

A Study of Imports, Part 1

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SECTION 4: A STUDY OF IMPORTS, PART 1.

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4. 1 *Introduction*

Although considerable work has been devoted to a study of Irish imports in recent years, and various import functions derived, mainly by C. E. V. Leser,* the subject is of such obvious importance that a further study is well justified. In particular, the previous studies have concentrated on structural relationships which are more relevant to medium term than to short term forecasting, or on annual macro-relationships which obscure the vital timing of turning points.

It is hoped that by the use of seasonally corrected quarterly data, disaggregated according to function, more precise forecasting and consistency models can be devised. This approach is similar to that adopted for industrial exports in Section 4 of the January Quarterly Economic Commentary.

The study will be presented in two parts. This first part will be restricted to a presentation of the seasonally corrected data, and a description of the time patterns of imports which these data show. Part two of the study, which will be published in a future edition of the *Quarterly Economic Commentary*, will attempt to establish formal relationships between different types of imports and movements in other key economic variables. It is hoped that these relationships can be used as the basis of a fairly precise short-term forecasting or consistency model.

4. 2 *The functional pattern of imports.*

The basic classification to be followed in this study is the standard Central Statistics Office distribution of merchant imports according to main uses. The period covered is from 1958 to 1968, although for some of the analytical comparisons, data availability may dictate a shorter period.

Table 4.1 sets out the annual composition of imports since 1958. The most striking feature of the table is the relatively small change in the composition by use of imports over the period. In the light of the undoubted changes in the structure of the economy, and the growth of total merchandise imports, very rapid in absolute terms, and perceptible even as a proportion of GNP this absence of major changes in pattern is rather surprising.

There are of course some exceptions. Producers' capital goods ready for use formed a noticeably smaller proportion of the total in the first three years than in the remainder of the period. The two least important categories, materials for further use in agriculture and unclassified imports (which are mainly transactions of a temporary nature) both declined in relative importance during the period. There is evidence of a slight upward movement in the share of consumption goods ready for use in the final three years, bringing it back to the level it had in the years before 1958.

Nevertheless the abiding impression of the table is of the absence of major sustained trends in the use composition of imports since 1958. However there are some important temporary variations in the year to year pattern, and these could be of considerable importance from the viewpoint of short term

*ESRI Papers Nos. 14, 21, 27, 33, 38 and 39.

TABLE 4.1: COMPOSITION OF MERCHANDISE IMPORTS, BY USE, 1958-68.

Year	1		2	3	4		5	6	7	8
	Producers' Capital Goods	Food, Drink and Tobacco			Other Consumer Goods	Materials for Further production				
			in Agriculture	in Industry etc.						
a £ million										
1958	23.0	12.8	31.1	12.2	109.6	10.2	198.9	33.1		
1959	24.3	13.6	31.4	13.3	120.9	9.3	212.8	33.4		
1960	24.3	13.9	32.5	11.8	133.3	10.5	226.3	33.6		
1961	34.9	16.0	38.2	13.6	146.6	12.4	261.7	36.1		
1962	39.4	17.2	40.1	15.8	149.9	11.4	273.8	35.1		
1963	47.3	19.9	45.3	16.9	164.4	13.9	307.7	36.9		
1964	52.2	19.8	51.4	16.5	195.5	14.0	349.4	36.9		
1965	60.3	23.2	56.9	17.8	210.8	11.8	371.8	36.7		
1966	57.9	23.7	60.5	15.2	203.9	11.4	372.6	35.1		
1967	58.8	25.0	62.8	17.0	217.5	11.1	392.3	34.4		
1968	72.0	29.4	82.2	22.6	271.9	11.4	489.5	38.8		
b Percentage of Total										
1958	11.6	6.4	15.6	6.1	55.1	5.2	100			
1959	11.4	6.4	14.8	6.3	56.8	4.3	100			
1960	10.7	6.1	14.4	5.2	58.9	4.7	100			
1961	13.3	6.1	14.8	5.2	56.0	4.6	100			
1962	14.4	6.3	14.6	5.8	54.7	4.2	100			
1963	15.4	6.5	14.8	5.3	53.5	4.5	100			
1964	14.9	5.7	14.7	4.7	56.0	4.0	100			
1965	16.2	6.2	15.3	4.8	54.3	3.2	100			
1966	15.5	6.4	16.2	4.1	54.7	3.1	100			
1967	15.0	6.4	16.0	4.4	55.4	2.8	100			
1968	14.7	6.0	16.8	4.6	55.6	2.3	100			

Source. Central Statistics Office, Review of External Trade.

analysis and forecasting. This is because the temporary fluctuations in the pattern suggest that the various categories of imports respond at differing rates and with differences in timing to the impact of changes in the level of economic activity.

