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PRICE COMPARISONS FOR CALCULATING RATES OF EQUIVALENCE IN MEMBER STATES OF THE EEC, 1954-1970

SILVIO RONCHETTI AND GUY BERTAUD

Statistical Office of the European Communities

INTRODUCTION

Ever since it started its activities, the Statistical Office of the European Communities (SOEC) has devoted special attention to social problems and to comparisons of the standard of living enjoyed by workers in member states. The first surveys carried out in these fields date back to 1953, and the first comparison of real incomes of industrial workers in the coal and steel industry relates to 1954.

Of course, it is now accepted that the conversion of nominal incomes—expressed in national monetary units—into common units of account is only meaningful if the rates of equivalence used relate to the purchasing power in consumption. The application of the official rates of exchange would, in some cases, involve such distortions that the comparison would lose a great deal of its significance.¹

It is mainly for this reason that the Statistical Office has undertaken surveys in the field of prices and family budgets in order to collate the basic data necessary to calculate rates of equivalence in purchasing power in consumption, also known as "economic parities." The characteristics of these surveys and the methods used are explained in a number of publications of the Office.² These brief notes are intended to give a survey of the experience gained by the Statistical Office over a long period in the field of price surveys and to underline certain methodological problems of particular interest.

The first survey of retail prices in member countries was carried out by the Statistical Office in the context of the work of the High Authority of the European Coal and Steel Community (ECSC) in 1954. This was a pilot project, retail prices in ECSC member countries being collated for the first time for a direct comparison at the international level. The cooperation of the national statistics institutes of the six member countries enabled a list of about 230 articles to be drawn up, covering most of the range of consumption, and defined in such a way that they could be separately applied to each of the centers surveyed.

The endeavor to secure comparability had led the Office to commission a single team of survey workers to survey the prices. The results of the 1954 survey, which have the merit of being the first Community experience in the field of prices, were published in *Statistical Information of the High Authority of the ECSC*.³

¹ Cf. Milton Gilbert and Irving Kravis, *Comparative Study of National Products and Purchasing Power of Currencies*, Organization for European Economic Cooperation, Paris, 1954.

² Cf., in particular, *Statistical Information of the High Authority of the ECSC*, July-August 1957; "Comparison of Real Incomes in the ECSC," *Studies and Documents*, Statistical Office of the European Communities; and "Real Incomes in the ECSC 1954-1958," *Social Statistics*, No. 2, 1960, Statistical Office of the European Communities.

³ *Statistical Information*, July-August 1957.

The calculation of economic parities and the calculation of real incomes of workers in the coal and steel industries were the subject of a report from the Office in 1956.⁴

In 1958, the Office repeated the survey on retail prices, introducing important improvements both in methodology and in the list of items. On the latter point, the experience gained in the 1954 survey and the data obtained from a survey of family budgets of workers in the coal and steel industries⁵ enabled us to draw up a list of items which, while being less extensive than that used in the first study, ensured wider representativeness of workers' consumption. This list, structured in a more balanced manner in order to take account of the distribution according to item groups, consisted of about 180 basic items.

The 1963 survey, the third in the series, was characterized by a fundamental extension of the scope of the survey. Indeed, while the 1954 and 1958 surveys had been designed to cover the sectoral field of the ECSC industries, the 1963 survey extended to all manufacturing industry and, because of this, covered the whole of the territory of member countries.

In 1966, the Statistical Office repeated the price surveys from a different viewpoint: while the previous surveys had stressed the socioeconomic aspect of the problem, the new surveys were designed within a more restricted framework, having the precise aim of bringing together basic data for the study of the problem of economic fluctuations and competition.

It was important at the beginning of the first decade of the existence of the Common Market to determine the development of prices in the countries, to follow their trends, and to endeavour to pinpoint the influence which the European Economic Community (EEC) had been able to exert on these phenomena. For these reasons, the price survey was limited to a number of particularly representative items of international trade; it was carried out only in department stores, and related to a few of the largest towns in the member countries. While the scope of the surveys was limited, their frequency was increased and a twice-yearly frequency (April and October) was adopted.

