the more important because they are used as coefficients for adjustment of total value figures of those firms for which cost data are not available.

For the small companies which neither submit reports to MCI nor publish financial statements, a previously established percent of total production is used to estimate their contribution to value generated. This estimate, in turn, is adjusted by a cost percentage, arrived at from financial statements of other firms, to get value added.

The large amount of estimation in mining and quarrying could be greatly reduced if small firms could be induced to report to MCI, and if financial statements (and the accounting records behind them) were available for all firms in this sector.

Manufacturing

Up until the major revisions in 1964, based on the input-output data for the year 1960, the Bank of Korea's measurement of income generated in the manufacturing sector was based on their own census of manufacturing taken in 1955. The BOK selected about 400 commodities, created a manufacturing income index, and arrived at manufacturing income each year by relating the index to manufacturing income in 1955. The series were believed to represent

about 70% of the total manufacture of "new" commodities. About three-fifths of the 400 were Ministry of Commerce and Industry series and were used by the BOK without adjustment. The remainder fell under three headings: (1) those collected by MCI or other government agencies that were subjected to a credulity check by BOK for errors and deficiencies, (2) those collected by trade associations for commodities such as cotton yarn and wool cloth, and (3) series collected directly by BOK. Many of the latter were one-or-two firm industries such as steel ingot, cement, tobacco, salt, fertilizer, and carbide. Rice wine figures came from revenue stamp totals at the Ministry of Finance.

One difficulty of this pre-1964 measure of manufacturing income was that certain 1955 proportions were frozen and carried forward into later years. The following proportions were frozen: (1) the relative size proportions between manufacturing sectors (although some sectors were growing rapidly while others were growing more slowly), and (2) the proportions between individual commodities and their own industrial categories. For example, rubber tire production was assumed to have the same relationship to other subsectors as it did in 1955; if tire production accounted for 20% of total rubber production value added in 1955, then the current year value added figure for total rubber was merely the rubber tire figure multiplied by five. Finally, (3) repair was taken into account but was frozen at the same ratio to new commodity production as in 1955. Thus if commodity production went up 20%, repair was also added in with a 20% increase.

Because the basic data in manufacturing were merely physical production series, BOK had to go through the process of selecting an average price for the year for each series in order to synthesize value of product. After the 400 value figures were thus estimated, they were totalled and simple percentage additions were made for the remainder of manufacturing, and for repair, as described above. No attempt was made to arrive at value added for individual commodities or even for industrial categories. Rather, a single value-added coefficient was applied to the value of product aggregate for all manufacturing. The value added coefficient used from 1960 until the time of the "I-O revision" was 37%, a figure derived from the Korean Reconstruction Bank's (KRB's) 1960 census of manufacturing. For the years before 1960 a coefficient of 29.8%, obtained from BOK's own 1955 census, was used. It is interesting to note that BOK rejected, however, most of the other data available from the 1960 KRB census, including such things as commodity series data and manufacturing subsector proportions. Also of interest is a comparison of BOK's synthesized, 1955-oriented 1960 total value estimate with the "actual" total value as reported by KRB in its 1960 census: BOK's estimate was about 20% higher than KRB's census total. The cumulative effect of several explanations for the discrepancy such as definitions and size of firm coverage reduced it to about 15%. The general feeling in statistical circles after the 1960 census that underreporting in manufacturing was probably on the order of 30 to 50% made logical the rejection of the KRB figure in favor of the larger BOK estimate.

A major revision for manufacturing was made in 1964 using the basic input-output data for the year 1963. The input-output information has greatly

improved the measurement of income generated in the manufacturing sector. The 1965 I-O data now cover 1,200 commodities. Invoice price data is now used in place of unrealistic quoted prices. Repair is now measured independently using repair expenditure data, including inter-firm purchases of repair and consumer repair expenditures. Certain commodity series are subjected to credulity checks using demand or expenditure data now available. A favorite example is the case of ladies' handbags: the KRB 1963 census showed only 300 units produced whereas an occasional walk down the street (plus expenditure data) would indicate that 300,000 units would be a more likely figure. In addition, sample surveys of production are made for commodities whose output appears to be under-reported. Commodities produced in small home industries, which escape measurement in production surveys, are estimated on the expenditure or "demand side." Bean curd production, for example, has to be measured in this manner.

In addition to the above improvements, BOK has used the I-O data to revise its value added ratios: 31% was used for 1963. BOK has now begun an annual Business Management Survey covering more than 500 manufacturing establishments. From this survey comes a new value added ratio for each year, with value added also computed for 20 subdivisions. Exact constant dollar comparisons cannot be made for revised manufacturing value added, but gross value in manufacturing appears to be roughly 30% above the prerevision estimates for 1960; for 1963, however, the difference is on the order of 60%. The general feeling is that the I-O approach has just about corrected for the high degree of under-reporting in this sector.