4. 3 *Seasonal Corrections*

The hypothesis of differential response, particularly with regard to timing can be better studied using quarterly rather than annual data. In order to use quarterly data in this way, it is necessary to remove purely seasonal variations from the raw series, and this seasonal correction forms the central function of this first part of our import study.

The method of seasonal correction adopted is that of ratio to moving annual average. This is probably the simplest method available, and proved successful in our recent study of industrial exports. The mean ratios to moving annual average for each quarter were calculated for successive five year periods, and applied as correction factors to the mid year of each period where possible. Where this was not possible, at either end of the total period studied, the mean ratio for the nearest five year period was applied. Thus the average ratio for each quarter in the period 1958-62 was applied as a correction factor to the appropriate quarters of 1958, 1959 and 1960, and the period 1964-68 was used for 1966, 1967 and 1968. This procedure is thus less satisfactory for the earliest and latest years of the total period than for the years in the middle, but it is felt that any distortions caused in this way are likely to be small.

A further complication, as in the case of the export study, is the effect of major random variations. In this case it was decided that the only random event which affected the series sufficiently to be taken into account was the UK seamen's strike of 1966. Accordingly the raw data were corrected to remove most of the effects of this strike before the ratios to moving average were calculated. Comparison with other years suggested the following amendments to the raw figures.

Strike Adjustments 1966: £ million.

	Second Quarter	Third Quarter	Fourth Quarter
Category:			
1. Producers Capital Goods	+0.6	-0.2	-0.4
2. Food, Drink and Tobacco	+0.3	-0.3	—
3. Other Consumer Goods	+1.2	-0.8	-0.4
5. Goods for Further Production in Industry	+4.9	-4.4	-0.5
TOTAL ..	+7.0	-5.7	-1.3

No adjustments were made for categories 4 or 6.

4. 4 *The Quarterly Pattern*

Table 4. 2 shows the seasonally corrected value of each category of import from 1958 to 1968. The figures for 1966 are the seasonally corrected actual values with no adjustments made for strike effects.

