ECONOMIC BAROMETERS.

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At the annual meeting of the Association of Chambers of Commerce of the Irish Free State this year the Chairman stated that "in the absence of adequate reliable data it is very difficult to give an accurate survey of the conditions of trade in the Free State." That represents in a nutshell the position of anyone desiring to make an economic survey of the country. Not that there is anything very exceptional in this. It is equally difficult to make a concise economic survey of, say, Portugal or Scotland. The only fairly up-to-date measurements which are available to the ordinary man are our foreign trade, bank clearings and railway statistics.

Demand, one would feel, ought to create a supply. In this very self-conscious country the number of men, prominent and obscure, who try to assess the economic position is relatively large. It is puzzling to one in my position that there has been no conscious, definite desire for some form of economic barometer. By that term I mean a group of up-to-date representative economic facts. True, there has been a definite demand for a year-book or statistical abstract. Such a compilation would provide a group of very important economic measurements—population, vital statistics, foreign trade, prices and other data collected and computed by the Government. It would probably, though not necessarily, lack important non-Government computations. The real criticism against it for our present purposes is that its very thoroughness would make it unwieldly and late. By an economic barometer we mean something compact and prompt. I do not think that I need spend any time proving that the possibility of developing such a barometer is worthy of discussion by the Statistical Society.

At the beginning, however, let me stress the following points. I do not suggest that the absence of such mechanisms is a reflection of our backwardness as a community. I do not suggest that that euphonious phrase, "economic barometer," represents an original or spectacular concept, or an infallible, thorough piece of machinery. There is a very regrettable tendency in Ireland either to exaggerate the importance of ordinary little innovations or to be disappointed in them because they do not "hit the high spots."

Prices represent probably the oldest measure of economic welfare. When we were being taught about the trade cycle we were shown a chart of prices. We were duly impressed with the regularly recurring cycles and accepted implicitly that prosperity was correlated with high prices and depression with low prices. Jevons' theory that prices (and therefore economic welfare) moved in the same procession as the sunspots was for a while statistically plausible. The price cycles after a few decades got out of hand, however, and refused to keep pace with the sunspot cycles of eleven years. Later came Professor Moore's fascinating little book, "Generating Economic Cycles," in which he showed in a most appealing manner that harmonic analysis revealed an eight year cycle in prices, barometrical phenomena, harvests, etc., all of which coincided with the eight-yearly transit of Venus, which disturbed the electromagnetic communications between the sun and the earth and thus upset the flow of Nature's bounty with us. After being caught in the sunspot snare we were too wary for other statistical plausibilities. We have had more convincing explanations of the trade cycle—over-production, underconsumption, etc.—no one of which is completely satisfactory. The modern tendency, however, is to speak not so much of the "Trade Cycle" but of "Stabilisation."

Stabilisation means the deliberate elimination of ups and downs. Before we can eliminate the recurring and non-recurring elements which disturb the economic equilibrium we must be able to feel their approach. "At two o'clock in the morning if you open your window and listen you will hear the feet of the wind that is running to call the sun." Only a poet could hear those feet. In the same way only the statistician can pick up the warning notes that herald the approach of a peak in the trade cycle.

In Ireland we are not very interested in the cyclical fluctuations in trade; we probably do not believe in them. We are more anxious to prove that the country is going to the dogs or that it has a beautiful future in store. In statistical parlance

we are interested principally in the secular trend. Before either the secular trend or recurrent fluctuations can be isolated or controlled, however, it is necessary to have an efficient and prompt assessment of the trading position. Price index numbers are important, but incomplete, measures of economic activity. We require something more. It is unnecessary to trace the gradual development of that something more into our modern "economic barometer." Suffice it to say that for all practical purposes economic barometers are a post-war product and they are still in a relatively early period of development.

Their cradle was, as one might expect, the United States. In 1919 the Harvard University Committee on Economic Research was formed, and the Committee produced the Harvard Economic Service. This Service consists of a Weekly Letter (giving a brief analysis of the business position) and the Review of Economic Statistics. Now in gathering these economic statistics one would have a very different problem in America to that in Ireland. In the United States the trouble was to choose among the bewildering variety available—to pick out a group of manageable proportions.

It required laborious experiment before the less significant of the phenomena could be discarded. To describe in complete detail the series at present used would be impossible within my limited time. Broadly speaking, they are as follows :—

Prices—Weekly Wholesale Index of 404 commodities.