The results of the semiannual survey of retail prices were published up to 1968 in the *General Statistical Bulletin*.⁶ Since 1968, the results of the April and October surveys have appeared in the *Studies and Statistical Surveys* series.⁷ 1970 was a key year in the work of the SOEC, the survey program being fundamentally re-designed so as to pursue several objectives at the same time within a coordinated plan at the international level.

For 1970, the United Nations started a project for the comparison of the gross national product of a large number of countries throughout the world (United States, United Kingdom, Japan, India, and so on). This study, very ambitious in its scope, was of interest in connection with that part of the retail price survey relating to "household consumption," which constitutes one of the basic

⁴ "Comparison of Real Incomes of Workers in the Community Industries—ECSC," *Studies and Documents*.

⁵ "Family Budgets of ECSC Workers 1956–1957," *Statistical Information, Social Statistics Series*, No. 1. SOEC, Luxembourg, 1960.

⁶ See Numbers 4-1967, 9-1967, 3-1968 and 9-1968, SOEC.

⁷ See Numbers 6-1968, 3-1970 and 4-1970, SOEC.

elements of the UN project, capital formation and public consumption making up other constituent parts of the comparison.

Alongside the UN study, which first and foremost will be conducted at a Community level, the Office has undertaken its regular surveys on industrial workers' wages. Of course, the Office has included in its plan the task of making comparisons of workers' incomes, which were carried out several times in previous years.

Taking into account these two elements, and with the desire of pursuing the studies on prices from the point of view of competition, the Office redesigned the semiannual survey and instituted a survey plan which suited the threefold objective pursued.

The coverage of the survey was considerably extended:

- (a) the list of products was increased to 600 articles;
- (b) the number of towns surveyed was doubled, i.e. 50 centers; and
- (c) all types of shops were taken into consideration.

In this way, it became possible to collect in a single operation the basic data required for the various studies undertaken from different viewpoints.

For 1970, the general survey was carried out, by way of exception, on a twice-yearly basis, the April survey being in the nature of a pilot project.⁸

Starting in 1971, the price survey will be annual and will enable indicators to be drawn up on the level of prices according to major item groups (food, clothing, and so forth). The calculation of economic parities can be carried out only every three years in relation to the wage surveys.

METHODOLOGICAL PROBLEMS

No complete and systematic methodological description will be given of the work of the Statistical Office of the European Communities on this question. This methodology—dealt with in publications already mentioned—is, moreover, a conventional and well-known one: average prices per item and per country are calculated within the framework of a list of articles and a certain field of observation. These prices are introduced into a Laspeyres formula, which gives, by means of double-weighting country *A* and country *B*, a double parity or fork of binary parities for each pair (*A*, *B*) of countries. An interesting solution has been devised for calculation purposes in order to observe the rules of transitivity in a highly synthetic system.

We shall therefore only deal with certain aspects of this work. For a part of it, the Statistical Office of the European Communities has undoubtedly supplied, thanks to several years of experience, a major positive contribution. For others, leaving aside realistic or ingenious approaches, the conceptual basis still remains a subject for reflection and discussion.

It may be said that from many points of view, the problems posed by international price comparisons (comparison in space) greatly resemble those encountered on a more conventional level in the compilation of price indexes (comparison in time). In both cases, something has to be said about lists, definitions, and

⁸ See "Retail Prices in the Countries of the European Community," Statistical Office of the European Communities, Doc. No. 479/71.

questions of representativeness and numerous decisions must be taken, such as what articles should be included, where and when the prices should be noted, and who should carry out the surveys and how.