Construction

Notable improvements have been made in the measure of value generated in construction. Until 1964, these data came from building permits granted by local governments, and government budgets for public building. The permits were in terms of floor space with only a general description of the building project. A value per unit of floor space had to be estimated in order to arrive at construction cost or value. There were no data on building starts, on permits never used, nor on abandoned projects. The most serious problem—which still exists—is the large amount of residential building that takes place without permits. And in rural areas permits are not required.

For a number of years government building figures were amounts budgeted for building projects. Amounts actually spent within a calendar year, and adjustments for partially completed projects, or for discontinued projects, could not be made. Now, however, the government furnishes BOK actual expenditures on building in time for inclusion in the final GNP figures.

Starting with 1965, data were collected on large private building starts but because of certain deficiencies, now being corrected, these data have not been used in GNP calculations. The most significant refinement in measurement of the construction sector, however, is again from the I-O studies. Floor space in

private housing is now valued with the use of building cost indexes. BOK now uses several cost indexes depending on the type of construction. To round out total housing expenditures, BOK makes somewhat rougher estimates of rural housing expenditures. More complete measurement of construction expenditures now has a high priority in BOK's GNP program.

Electricity, Water, and Sanitary Services

Income and cost figures for electricity are simple to collect; the Korea Electric Company publishes a consolidated annual income statement for its major hydroelectric plants and thermal plants, and for a few minor plants.

In the case of water, the basic information comes from local governments which sell and keep records of water use. Reports are sent to the Bureau of Local Government within the Ministry of Home Affairs. The Bank of Korea then picks up the figures from MHA's work sheets. The water-use data is not otherwise published.

BOK previously obtained a few figures on sanitary services from annual budget figures of the Ministry of Health and Social Affairs. The bulk of this, however, was a Seoul City figure, and even in Seoul it represented only the street and sidewalk sweeping budget. The figures were based on appropriations and no follow-up on actual expenditures was attempted by BOK, principally because the amount involved was too small. These figures are now supplemented by a "demand" measurement based on household expenditures for sanitary services. Expenditures for the various local governments are now included, with the bulk of the data coming from the 1960 I-O study, now extended to other years.

Transportation and Communication

The Ministry of Transportation operates the railroads and keeps records of the number of passengers carried and freight hauled, and makes available an income statement, complete with costs. This information is made available to BOK for development of this account.

Buses are now owned by several private companies and BOK now collects annual data from them. Proceeds from taxis were formerly estimated by informal chats with taxi drivers; now, however, direct data is collected from the taxi companies who now apparently keep relatively good records.

The streetcar portion of public transportation was previously operated by the Korea Electric Company. Figures on gross proceeds from the streetcar operation were obtained from the company's income statement, but costs and other pertinent data were not allocated to this operation, leaving numerous problems of estimation in order to arrive at value added. In May of 1966 streetcar transportation was turned over to Seoul City, and accurate data is expected from this source.

In communication, BOK must use budget figures of the Ministry of Communication for communication facilities operated by them. For telephone

service, income statements of telephone companies are used. In the communication sector, part of the data is good, part of it is indirect, and part of it must still be estimated somewhat roughly.

Wholesale and Retail Trade

Even though it would appear that half of the population of Korea is involved in selling, from small portable fruit stands to small one room "general stores" on up to large concession-type department stores, this very important area has never had even an establishment count, to say nothing of a measurement of volume of sales, inventories, number of employees, and the like. Somewhat instinctively, BOK allocates about 16% of total GNP to this unmeasured sector, some 30 percent larger than that previously attributed to manufacturing before the aforementioned I-O revisions.

The methodology used is as follows: wholesale and retail levels are lumped together and a "traders' margin" is applied to a sales aggregate made up of the value of manufacturing shipments, plus agricultural production sold in commercial channels, plus the value of imports. The estimate of manufacturing value, now based on the 1,200 items mentioned above, is used as the basic figure against which the traders' margin is applied except that an additional adjustment for manufacturers' own consumption is also made; a token adjustment is also made on the basis of some fragmentary inventory data available from other sources. The base figure of manufacturing value is also adjusted upward for transportation expenses. Import value is picked up from import statistics and the traders' margin is also applied to this. Agricultural produce sold in the market place is a weak link in the process for reasons described above, but this estimate must also be multiplied by the traders' margin. There are no wholesale and retail benchmark data of any kind—even poor data—with which this indirectly derived estimate can be compared. It is completely dependent on manufacturing, agricultural production, and imports, and moves up or down with those estimates each year.