Production—Manufacture (equipment and vehicles, steel ingots, pig-iron, lumber, cotton group, wool group, cement, food, slaughterings, tobacco, footwear, carpets and rugs, gasoline); Mining (bituminous coal, petroleum, copper, zinc, iron ore).

Stocks—Producers' Goods (rubber and tyres, mineral oil, building materials, iron and steel, non-ferrous metals and coal, chemicals, machinery and miscellaneous equipment, railroad equipment); Consumers' Goods (distribution, meat packing and leather, foods, beverages and tobacco, apparel and textiles, motors and accessories).

Freight Car Loadings—Forest products, coal and coke, grain and grain products, merchandise, live stock, ore.

Building Contracts Awarded—New floor space.

Money Rates—Loan rates on prime commercial paper, 4-6 months; mixed collateral loans, 3-4 months; prime eligible bankers' acceptances, 90 days; mixed collateral call loans; bankers' acceptance call loans; bond yields.

Banking—Acceptances, commercial loans, investments, discounts, total earning assets, net demand deposits inside and outside New York City.

Complete statistics are not available weekly in each section but a full statement is available each month. The selected items in the above list are in themselves numerous, and at a first glance might seem to include every measurement that comes under the purview of the quantitative economist. Such is not the case, however. We miss the familiar "Sales of Chain Stores" and "Unfilled Orders of the United States Steel Corporation," etc., which were bell-wethers in their day. The European reader will note the complete ignoring of imports and exports and the foreign exchange rates. This is because, as far as the United States is concerned, external trade conditions are not a significant factor in the national welfare.

As a more compact measure of the trend of business five series are shown—(1) Bank debits outside New York City, (2) Freight Car loadings, (3) Building Contracts awarded, (4) Pig-iron production, and (5) Indexes of the volume of manufacture and numbers employed.

So much for the measurement of the *existing* position. The Harvard investigators went further. They undertook to *forecast* the trend of business. The preliminary steps were to investigate business conditions for lengthy periods in the past and to see how far the various ups and downs were preceded by similar ups and downs in other phenomena, such as share prices. One can imagine the amount of labour involved in the investigation. The outcome was that three curves were established. The first, representing *speculation,* is a combination of New York City bank debits and prices of certain industrial stocks. The second, representing *business,* was a combination of bank debits of 140 cities outside New York and wholesale commodity prices. The third, representing *money,* was based on rates for short-time loans.

It was shown with remarkable statistical plausibility that these three curves tended to rise and fall in regular sequence, that an upward or downward movement in the speculation curve heralded a similar movement in business and money. The scheme was of course purely empirical. In the four years after 1919 there was many a hit and many a miss. In 1923 the constitution of the groups was revised in the light of experience. At the beginning of the present year, *i.e.,* after a further three years, the business and money groups were revised again, and the speculation group is being subjected to revision at present. Each revision has of course made for improvement.

I am not going to enter into a discussion as to the fundamental possibilities of the Harvard forecast. Nor do I intend to debate any of the controversial technical questions relating to correction for seasonal variation, isolation of secular trend, "deflation" of value series into volume series, etc. They ought perhaps to arise in an advanced discussion on economic barometers, but at present I am only concerned with a general sketch of what is being done in various countries.

The Harvard barometer is only one of those produced by the many statistical services in the United States. But it is the outstanding effort of its kind. It could be produced only in a country which appreciates and can finance such work. The Committee on Economic Research in Harvard University consits of seven. The Chairman is also director of the actual Economic Service. He has an Assistant Director, four Editors and Assistant Editors, a Director of the Statistical Laboratory, two Statisticians and two Economists.

The staff is not alone eminent and large; it is also wholetime. None of the professors are involved in lecture work and student administration. Ireland could never hope to have more than a pale reflection of such an organisation. But that does not prevent it being of interest to us.

In 1923 Harvard's example was followed in England under the joint auspices of London University, Cambridge University and the Federation of British Industries.

The Executive Committee consists of Sir William Beveridge and Professor Bowley (London University), Professor Keynes and Mr. Robertson (Cambridge University), Mr. Tennyson (Federation of British Industries), and Sir Charles Addis.