CHART 4.1: IMPORTS BY USE CATEGORY 1958-68

Seasonally corrected, 3 quarter moving averages, plotted to centre quarter

Index 1 at Q. 1963 $\times 100$

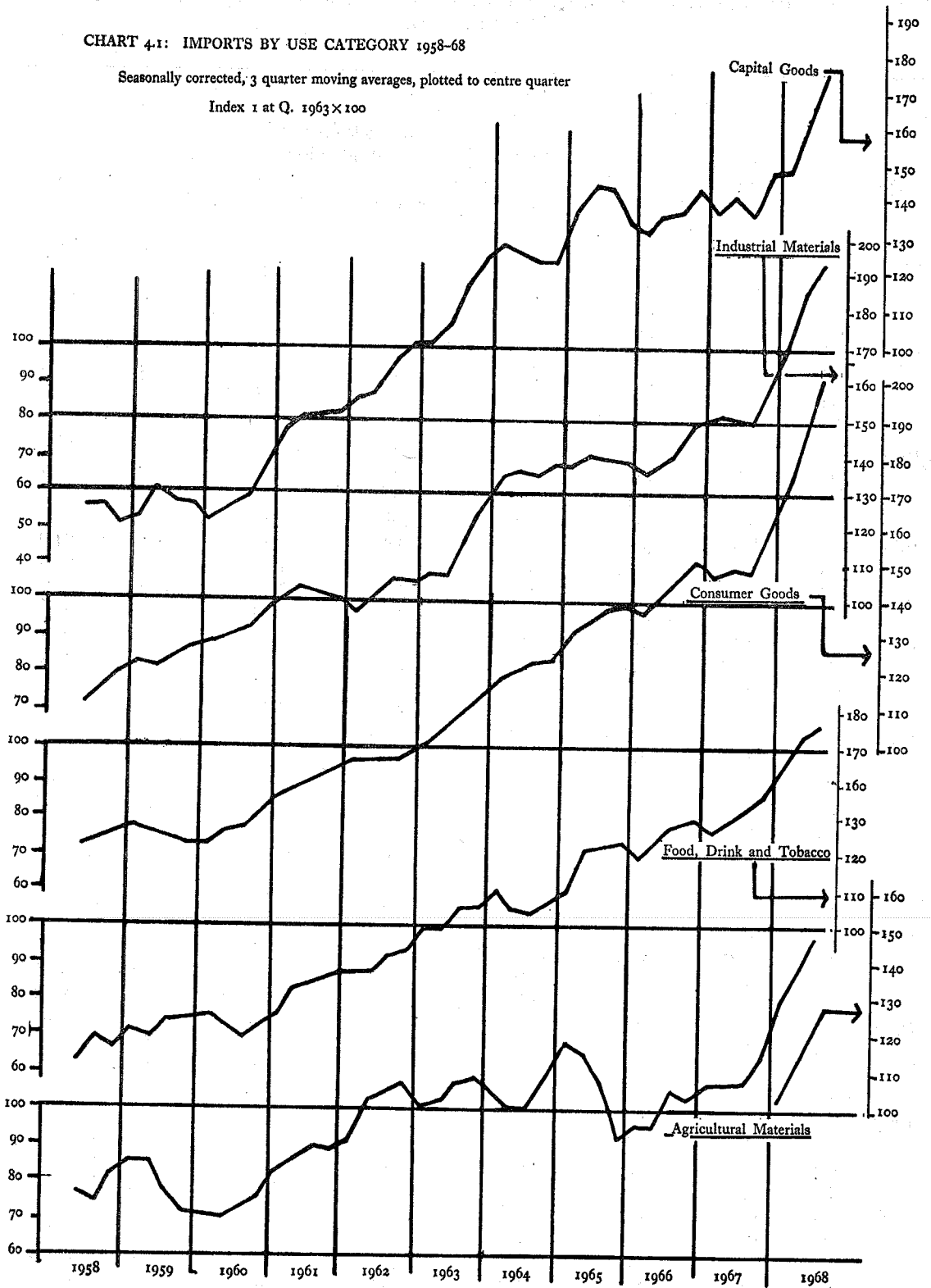


TABLE 4. 2: QUARTERLY VALUE OF IMPORTS BY CATEGORY, 1958-68, SEASONALLY CORRECTED.

£ million.

		1	2	3	4	5	6	7
Quarter		Producers, Capital Goods	Food, Drink and Tobacco	Other Consumption Goods	Materials for Further Production		Un- classified	Total
					in agriculture	Other		
1958	I	4.9	3.0	7.6	3.2	26.6	2.4	47.7
	II	7.8	3.2	7.0	3.1	25.8	2.9	49.8
	III	5.0	3.0	8.2	2.9	26.2	2.4	47.7
	IV	4.9	3.6	8.2	2.9	31.0	2.3	52.9
1959	I	6.2	3.0	7.8	3.9	29.5	2.6	53.0
	II	5.7	3.7	8.5	3.4	29.8	1.5	52.6
	III	7.3	3.3	7.6	2.9	30.8	2.8	54.7
	IV	5.2	3.6	7.5	2.8	30.8	2.8	52.7
1960	I	5.5	3.9	7.9	2.9	33.1	2.6	55.9
	II	6.1	3.3	7.6	2.7	31.8	2.9	54.4
	III	5.9	3.4	8.3	2.8	33.0	2.4	55.8
	IV	6.7	3.3	8.6	3.2	35.4	2.6	59.8
1961	I	8.8	3.9	9.3	3.1	36.7	2.8	64.6
	II	9.1	3.7	9.1	3.7	37.1	3.1	67.5
	III	7.9	4.4	9.8	3.5	38.8	3.1	67.5
	IV	9.1	4.1	10.0	3.5	34.2	3.4	64.3
1962	I	9.1	4.0	10.0	3.6	36.0	3.3	66.0
	II	9.0	4.5	10.0	3.8	35.9	2.2	65.4
	III	10.0	4.1	10.0	4.8	38.5	3.0	70.4
	IV	11.3	4.6	10.1	4.0	39.5	3.2	72.7
1963	I	10.6	4.8	10.5	4.0	36.0	2.5	68.4
	II	10.4	4.8	11.1	4.1	41.8	4.7	76.9
	III	12.5	4.7	11.7	4.2	39.6	3.0	75.7
	IV	14.1	5.6	12.0	4.5	46.6	3.4	86.2
1964	I	12.8	4.9	12.3	4.3	49.7	3.8	87.8
	II	13.8	5.3	13.1	3.8	48.4	3.6	88.0
	III	13.2	4.9	12.5	3.9	48.9	3.5	86.9
	IV	12.2	4.7	13.4	4.3	48.5	3.1	86.2
1965	I	13.8	5.7	13.4	4.9	51.0	3.2	92.0
	II	17.7	5.4	14.3	4.9	49.6	2.6	94.5
	III	14.5	6.3	14.7	4.0	51.2	3.4	94.1
	IV	13.5	5.9	14.4	3.9	49.9	2.8	90.4
1966	I	14.7	5.4	14.5	3.0	49.1	2.9	89.6
	II	13.1	5.5	13.1	4.4	43.6	3.0	82.7
	III	14.9	7.1	16.8	4.0	57.9	2.7	103.4
	IV	15.4	5.9	16.1	4.2	53.8	2.7	98.1
1967	I	15.6	6.0	15.9	4.3	54.7	2.8	99.3
	II	12.8	6.2	15.0	4.2	54.1	2.5	94.8
	III	16.4	6.3	15.9	4.3	53.4	2.7	99.0
	IV	14.2	6.5	15.7	4.3	54.2	3.1	98.0
1968	I	16.7	6.9	18.8	5.1	63.7	2.5	113.7
	II	16.6	7.3	19.5	6.1	66.6	3.6	119.7
	III	18.4	7.9	21.1	5.3	69.2	2.6	124.5
	IV	20.6	7.3	22.7	6.2	72.4	2.7	131.9