The traders' margin coefficient is the other critical element in the estimating procedure and BOK has a rather elaborate system for arriving at this coefficient. Each BOK branch collects, aside from GNP work, price data on some 200 commodities for the wholesale price index. The price sector furnishes each branch with an additional questionnaire which calls for purchase price, sale price, and transportation. The respondents include manufacturers who tell what their selling price is, wholesalers and retailers who furnish both purchase price and selling price, and large agricultural wholesalers who furnish both their purchase price and their selling price. There are about 600 respondents giving such data on about 200 commodities. Some cross checking on manufacturers' selling price and wholesalers' purchase price is possible. When the overall "traders' margin" is computed, it is applied to the total of agriculture, manufacturing, and imports to arrive at income generated in the wholesale and retail sector. In a recent refinement, individual trader margins for some 20 subgroups have been developed. The greatest improvement in this sector, however, is in

the measurement of agricultural and manufacturing output against which the traders' margin coefficient is applied.

Banking, Insurance, and Real Estate

Banking data, collected directly by the Bank of Korea from commercial banks in its role as central bank, are solid and reliable. They are also complete for national accounts purposes, because cost data are also required in reports from the commercial banks.

Some data are collected from private finance companies, but there is little data on the large amounts of private lending. BOK attempted a survey in 1964 but this was considered only a token measurement of this important sector.

Information on insurance, of very minor importance in Korea, is quite complete because MCF collects compulsory information. In addition MCF gives individual income statements for the 20-odd companies to BOK so that GNP estimates can be completed.

Real estate sales data come from the real estate tax bureau. The consensus is that transactions that are reported to this bureau are only a fraction of the actual total and that as a result income generated in this sector is considerably understated. There are little data on the earnings of real estate brokers, an extremely mobile group within the business community.

Ownership of Dwellings

This category includes only privately owned or home dwellings; business buildings are excluded. Income from the latter is included in the appropriate business sector. Businesses rent buildings *from* others, and rent buildings *to* others. If rental income exceeds outgo, BOK puts it into the appropriate business sector. If outgo for rent exceeds income from rent, BOK puts it into the appropriate business sector as a minus item. Rent paid by business is a cost if it exceeds rent received and becomes part of value added.

BOK's methodology for computing income from home dwellings is fairly simple. Again, however, the data that must be used are of questionable reliability. BOK had to take what data were available when they began their GNP work. Available at the time was the Ministry of Health and Social Affairs count of dwellings and rooms for the year 1957. MHSA, collecting data through its administrative chain of offices, found in their count in 1957 3,836,000 dwellings with 8,715,000 rooms, giving 2.3 rooms per dwelling. To the 1957 figure for number of dwellings is added the number of dwellings constructed each year and a deduction is now made for dwellings destroyed. The 1965 figure now stands at 4,085,000 dwellings. The 2.3 rooms per dwelling is still used.

For rent per room data, BOK uses the two surveys covering farm and urban family expenditures. Rent per room for urban dwellings and rent per room for farm dwellings are computed separately. Total dwelling income is then arrived at as a weighted aggregate. As in most countries, home-owned dwellings are assigned imputed rent as if they were being rented by the owners.

Services

Income estimates for this large sector up until 1963 were based on the scantiest of basic data. Now, however, they have been strengthened by the I-O surveys. The Ministry of Education furnishes data on government education services. Expenditures by private schools and colleges are now collected directly by BOK in an annual sample survey.

Certain medical and health data is furnished by the Ministry of Health and Social Affairs: principally on the number of hospitals, the number of patients, and the number of doctors. BOK must supplement this with their own sample surveys of salaries of doctors and other personnel, and of income of hospitals. This same type of supplementary data on employees and income is collected to match the data on religious organizations furnished by the Ministry of Health and Social Affairs. BOK also surveys incomes, salaries, and profits of a wide range of establishments covering welfare institutions, legal services, trade associations, motion picture production, theaters, broadcasting, domestic services, restaurants, tea rooms, drinking places, hotels, rooming houses, barber shops, beauty shops, and photographic services. This more thorough coverage of the service sector has increased BOK's estimate of income generated in this sector by more than 50%; for example, the revised 1961 figure is 28 billion won compared with the pre-revision figure of 19 billion won. In general this sector now has reasonably good statistical coverage.

Public Administration and Defense

BOK, following the United Nations System of National Accounts, attempts to include in this sector government administrative expenses for such things as legislation, justice, public administration, and defense. Data are made up largely of the salaries of government workers performing these defined government activities. Excluded are salaries and expenditures in education, medical services, and certain transportation items not classified as administration proper. The other large item is, of course, the payroll of military personnel. A smaller item is major repairs to government buildings which is used as an estimate of their consumption or depreciation. Figures are also available on rent paid by the government for installations which house activities classifiable as administrative expense. Except for problems of deciding what is and what is not administrative, and the related problem of allocating expenditures where they are only partially administrative, data in this sector is good.