The work done is similar to that in Harvard, but there are of course important variations in detail. A monthly report is issued, but there is no Weekly Letter. Weekly statistics are not available in sufficient quantity in Great Britain. There are, however, numerous supplements which almost correspond to the Weekly Letter, and in addition there are Special Memoranda showing the results of detailed investigations into particular problems.

The economic phenomena on which attention is focussed are—

Prices—Silver, Board of Trade Index (food, materials, all items); Statist (Food, Raw Materials); Cost of Living Index (Ministry of Labour).

Banking—Clearings (town, country, provincial); Bank of England private deposits, bank and currency notes in circula-

tion; monthly deposits, discounts, advances and investments of nine clearing banks.

Money—Day-to-day rate, three months' rate—Treasury bill allotments.

Security Prices—20 industrials, 8 speculative, 4 fixed interest, yield on 4 fixed interest.

New Capital Issues—For Great Britain, for all countries.

Foreign Exchanges—Paris, Italy, Berlin, Amsterdam, Prague, Berne, Stockholm, New York, Buenos Aires, Rio de Janeiro, Bombay, Hongkong, Yokohama.

Foreign Trade—Imports (food, drink and tobacco, raw materials, manufactures, total); Exports (ditto); value only.

Production—Coal, pig-iron, steel.

Shipbuilding—Tonnage commenced.

Shipping—Tonnage entered and cleared at all British ports —index of time charter rates—freight rates.

Seamen—Number shipped.

Dock Labour—Average number engaged.

Railways—Goods receipts—fuel, minerals, general merchandise.

Unemployment—All trades; all excluding shipbuilding and engineering; changes in shifts worked (iron and steel).

Wages—Average eleven weekly rates.

As distinct from the Harvard group, the British list stresses foreign exchanges, foreign trade, capital issues, shipping and shipbuilding. This is largely because external business and financial relations are relatively much more important for Great Britain than for America. A further explanation, however, is that statistics of actual production are not easily obtainable in Great Britain. To meet this difficulty Mr. Rowe conducted an investigation the results of which were published as a Special Memorandum, "The Physical Volume of Production," in October, 1924. Following on that a Quarterly Index of Production has been compiled, based on the following groups:—

1. Coalmining.
2. Iron and Steel, Shipbuilding, Railway Vehicles.
3. Copper, Lead, Tin and Zinc.
4. Cotton, Silk.
5. Wheat, Flour, Cocoa, Tobacco.
6. Sulphuric Acid, Oil Seed Crushing, Superphosphates.
7. Paper.

Another item in the American list which is absent from the British list is " Stocks of Commodities." The omission is not due to a lack of appreciation of its importance, but to the lack of readily accessible data. An attempt to fill the gap is made in occasional Special Memoranda by Professor Keynes and Mr. Rowe, which give exhaustive details of the existing stocks of cotton, copper, tin, lead, zinc, rubber, sugar, tea, coffee, petroleum, nitrate and wheat.

While all these data are wanted by the student, it was of course considered desirable to have a more condensed group which would reflect the position at a glance. This took the form of four curves—

1. Price of 20 industrial shares.
2. Board of Trade Wholesale Prices (excluding food).
3. Value of imported manufactures (corrected for seasonal variations).
4. Short money index.

These were being investigated in the early post-war years before the details of the Harvard Research became available and before the London and Cambridge Service was established. Their similarity to the Harvard forecasting groups is therefore remarkable. The first corresponds to the Harvard *speculation* group; the second and third to *business*, and the fourth to *money*. The results obtained have also been very similar.

Though the Federation of British Industries co-operated in the production of the London and Cambridge Economic Service, it has since developed a business barometer of its own, which it publishes as an Economic Supplement in its review, " British Industries." This section is unambiguously headed " How to Forecast Trade Conditions." The principles on which it is based are enunciated as follows :—

" Our Business Barometer, which is published at quarterly intervals, is constructed on the basis that the more important alterations in the state of trade are due to changes in the rate at which orders are placed, goods manufactured, and investments made. The extent to which trade can deviate from its normal rate of flow is conditioned and controlled by the state of the Money Market and the policy of the Central Bank in the country concerned. We believe that by watching the movements of the Money Market and studying the actions of the Bank in relation to current business conditions it is possible to forecast ahead with a fair degree of accuracy the future course of trade. Broadly speaking, we may describe the trade of the country as being carried on by the circulation of a compara-

tively limited stock of money which flows to and fro between the Banks and the innumerable channels of Industry and Commerce. The small quantity of money employed in comparison with the number of transactions which it has to finance makes it not only peculiarly susceptible to changes in trade but also to changes in the rate at which it is made to circulate in commerce. This means that alterations either in the flow of money, such as may be caused by changes in the Bank rate, or in the evenness of its distribution in the various trade channels following a maladjustment either in production or relative prices, inevitably react on business conditions. These alterations in the flow of money serve as a fairly reliable Barometer of forthcoming changes in trade."