But a new criterion, that of comparability,⁹ has created an additional difficulty in this international work. The difficulties are all the more serious, owing to the great number of countries in which the comparison is carried out; and to the fact that these countries, or, more precisely, the consumers in these countries, differ from each other from the point of view of standard of living or behavior.

It is easy to say, in the name of logic, what appears to be obvious—that the prices to be taken into consideration are those observed on the basis of both representative and comparable items. In reality, matters are more complex than this, and it can often be seen that the two criteria are conflicting.

Indeed, comparability may be increased by making the definitions as narrow as possible (in extreme cases, only taking into consideration quite specific branded articles). But the danger of bias appears clearly here, since in the last resort, these articles may only be representative of themselves.¹⁰ Conversely, an article or service considered highly representative in one or more countries, owing to a heavy budgetary weighting or coefficient, may not have an equivalent in another given country. Finally, by playing on the double constraint of comparability-representativeness and intersecting the detailed tables of consumption structures of the countries taken into consideration, it is possible to devise a list (or lists) of reference items.

But first of all a decision in principle ought to be taken, a decision which determines to a certain extent what will be done subsequently: must the list of articles be standard for all countries? Can other, less rigid solutions be envisaged? Indeed, in reality, since 1954 the Statistical Office of the European Communities has always adhered to, and applied, the principle of the standard list. The argument on which this decision is based is that although, owing to their geography and history, the six countries still have distinct social and economic differences more than ten years after the Treaty of Rome, it cannot be denied that there is more conformity than nonconformity.

It is therefore possible to find a standard list of some one hundred goods and services which will be satisfactory from the point of view of representativeness and comparability, and to arrive at a listing accompanied by all the necessary definitions. Perhaps we may point out that the European experts in difficult cases prefer to stress representativeness, adding opposite general definitions of items (e.g. refrigerators, stoves, washing machines) the reference "most common makes."

This principle of the standard list has therefore been adhered to. It implies, as a corollary, that an average price should be available for each item and for each country, on account of the mechanism of the double calculation of the index with the two available weightings. The absence of a single average price results in elimination of the item for all countries.

⁹ When trends in time are being measured, the comparability criterion is also encountered. In most cases, the problem is solved very simply by strictly adhering to the same article in time. Everything is, however, complicated when, in order to take account of technological progress, it is necessary to break a series. The difficulties are then of the same nature as those discussed in this paper.

¹⁰ The problem is to find them on the market. In some cases, the item may be so scarce that a search for it strangely resembles a treasure hunt.

Although not frequently, this situation has arisen. At any rate, there is something artificial here due to the rigidity of the system, which might be corrected so as to give greater flexibility.

It is one of the questions presently being studied by the Statistical Office of the European Communities for forthcoming surveys: one could perhaps envisage movable lists of items which could be common to two, three, or four countries. But the two disadvantages of such a procedure are well known: first, the weightings, being closely linked to the structure of the list, also become movable; and second, the nontransitive character of the Laspeyres indexes thus calculated must be considered.

As already pointed out, a list of items should be drawn up within the framework of a precise nomenclature, containing figures for consumption functions. The important harmonization projects carried out by the SOEC for the national accounting systems of the six countries have enabled the SEC system to be used from the beginning (European System of Integrated Economic Accounts, a European version of the SNA: Revised System of National Accounts of the United Nations). The representativeness of the list of items could therefore be checked in a systematic and logical way.

In the field of the lists of items and weights, the problems being closely linked, progress from the first survey of 1954 is very important in all sectors: number of articles, representativeness, detailed knowledge of consumption structures. This progress is also largely due to the convergence in time, over seventeen years, of economic policies and attitudes of the six countries; and, of course, to the good results obtained in harmonizing all the other Community statistics.

In order to organize the survey in the field, the scope of the study having been clearly defined, a decision must be made as to the number and distribution of selling points at which prices are noted. This is a scientific problem, since the fluctuation of prices around their average value is rarely zero.