In Retrospect

Korean efforts in the measurement of Gross National Product point to a question faced by any developing country considering the launching of a program that places a heavy demand on its statistical staff and on existing statistical data. There are two extreme approaches that can be taken. The program can be delayed until the statistical staff can be given specialized training in concepts and methodology, and in adaptation of existing statistics to

GNP use. The program can be delayed until the appropriate statistical agencies—in varying states of disrepair—are capable of producing competent supporting statistics in basic sectors such as agriculture and manufacturing.

The other extreme approach is to begin the GNP program with whatever staff capabilities are available and with existing statistics collected by other agencies as they are, good, bad, or non-existent.

The Korean approach was very close to the second extreme. The GNP program could not wait for the delay involved in the training of a staff—expensive as well as time-consuming—and in the development of good statistical programs by other government agencies. Under this approach, training had to take place concurrently with the program. When other agencies could not furnish reliable statistics in their assigned sectors in the early days of the program, the Bank of Korea collected its own. In a real sense, the needs of the GNP program thus forced an earlier improvement of basic statistics. The statistics of other agencies had to improve to meet the new demands placed upon them. In retrospect, the "premature" approach was the proper one in Korea as far as statistical support from other agencies was concerned. The GNP program, looking back, could not have awaited improvement in the other statistical agencies. This improvement, as was the case for staff development, had to happen concurrently with the program; one cannot overlook the political, social, and military circumstances of the 1950's and early 1960's. Statistical programs must often seize opportunities as they occur, whether the timing and circumstances are favorable or unfavorable.

Early figures for GNP were, undoubtedly, extremely rough estimates. As late as 1963 and 1964 underestimation in agriculture was probably on the order of 30 to 40 percent, manufacturing probably somewhat higher. Reasons for under-estimation are complex; they range from simple failure to cover many sources of economic activity, to reasons related to taxation matters. Because other sector estimates were based largely on figures used in agriculture and manufacturing, underestimation became cumulative. Much economic activity is overlooked because accounting records are not kept, and hence information on output in the case of many establishments simply has never existed.

Ideally, a developing country should attempt to introduce good accounting practices, and should place the highest priorities on statistical measurement of agricultural output and manufacturing activity. Above all, statistics should be collected by professionally staffed statistical agencies, not by elements within the political structure. Somehow the statistical reporting program must be isolated or insulated from the taxation program to avoid incentives for under-reporting.

Perhaps even more fundamental is that a country accept the development of a good statistical program as a desirable national objective. Cooperation between statistical agencies is also vital. Statistical talent is a scarce resource in most developing countries and cannot afford to be dissipated in agency rivalries, animosities, and power struggles. The statistical function must rank high within the bureaucratic hierachy; too often the opposite is the case as statistical bureaus become dumping grounds for unwanted government workers.

A good GNP program, as pointed out above, calls for competence and integrity on the part of the statistical agencies charged with the collection of supporting basic data in the varied economic sectors. In the Korean experience, upgrading of these agencies has taken place under the "premature" approach as the GNP program has progressed. The leadership and foresight necessary to the upgrading of supporting statistical agencies, fortunately, has sprung up in Korea, largely in the quasi-governmental Bank of Korea. Progress from this point on should be rapid.

An element of strength, even in the earliest GNP efforts in Korea, has come from a perhaps unexpected source: the difficult problem of output pricing has been handled in an extremely competent manner. Accurate measurement of market pricing, especially without good accounting records, is a difficult task in a developing economy. Imputed pricing is a much larger job than it is in a developed market economy and a correspondingly more difficult one. These pricing problems have been handled with unusual competence and skill. The pricing of Korea's gross national product is reliable and represents the strongest element in the program.

La Corée du Sud entreprit son calcul du produit national brut durant la période agitée des années 1950, une période de reconstruction d'après-guerre et de changements politiques et sociaux. La Banque de Corée commença le travail au début des années 1950, ne disposant que d'une petite équipe inexpérimentée et de l'aide parcimonieuse d'autres bureaux statistiques dont les renseignements étaient indispensables à toute mesure sérieuse. Les premières estimations furent très approximatives; à mesure des années, l'équipe statistique fut formée et d'autres bureaux statistiques améliorés. Les mesures de la production dans le secteur étendu de l'agriculture et dans les industries manufacturières ont été améliorées de façon progressive et consistente à l'aide des données récentes développées par l'analyse inter-sectorielle. Des lacunes persistent encore, en particulier au niveau des secteurs de gros et de détail; mais il y a des points forts, tel qu'un excellent travail réalisé sur les prix des produits. L'auteur décrit l'évolution du programme d'amélioration du produit national brut, présente les sources de renseignements et les méthodes, et juge enfin les problèmes passés et les perspectives d'avenir.