It will be noted that stress is laid on the fundamental importance of money market conditions, a point that will be of importance when we come to deal with Ireland.

The summary of business conditions is based on a rather limited, but representative, series of data—

Output—Coal, coal (home consumption), pig-iron, steel.

Railway Traffic—General merchandise (tonnage).

Foreign Trade—Imports (raw materials retained), Exports (British manufactures).

Unemployment—Engineering, shipbuilding and metal trades (Trade Union percentages); Total registered unemployed males.

Banking—Town clearings.

The above are tabular. In addition there is a chart showing—

Money—Advances and Deposits of clearing banks, Bank of England Rate, percentage of Bank of England liabilities to reserves, home and overseas investments.

Production—Imports of raw materials (volume and value), exports of manufactures (volume and value), output of steel and pig-iron, employment (metal trades), and general merchandise (railway tonnage).

Wages.

In addition there is a curve purporting to show the change in the general level of business. Some of the calculations, including the last, do not appear to be fully justified. Each supplement contains an excellent article on some special economic problem. In so far as the forecasts are definite they do not seem to be wholly, or even largely, derived from a statistical investigation (using the word "statistical" in the scientific

sense), such as, say, plotting one curve that will foreshadow changes in another curve.

There are compiled in England other "barometers" which do not make any reference to forecasting but which provide a series of representative measurements as a guide to the economic position.

The *Manchester Guardian* each week publishes a collection of small, neat charts showing Bank of England balance-sheet items, U.K. coal output, cost of living, unemployed registered, New York exchange, Paris exchange, currency notes in circulation, and the prices of gold, silver, copper, wheat, spot cotton, cotton yarn, wool tops, iron, rubber, tin and copra. In addition there are tables showing U.K. floating debt, money rates, and the prices of fifteen representative securities.

Of somewhat similar nature is the monthly supplement published by the *Economist*, "The State of Trade at Home and Abroad." In dealing with home trade the following details are shown :—

Unemployment—State Insurance per cent.

Production—Coal, iron, steel.

Foreign Trade—Imports, re-exports, exports.

Transport—Railway receipts, shipping freights.

Prices—Economist index.

Trade Disputes—Working days lost.

Security Values—Bankers' Magazine index number.

Finance—Bank notes, currency notes, deposits, bank advances, Bank of England cash ratio, London and Manchester clearings, three months' discount rate, day-to-day rate.

France.

Following on the example set by Harvard and London and Cambridge, M. Lucien March, the Director of Statistics in Paris, opened a similar compilation for France (in 1924, I think). His tables are made up of the following details :—

Finance—Price indexes of one Government stock, one railway debenture, ten metal shares and five financial shares; new capital issues; clearing house returns; sterling and dollar exchanges; note circulation; Bank of France total resources and private deposits; discount rate.

Prices—Gold, silver, wholesale (food, raw materials, all items), retail (13 items, cost of living).

Foreign Trade—Imports ("deflated" volume of food, raw materials, manufactures, total); exports (ditto); total weight in metric tons.

Output—Coal (excluding Saar), pig-iron, steel.

Shipping—Tonnage entered and cleared; inland water traffic.

Railways—Receipts; number of trucks loaded.

Employment—Numbers found work as percentage of those not found work.

The chart is as distinct from the British as the British is from the American, but it has the same underlying character of speculation, business and money. There are four curves—

1. Price of ten metal shares.
2. Wholesale prices of raw materials.
3. Railway trucks loaded.
4. New York Exchange.

No clearing effort or claim has been made by M. March as to the forecasting possibilities of this group. It will be noted that here again importance has been attached to foreign trade and foreign exchanges.

GERMANY.