In the first Community surveys, taking into account their objective, it was not difficult to pinpoint on the map the most representative towns of the coal and steel producing areas, and to locate in these towns—after rapid inquiries with the competent local authorities—the stores largely frequented by workers and their families.

But in the surveys we conduct today, without wishing to unduly exaggerate the size of the problem, some difficulties are encountered and certain precautions have been taken. In fact, the rates of equivalence envisaged comprise all households in the countries (value of private consumption within the GNP) or all workers' households (wages). Thus, there is a problem to be solved in order to arrive at a correct, or at least unbiased, estimate of average national prices.

On the strictly conceptual and theoretical level, it can easily be seen how this problem can be set out: in a two-dimensional universe of selling points, i.e. the town and type of store. A proper surveying plan must be elaborated with stratifications taking into account the geographical region, the size of the town (population), and the size of the store (sales surface area).

Given the knowledge, or an estimate, of price variations between towns and between types of stores, it will thus be possible to work on representative samples

or selling points (which, of course, would depend on the article studied), and to extrapolate the results for the country as a whole.

From a practical point of view, the problem poses itself in other terms. The variances between prices are not properly known; the tables giving the distributions of retail turnover over these different criteria are very incomplete or too aggregated. The only thing to be done—assuming that the size of the town and type of store (essentially the sales surface area) probably, and in a general way, have a certain correlation with the prices to be observed—is to distribute the network of observations in space, taking into account these two factors in a “quota”-type system.

This is a system currently applied by the SOEC. The prices noted are later weighted according to turnover (as in the Federal Republic of Germany) or are distributed from the beginning in a self-weighted system (Italy and the Netherlands, for example).

Finally, thanks to certain machine-processed data additional to the 1970 survey, we have new information on the dispersion structures of prices. Having measured certain variation coefficients, we can examine whether the distribution adopted can be maintained and whether any useful changes can be made in the number of observations, number of towns, and number of stores for future surveys.

Of course, the greater the variance between prices, the more care should be taken to distribute the sample in space. This risk does not seem to be serious for western Europe although, paradoxically enough, we are rather ill-informed in this field. However, it may be that for other countries the problem merits very close study.

There is little that can be said about the period during which prices are noted. Of course, these prices vary in time within the framework of a general, more or less rapid, increase and certain seasonal movements. It is sufficient to determine this period according to the calendar, taking into account administrative or practical considerations. For reasons which need not be discussed here, the Statistical Office and the six EEC countries prefer the spring or autumn periods. By applying the corrective coefficients drawn from the national price indexes, not to the prices themselves but to the parities at the end of the calculations, estimates corresponding to the year's average can be readily made.

The problem of the survey workers—indeed, the organization of the survey in the field—raises certain very interesting questions. Over a number of years, the Statistical Office has adhered to a system which seems logically foolproof: carrying out the survey in the six countries with the same team of international civil servants. The survey was staggered over six months. This decision was justified by the endeavor to provide, as effectively as possible, good conditions of comparability. But this method has now been abandoned. The operation has been decentralized within the six countries and even inside certain countries (France), which, of course, makes it possible to reduce considerably the time span of the work, and to carry it out over the whole area simultaneously.

But what about comparability under such conditions? Since the list of articles and corresponding definitions have been drawn up and defined over recent years within the framework of semiannual surveys on competition, everything gradually fell into place in the course of various meetings of the Working Party on Prices,

a veritable club of national statisticians. It may be maintained that, thanks to the constant change of sample products, and thanks to the frequent and regular visits—organized on a rotating basis so that five countries were always the guests of one of the others—the system is now well established, and comparability problems only arise when new articles are included in the list.

The program of processing the gross results of the survey in the computer, i.e. all the elementary price data, must be carried out in several stages. The first consists of showing the average prices per article and per country. It has already been pointed out that for certain countries the calculation requires a weighting system which takes account of trade structures. These average prices are given in national currency and in dollars on the basis of the official exchange rates. Coefficients of variation of prices around their average and the number of readings are also available.