Source: Central Statistics Office, Review of External Trade.

Seasonally corrected by methods described in para. 4.3.

While Table 4. 2 provides the detailed figures necessary for an analysis of import composition, and the evidence of important differences in timing between the different categories, it is difficult to obtain from a large table of this nature a quick impression of the pattern. For this purpose Chart 4. 1 has been constructed. The individual series have been smoothed by conversion to moving three quarterly averages and converted into indices with the first quarter of 1963=100. This process eliminates a large part of random temporary fluctuations in each series and thus highlights any medium term cyclical tendency there may be. For the same reason the figures after adjustment for the seamen's strike are used. The unimportant unclassified category has been omitted.

The chart illustrates that while there is to some extent a common cyclical pattern, there are also some important differences in the behaviour of the different types of import. Instances of common movement can be summarised as follows:

Early 1959—Early 1960	Slow growth or decline	All categories
Early 1960—Mid 1961	Rapid growth	" "
Early 1963—Early 1964	Rapid growth	All categories except S4.
Late 1966—Late 1967	Slow growth or decline	" "
Late 1967—Late 1968	Very rapid growth	" "

However, while these periods when all the categories move more or less in parallel are interesting in themselves and are of great importance in the time trend of total imports, they are not our primary interest here. So long as all categories of imports move together there is no point, for either analytical or forecasting purposes, in disaggregation. It is only if the series move in different ways that a disaggregated analysis offers hope of a greater insight than models based on imports as a whole.

Viewed in this light, it is not on the similarity but on the differences in the various lines in Chart 4. 1 that we should focus our attention. In particular the differences between S5, S3 and S1, representing the three large categories of imports, materials for further production in industry, consumption goods (non-food) ready for use, and producers capital goods, need closer study.

The largest category, goods for further production, accounting for about 55 per cent of total merchandise imports, exhibits a clear and definite cyclical pattern. Such imports rose steadily from 1958 until mid 1961, stagnated until mid 1963, rose rapidly until mid 1964, more or less stagnated until the end of 1967, with a minor upturn in the middle of 1966, and then have risen extremely rapidly until the present time. Broadly speaking these phases have corresponded to similar phases in the production volume of manufacturing industry, although the deviations from the long term trend are very much greater in the case of imports than in production. Although the import figures used are in value rather than volume terms, price changes in fact were of minor importance except in the first quarter of 1968. Closer examination of this relationship will be a major task of Part 2 of this study.

Imports of producers' capital goods have followed much the same pattern, but with less regularity. As noted in paragraph 4. 2, they began the period at a relatively low level, and did not begin to grow above the 1958 level until early in 1960. Their growth from 1960 to 1964 was faster than that of any other category with the check in 1961-62 being much less pronounced than in the case of goods for further production. The stagnation from 1964 to 1967 was interrupted by a temporary upsurge in 1965, caused largely by imports of aircraft. Had it been realised at the time that this boost, which went far towards accounting for the rise in total imports in the first half of 1965 was likely to be a temporary phenomenon, the pressure on the authorities to react to the economic situation in mid 1965 might well have been different.

The path of imports of consumer goods other than food, drink and tobacco, is in many ways the most interesting of all. Given that one of the main weapons of demand management in recent years has been indirect taxation, which might be expected to have an immediate impact on personal consumption, and that an avowed aim of any restrictive measures has been to modify both personal consumption and imports, one might reasonably expect this category of imports to reflect such policy measures at least as much as any other category.