After the French series one was compiled for Germany by Dr. Moritz Elsas, of Frankfurt, in consultation with Professor Lotz, of Munich, and Professor von Schulze-Gaevernitz, of Freiburg. The series used is—

Finance—Share index of Statistische Reichsamt; capital issues (new companies, existing companies); Reichsbank (clearings, outside deposits, note circulation); floating debt; dollar exchange; daily money rate; number of bankruptcies.

Prices—Silver, foundry pig-iron, wholesale (food, all items); cost of living (official, Elsas).

Foreign Trade—Imports (food, raw materials, manufactures, total); exports (ditto); in metric tons and gold marks.

Output—Coal, iron, steel.

Transport—Shipping entered and cleared Hamburg; railway goods receipts.

Employment—Registered unemployed; trade union percentages (unemployed, short time).

Bankruptcies.

The German compilers have not yet chosen a condensed series for charting purposes and forecasting.

ITALY.

Professor C. Ottolenghi, of the Royal University of Turin, has undertaken the work on behalf of Italy. His series is—

Finance—Dollar, sterling and franc exchanges; price of 20 industrial shares; new capital invested.

Foreign Trade—Imports (volume of grain, coal, cotton, petrol and benzine, coffee and sugar, wool); exports (volume of silk, cotton yarn and tissues, citrus and other fruit); value of total imports and exports.

Transport—Shipping entered and cleared at Genoa; tonnage of goods carried on railways.

Prices—Wholesale (coal, metals, cotton yarn, raw wool, raw silk, soft grain, beef, wine, oil, beet sugar, materials, food, total; two indexes—Ottolenghi and Bachi); retail (21 items, cost of living).

Unemployment—Manufacturing, mining, and building; all trades.

Bankruptcies.

For charting (and perhaps forecasting) purposes Professor Ottolenghi has condensed these into three representative series (representing again speculation, business and money)—

1. Price of 20 Industrial Stocks.
2. Wholesale Prices (All Goods).
3. Dollar and Sterling Exchanges.

One feature (and, I think, a good feature) of the Italian groups is the emphasis on specific commodities in the prices and trade sections.

RUSSIA.

Russia has also adopted the idea. Professor Kondratieff, of Moscow, has compiled a series as follows:—

Finance—State Bank clearings; currency in circulation; State and four Moscow banks (deposits, discounts and loans).

Prices—Wholesale (industrial produce, agricultural produce, general index); retail (ditto).

Production—Coal; crude oil; pig-iron, cotton piece goods; linen piece goods; general index of physical volume; turnover of produce exchanges (Moscow, 35 provincial); railways (average daily loading).

The Russian series is briefer than the others, and, like the German, it is not condensed into a few representative series. It is the latest comer, however, and will probably develop.

CANADA.

Professor Michell, of McMaster University, Toronto, has made a compilation for Canada fitting in with the general scheme. It consists of a chart showing three representative series (again featuring speculation, business and money).

1. Security Prices.
2. Wholesale Prices.
3. Ratio of Current Bank Loans to Assets.

So much then for the United States, Great Britain, Canada, France, Italy, Germany and Russia. How far is it possible to make a similar compilation for Ireland? It will be agreed, I suppose, that a representative series of economic measurements would be very helpful to those who wish to feel the pulse of our economic life. The discussion by the Society to-night will, I hope, clear the ground.

It will be noticed that, broadly speaking, the compilations for the various countries divide themselves into Finance, Prices, Foreign Trade, Production and Stocks of Commodities.

Finance.—The main sub-divisions of this section would be money rates, banking statistics, security values, foreign exchanges, capital issues, bankruptcies.

What is the position regarding money rates in Ireland? The bank rate and the deposit rate are available, but they are not of much importance. They are not flexible. They change in jerks at long, irregular intervals. As to the purely money market rates, they may be said to be non-existent. London does all that business for us, and it is no use to accept London indexes as a measure of Irish trends. I may be in error as to there being no short-money rates in Dublin (and I look for correction on the point). One would feel that there would be no hope of establishing a small workshop next door to a huge factory. Such, I imagine, is also the attitude of the Banking Commission. In other words, there does not seem to be much hope for a change in the future. The only other rate is the commercial loan rate (of which there are many sub-divisions in the American list). We have no published rates, largely, perhaps, because the sub-divisions are not standardised, and the negotiation of commercial paper has not, in the absence of industrial development, become the detailed science that it has elsewhere. If the statistician of the Federation of British Industries is justified in insisting that money conditions are of fundamental importance in measuring and forecasting the economic position, then we are in a regrettable position. But you will remember that Harvard insists that the prime mover

is "speculation" (which is largely compounded of security prices), and this view is shared by the London and Cambridge Service, and apparently by the compilers in the other countries mention.