The next phase is the calculation proper. This means working out the price ratios P_A/P_B and P_B/P_A for each article and each pair of countries (A, B). Thus we get the elementary parities which, when weighted according to the Laspeyres formula, give binary parities.

It is quite possible not to explain these price ratios, and to be content with storing them for the calculation of indexes. But the Statistical Office has always insisted on presenting the tables of these ratios because of their statistical interest: one country being taken as a reference (denominator of ratios), we have five columns, each of which corresponds to another country (numerator of ratios), the articles being listed in rows.

As all the permutations of the reference country are guaranteed, we have the matrices of elementary parities, which are extremely interesting to examine and analyse. First of all, there is the value of an ultimate test, since deviating ratios immediately attract attention. There is also the scientific interest, since the column of price ratios can be treated like any statistical series. The coefficient of variation of these ratios is calculated, a very significant indicator¹¹ which reflects the resemblance or nonresemblance of the pair of countries studied. The development can also be studied over a period, starting from the first surveys, and certain convergence effects measured. Finally, to the extent that the list of articles included can be regarded as constituting a sort of sample drawn from the universe of goods and services, some idea can be formed of the effectiveness of the sample and the theoretical accuracy of the estimator of the final parity. It may be noted, in passing, that the fact that the coefficients of variation vary appreciably between pairs of countries may be an argument against the principle of the common list.

Having the price ratios at our disposal, we continue the aggregation and synthesis by calculating the matrix of Laspeyres indexes. We know that for n countries there are: $n(n - 1)$ indexes.

These results will obviously be presented on the most general level, i.e.: all articles \times all countries. But other results will also be worked out for interesting subassemblies. A first family will be of the following kind: category of articles \times all countries (on the basis of the SEC). The other, prepared for all articles, will enable parities to be calculated according to type of trading establishment (small

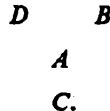
¹¹ The value of the coefficient of variation is generally between 20 and 40 percent.

stores and large stores), and according to town: all articles \times towns; all articles \times types of trade.

All these results will make it possible to compare and measure price levels, either within a country or between countries, for homologous assemblies, such as large towns and small stores. Thus, we hope to be able to organize future surveys in a better way and even to simplify them, thanks to a more rational distribution of fieldwork.

Once the Laspeyres indexes have been calculated, the work is usually continued by also calculating the Fischer indexes [of which there are $n(n - 1)/2$].

Unfortunately, these indexes are not transitive, although the Fischer indexes are not far from being so. Frequently, this difficulty can be avoided by a star-shaped scheme of reference, with one of the countries (*A*), taken from the international comparison, considered "important" enough to be placed in the center of the whole system:



A scheme of this type is not applicable to the Common Market countries. It was, therefore, necessary to consider these problems of transitivity, since $n(n - 1)$ indexes cannot be used for converting nominal wages into real wages, or at least give a distorted effect.

A method devised by an expert from the Statistical Office, Professor Van Ijzeren, has many advantages. It has been described at length both in the publications of the Central Statistical Office at The Hague and by those of the Statistical Office in Luxembourg. It is worth recalling that this is a calculation by iteration of a nonlinear system of n equations with n unknown factors, in which the parameters are shown by the Laspeyres indexes. The system is based on a very concrete tourist-type model and has a number of qualities: in particular, its lack of sophistication. This method will again be applied by the Statistical Office of the European Communities to the results of the November 1970 survey.

APPLICATIONS AND CONCLUSIONS

Before examining the extension of the calculation of economic parities carried out within the framework of the 1970 price survey, it seems worthwhile to stress once again the possibilities of analysis offered by this calculation. Indeed, the various series of parities mentioned in the preceding paragraphs permit a graduated approach to the problem of consumer prices and highlight the various facets of this complex phenomenon.