In fact it stands out from all other categories in exhibiting by far the steadiest growth path. Periods of stagnation in 1962 and 1967 both come later than downturns in the other major categories, and are much shorter in duration. Most remarkably, in spite of the imposition of a temporary import levy there was only a short lived levelling off of growth in 1965 and 1966 when declines could be seen both in other types of imports and in the index of weekly retail sales. How far this may be due to the longer term reduction in tariffs and easing of other restrictions on imports will be examined in Part 2 of this exercise, as will the effect on timing of the introduction or increases in indirect taxes.

The behaviour of the small category of food, drink and tobacco is difficult to explain, as it shows large fluctuations rather out of phase with other categories. Both in timing and in amplitude its phasing would appear to lie somewhere between those of other consumer goods and those of the other major categories.

Goods for further production in agriculture, another small category, show relatively large cyclical fluctuations, which are probably related to specifically agricultural conditions rather than movements in the economy as a whole.

4. 5 *Conclusion*

Table 4. 2 and Chart 4. 1 indicate that there has been sufficient variation in the timing and size of fluctuations between the different use categories of imports to justify a disaggregated quarterly approach to the problem. First indications are that it should be possible to establish some formal relationships between imports of materials for further production and imports of producers' capital goods and the volume of industrial production, and between imports of consumer goods and the index of retail sales. Such relationships are not likely to be simple, and time lags probably vary. Other explanatory variables, such as relative price levels also need to be tested.

Even without this formal mathematical analysis, which will form the basis of Part 2 of this study, a certain amount of guidance can be gained from the exercise as it now stands. Not only are goods for further production the most important category; they have also over the past ten years exhibited the clearest cyclical pattern and the one with the earliest turning points, at least in a downward direction. Thus there is an indication, if no more, that a careful study of this category can enable the observer to draw some conclusions about the future course of imports as a whole, in the expectation that capital goods and ultimately consumer goods will later follow a similar pattern.

4. 6 *Implications for 1969*

With regard to the immediate future Table 4. 2 is more informative than the chart. The table shows that the very great rise in imports for 1968 as a whole was made up as follows. In the first quarter there was a sudden large jump in the value of imports of every category, due partly to price increases as a result of devaluation and partly to a belated response to the increase of domestic economic activity which began

in the last few months of 1967. For imports as a whole, price rises accounted for about 40% and volume for 60% of the increase in value.

After this initial strong rise, the growth in most categories, while rapid, was steady rather than spectacular. As the table below shows, the percentage rise in value for each category between the first and fourth quarters of 1968 was of a similar order of magnitude to the rise between the fourth quarter of 1967 and the first quarter of 1968. Nearly all this increase was accounted for by volume, with price increases playing only a minor role.

Percentage Increase in Imports

	4th Quarter 1967 to 1st Quarter 1968	1st Quarter 1968 to 4th Quarter 1968
1. Capital goods	17.6	23.0
2. Food, Drink and Tobacco	6.2	5.7
3. Other Consumer Goods	19.7	20.7
4. Materials for Agriculture	18.6	21.6
5. Materials for Industry	17.5	13.7
TOTAL IMPORTS ..	16.0	16.0
of which Volume ..	9.4	13.9
Price (unit value)	6.6	2.2

Thus the quarterly growth rate of about 5 per cent in total imports experienced in the course of 1968 was somewhat less daunting than comparison of the fourth quarter of 1968 with the fourth quarter of 1967 might suggest.

At the same time it should be remembered that post-devaluation price rises were continuing to have some slight effect throughout 1968, although one can hope that this process has by now been practically completed. In the case of consumer goods, and also perhaps materials for further industrial production, imports in the final quarter of 1968 may have been boosted by orders to anticipate the increase in whole-sale tax in January 1969. For both these reasons there are some grounds for hoping that, given a similar increase in Final Demand, the rate of growth of imports (in value terms) will be lower in 1969 than in 1968. With regard to composition, it can be expected that the most rapid growth in 1969 will be in producers capital goods, which, because of financial arrangements, can be expected to pose less of a threat to the level of external reserves than increases in other categories.

This is about as far as visual inspection of the disaggregated data can usefully be taken at this stage. Until Part 2 of this exercise is undertaken the relationship of imports to changes in the level of Final Demand must be studied with the help of Leser's macro models. This exercise is undertaken in Section 3 §.12 of the Commentary.