What measurements can we get as regards Irish security prices? There are daily rates for National Loan. (The French list gives a place of honour to three per cent. Rentes.) There are also Great Southern Stocks. While railway stocks are affected by the general economic position, there is another special influence in Ireland—the competition of road transport —which weakens their importance as an economic indicator. In industrials we have very few active stocks, apart from Guinness. The bulk of the capital which we have available for joint-stock industry is invested in foreign undertakings. The Dublin price of Courtaulds or Dunlops is dictated from London, and does not reflect Irish conditions. The Stock Exchange then does not give us much help to measure Irish speculative activity. Tht bulk of the nation's speculation is centered in the agricultural sphere, and must be measured by some other method.

The primary banking statistic that we have is the clearings return. This represents the bulk of the turnover in home banking business. The clearings include all cheques passing between two clients of *different* banks, but not the cheques passing between clients of the *same* bank. The latter represent only a small proportion (less than one-fifth, I calculate) of the published clearings. The latter, by the way, do not include the cheques paid and received for imports and exports and foreign investments. I take it that the bulk of these would be between an Irish bank and an English bank, and would not enter the Dublin clearing. Subject to correction on this point, the total banking turnover would be (in millions of £)—

	£m.
Clearings between banks (as published) ...	260
Internal turnover (estimated)	50
Foreign trade and investments, etc. ...	150
	460

I am putting up these figures to be shot at. It would be of interest to get a corrected estimate. Even allowing a fairly wide margin of error, however, the figures will illustrate an important point. The clearings do not represent the total banking turnover. They may represent a fairly constant proportion of it, but one would feel that this constancy could not be relied upon for long-period comparisons. In some countries, Germany

for instance, the banks publish their total turnover. It would be a valuable figure to have here. In default of it we must be satisfied with the clearings.

Further, banking figures include the note circulation (published monthly) and the annual balance-sheet items—deposits, investments, bills discounted, loans and advances. For our present purposes the balance sheets are practically useless on account of their appearing once a year only (some are half-yearly), and the individual items suffer from the defect that they do not distinguish between Free State, Northern Irish and British business. I would like to see a composite balance sheet for the Free State banks published monthly and showing deposits, investments, bills discounted and loans for the Free State, Northern Ireland and Great Britain. I would like to go much further—sub-division into smaller areas, etc. (you will have noticed the important distinction which Harvard makes between banking figures for inside New York and outside New York), but the broad national divisions and frequency of publication are of fundamental importance. Given these we would have as good banking figures for a barometer as Great Britain has.

The foreign exchanges occupy an important place in the British, French, German and Italian barometers, but are ignored in the American. We have little interest in foreign exchanges, as the bulk of our external money changing is with Great Britain. Irish bank money exchanges with British bank money at a parity which is so unvarying that we do not consider it to be a foreign exchange rate at all. In an Irish barometer then foreign exchange rates would have little significance.

New capital invested in industry would be a very interesting statistic, but we have no capital issue market in Ireland. Farming capital and the capital of innumerable private businesses represents the bulk of Irish capital, and this is not obtained by prospectus. It is only from prospectuses that new capital issues can be compiled. Our nearest approach to it would be through its antithesis—bankruptcies. The number of failures and the amounts involved are published. This item is included in practically all the barometers. We will, however, have a partial measurement in the long-term agricultural credits which we all hope to see in operation in the early future.

Prices.—This section would have only two main subdivisions—wholesale and retail. We have no compilation for wholesale prices of commodities in Ireland. It is the best measure that one can get for variations in the general value of money. The cost of living index refers only to commodities

(mainly food) that enter into working-class expenditure. The group is consequently not representative of commodities in general. Who should compile such an index number? In other countries the earliest indexes were compiled by private individuals like Sauerbeck. Other compilers now include the Press, the Government, universities, banks, chambers of commerce, municipalities, and various other organisations. The Government, the Press and the banks have the best facilities for collecting prices. I would like to see not merely one wholesale index in Ireland but many, each checking the other. I would like to see, say, the official index, the University index, the *Independent* index, and the Bank of Ireland index. The last may ring strange in your ears, but it would be no stranger than the Bank of Japan index. However, we have not even one yet. Who is going to be the first? The Director of Statistics has already so full a programme that he will probably decline the honour. I would suggest that all who compile such index numbers should submit a full preliminary analysis of them to the Society. Any hole-and-corner work, any covering-up of difficulties will take away from the status of such compilations.