In the first stage, the analysis of the matrix of elementary parities leads to a comparison of prices at item level. This operation is of fundamental importance, owing to the fact that among other things, it provides concrete evidence as to whether the definitions of the different items were correctly interpreted on a Community basis. Where the elementary parities deviate, the corresponding basic prices will be checked to ascertain whether the abnormality is to be attributed to a

real difference in prices or to a misinterpretation of the definition of the item concerned.

The successive aggregations provide a variety of information of a structural nature. A first aggregation will deal with all the items broken down according to type of trading establishment: on the one hand, department stores, multiple chain stores, supermarkets and hypermarkets, and consumer cooperatives; and, on the other hand, other retail stores. This calculation, carried out for the first time within the framework of the study of economic parities, will supply the basic elements required for a concrete examination of prices broken down by kind of trading establishment.

A similar aggregation, equally concerned with all the articles, and considering all types of stores, will serve to throw light upon the element "size of towns." The price survey, in fact, considers two types of population center: towns with a population of over one-hundred thousand and those with populations of less than one-hundred thousand.

On the other hand, a study of the dispersion of prices according to region is not intended, the number of towns considered being too small to ensure acceptable representativeness in such calculations. But within the framework of analyses of subassemblies, economic parities covering all types of trading establishments and towns will be calculated on the basis of main categories of articles: food, clothing, rent, furniture, services. It will thus be possible to undertake a comparison of partial parities with the general parity and to indicate any possible discrepancies.

Finally, the synthesis for all articles, all forms of trade, and all types of towns gives the general parity for the country as a whole, i.e. the number of monetary units which, in each country, provides the same purchasing power during a given period. It is the rate of equivalence of consumer purchasing power compared with the official exchange rate which enables the real position of each country to be determined in relation to the others.

For information purposes, while awaiting the results now being worked out for 1970, it has been found worthwhile to revert to the economic parities of 1958 and 1963 and the values extrapolated to 1966, the last year for which the calculation was carried out. The parities were expressed according to commodity in Belgian francs. (See Table 1.)

Continuing along the same lines, we again compared the binary economic parities with the official exchange rate for 1958 for the steel industry. In spite of

TABLE I
RATES OF EQUIVALENCE OF CONSUMER PURCHASING POWER
[in Belgian francs]

| Country | Steel Industry | | Industry as a Whole | |
|-----------------|-------------------|--------|---------------------|--|
| | 1958 | 1963 | 1966 | |
| Germany (F. R.) | 1 DM = 11.70 | 11.70 | 12.00 | |
| France | 100 Fr.F. = 11.37 | 9.70 | 10.10 | |
| Italy | 100 L. = 7.82 | 7.95 | 7.80 | |
| Luxembourg | 100 Fr.L. = 97.46 | 100.00 | 102.00 | |
| Netherlands | 1 Fl = 15.45 | 15.20 | 14.50 | |

the outdated nature of this calculation, the results seem particularly interesting, owing to the fact that for certain countries, divergencies from the official exchange rate are considerable and systematic between Belgium, on the one hand, and each of the other countries, on the other.

Table 2 points up the most important aspects of the problem. The disparity between the economic parities and the official exchange rate provides, first of all, an indication of the level of prices according to pairs of countries. We note, for example, that compared with the official rate of exchange, the level of prices in France was 4 to 11 percent higher than in Belgium. On the other hand, in the Netherlands the level of prices compared to Belgian prices, still compared with the official rate of exchange, was 13.5 to 17 percent lower.

TABLE 2
COMPARISON OF ECONOMIC PARITIES WITH OFFICIAL RATES OF EXCHANGE, 1958
[official rate of exchange = 100]

| | West Germany | | France | | Italy | | Luxembourg | | Netherlands | |
|---|-----------------|-------|--------|-------|-------|-------|------------|-------|-------------|-------|
| | DM | % | Fr.F. | % | L. | % | Fr.L. | % | Fl | % |
| Official exchange rate | 8.404 | 100.0 | 840.0 | 100.0 | 1251 | 100.0 | 100.0 | 100.0 | 7.590 | 100.0 |
| Economic parity: | | | | | | | | | | |
| a. Belgian weights | 9.088 | 108.2 | 933.2 | 111.1 | 1356 | 108.4 | 104.5 | 104.5 | 6.564 | 86.5 |
| b. Weight of country indicated in column head | 8.350 | 99.4 | 872.4 | 103.9 | 1172 | 93.7 | 102.0 | 102.0 | 6.323 | 83.3 |

As has been pointed out, the level of prices falls within a greater or lesser area of dispersion, which reflects the difference in the weighting scheme used for the calculation of binary parities; the more the weighting schemes of two countries differ one from the other, the greater is the area of dispersion.

It can be clearly seen from the table that the Benelux countries have the closest weighting schemes, while the greatest difference in consumption structure occurs between Italy and Belgium.

We can discern for 1958 three groups of countries having particular characteristics:

In the first group, represented by France, economic parities are lower than the official rate and the indexes fall below the base line representing the exchange rate.

The second group (the Netherlands) shows opposite characteristics, the parities being greater than the official exchange rate.

Finally, for the third group, which includes Germany, Italy, and Luxembourg, the economic parities do not deviate to a great extent from the official rate, even if the dispersion zone is large, at least for the first two countries.

We might conclude, therefore, that in 1958:

- (1) the internal purchasing power in France was distinctly lower than the value attributed to it by the official exchange rate, and, consequently, the level of prices was higher than in the other countries;

- (2) the level of prices was, on the other hand, particularly low in the Netherlands and the Dutch guilder had a purchasing power considerably greater than the official value; and
- (3) for the other countries (Germany, Italy, and Luxembourg), as a general rule, we can say that the price level was more or less similar; it was lower than that of France and higher than that of the Netherlands.

We might finally point out that the financial measures taken in France toward the end of December 1958 have corrected the situation in that country, thus implicitly confirming the results of the SOEC survey.

The Statistical Office of the European Communities, continuing its work on wages in the manufacturing industry, plans to undertake a comparison of real wages of workers by using, as in the past, rates of equivalence of consumer purchasing power. Of course, these parities take into account the general characteristics peculiar to industrial workers. Thus, a series of rents was drawn up corresponding to the types of workers' housing.

With regard to the weighting scheme corresponding to the consumption structure, the Office plans to carry out tests to determine to what extent the results of the calculation are influenced by this element. Moreover, a more general calculation will be made in order to incorporate the SOEC's work into the wider framework of the United Nations study mentioned above. In this project, the parities used for the conversion of gross national products will be calculated on a broader basis than that of private consumption. The latter will always play a basic part, however, provided, of course, that it relates to the whole of the population. This is why it is planned to calculate a rate of consumer purchasing power applicable to the population as a whole.

The results of this calculation, which will be made for workers, using the same principles as those discussed in the preceding paragraphs, will be integrated into a wider compilation which will feature parities relating to the formation of capital and public consumption. We shall thus arrive at the "equivalences of purchasing power" laid down for the first time twenty years ago by Gilbert and Kravis,¹² and which were used again on new bases by the UN study.

It remains for us to stress a final application which concerns the restructuring of the forthcoming price surveys planned by the SOEC. The drawing up of various series of parities—according to types of stores, size of towns, groups of articles—will provide a very intricate documentary basis for the organization of annual consumer price surveys. In other words, it will enable forthcoming investigations to be restructured according to a less pragmatic scheme than that hitherto used.

Moreover, the documentation available to the SOEC would make it possible to carry out a scientific study on variance analysis. This study, which would obviously be the ideal basis on which to tighten up the price surveys from the statistical point of view, would require a major effort on the part of the SOEC and would probably not be available for a considerable time.

¹² Cf. Gilbert and Kravis, *op. cit.*