There is another type of wholesale price index which is not stressed among our industrial neighbours, but which is of significance to us. I refer to prices of agricultural produce. The remarks which I have made on general wholesale indexes would also apply here.

In retail prices we are already well catered for by the official cost of living index. I do not think any useful purpose would be served by the compilation of additional cost of living indexes, except perhaps for individual cities. The latter are catered for very well on the Continent, mainly because of the existence of municipal statistical departments. Is it not a reflection on the great City of Dublin that it does not employ a statistician?

Foreign Trade.—In the sections for Finance and Prices we found that statistical information was not available in anything like the quantity desired. In foreign trade the position is fortunately otherwise. Foreign trade is ignored in the Harvard barometer, but it is of great importance to the Free State. Perhaps more than half our production is exported. We can obtain monthly figures of imports and exports in great detail. There are annual figures for aggregate volume. I wonder if these latter could be obtained quarterly as in Great Britain. I am not sure that this is urgent. I am inclined to favour the Italian practice of picking out the actual physical units of specific leading commodities. The "deflated" volume index is

not a precise measure, and long-period comparisons are apt to be misleading, especially if the "chain" method is not followed.

Production.—We have no published figures for production. America has of course wonderful statistics. I have explained already how the London and Cambridge people met the difficulty. I imagine that we could do likewise. Our production is agricultural—crops, meat, milk, butter and eggs. A combination of numbers of livestock, slaughterings and export seems possible for the various kinds of meat. A satisfactory butter figure should be obtainable from creamery output, and after we have had the census of agricultural production, and with some statistical investigation into seasonality of production, a good index should be possible for milk and egg production. Even in crops I feel that there should be no permanent difficulty. In America they have an official index (of great importance to the market) for the state of the cotton crop. There is no reason in theory why the same could not be done for oats, barley and wheat, *i.e.*, to put into figures our description of "the state of the crops."

Exports, let me repeat, do not measure production. They represent what our customer buys, not what we produce. Railway traffic, of which there are statistics available, would be more closely related to production. But our freight figures are not as useful as those of other countries on account of the special position of road competition here. We have no figures for road traffic. Perhaps, however, there could be some corrective in the shape, say, of motor lorries and trucks registered, in order to get a combined index of internal transport.

Stocks of Commodities.—The only compilation concerning stocks of commodities made to my knowledge in Ireland is the recent official one during the General Strike. Incidentally, the strike showed the importance of such a compilation. I do not know how far and in what directions the official compilation went, but in the absence of private research I hope it will be continued and developed and, which is equally important, will be made available to the taxpayer.

The only other data used in the economic barometers of other countries and suitable for Ireland are unemployment and wages. One of the London and Cambridge compilers (Professor Bowley) has specialised in wages. So the Economic Service had no difficulties in the matter of a wage index. There is no such compilation for Ireland or the Irish Free State. Who is going to do the work?

We are in an almost equally bad position regarding un-

employment. The numbers registered at the Labour Exchanges seem to be more closely correlated with funds available than with unemployment. A rough approximation is better than nothing. I wonder if nothing could be done with the Labour Exchange figures. In Great Britain and elsewhere the Trade Unions publish their percentage unemployed membership. There is a tendency, particularly perhaps in Ireland, for the unemployed to become separated from their union—which would vitiate the Trade Union percentages. I am surprised that public curiosity on this question has not already led to some statistical development. As far as unemployment in skilled trades is concerned, the trade union figures for unemployment would be quite reliable, because deserting the union means deserting the trade.

I believe that it is possible to develop at least an elementary form of economic "barometer" for the Irish Free State. I cannot claim to have made more than a few suggestions in this paper. All I wish for from the Society is not commendation but criticism. Even destructive criticism would have its uses; but our discussion to-night will make, I am sure, a positive contribution to quantitative economics.