## SEASONAL FLUCTUATIONS

SEASONAL fluctuations, that is, fluctuations caused by the changes of the natural or conventional seasons, are the most important of the shorter rhythmic fluctuations. In this connection, "season" should be taken in the broadest sense of the word, to refer to all fluctuations that are connected with periodic astronomic changes of the calendar. It would include changes of day and night, of great importance for the load of the electric and gas companies and for transportation, and changes in habits connected with various days of the week, month, and year, affecting, e.g., retail sales.

The term "seasonal component" is used in two different senses. The term is used most often to indicate the average or normal seasonal movement, that is to say, a regular movement that represents some sort of average of the actual movements taken over a number of successive periods. In the simplest and most common case these movements are purely periodic, either additive or multiplicative. In the former case a certain sum is added, for instance, for each January month to the sum of all other components; in the latter case this sum is multiplied by a certain factor for each January month. The regularity may, however, be more complicated. Thus the amplitude of the season may show a gradual change, or the season itself may move according to a certain pattern (e.g., the date of Easter).

In the second sense the term "seasonal component" is used to indicate the exact influence of the particular natural or conventional factors. If the particular natural factor that affects the phenomenon under consideration is the temperature, then the seasonal component in the second sense of the word is the

actual change in the phenomenon due to changes in temperature. As a matter of fact, the fluctuations in temperature, although roughly periodical, are not exactly periodical. There are cold and mild winters. If, in a particularly cold winter, shipping shows very low figures, then the strong negative component caused by the temperature will be considered entirely as a seasonal component. Under the former definition of the seasonal component, however, only the normal decline of shipping in winter would be considered seasonal, and the additional decline would be considered as a random influence.

We shall now give a brief enumeration of the most important seasonal fluctuations in the economy. Some are indicated graphically in Figure 29.

The influence of the natural season is felt most strongly in economic activities carried on in direct contact with nature. Agriculture is the clearest example. Production in agriculture, agricultural employment, consumption of fertilizer, etc., are strongly seasonal. Construction activity also is still greatly affected by temperature and precipitation. A third industry heavily affected by the weather is shipping, in particular lake and river shipping. The seasonal pattern of these industries affects again those other industries that use their products, such as agricultural industries, and the trade in products whose transportation is interrupted by the freezing of rivers, like the lumber trade. In these industries it is the supply that is seasonal.

In other industries, such as the clothing, heating, and hotel industries, demand is affected by seasons. We have already referred to the important changes, in the course of the day, in the demand for electricity and gas. In a sense, of course, every industry has its fluctuations during the day; but in the case of electricity where inventories cannot be accumulated, the influence of the "seasonal" fluctuation during the day is of particular importance.

The conventional season makes itself felt particularly in retail sales, due to fluctuations during the day (rush hours), the week (if wages are paid toward the end of the week), and the month (salary payments). Retail trade is further affected by

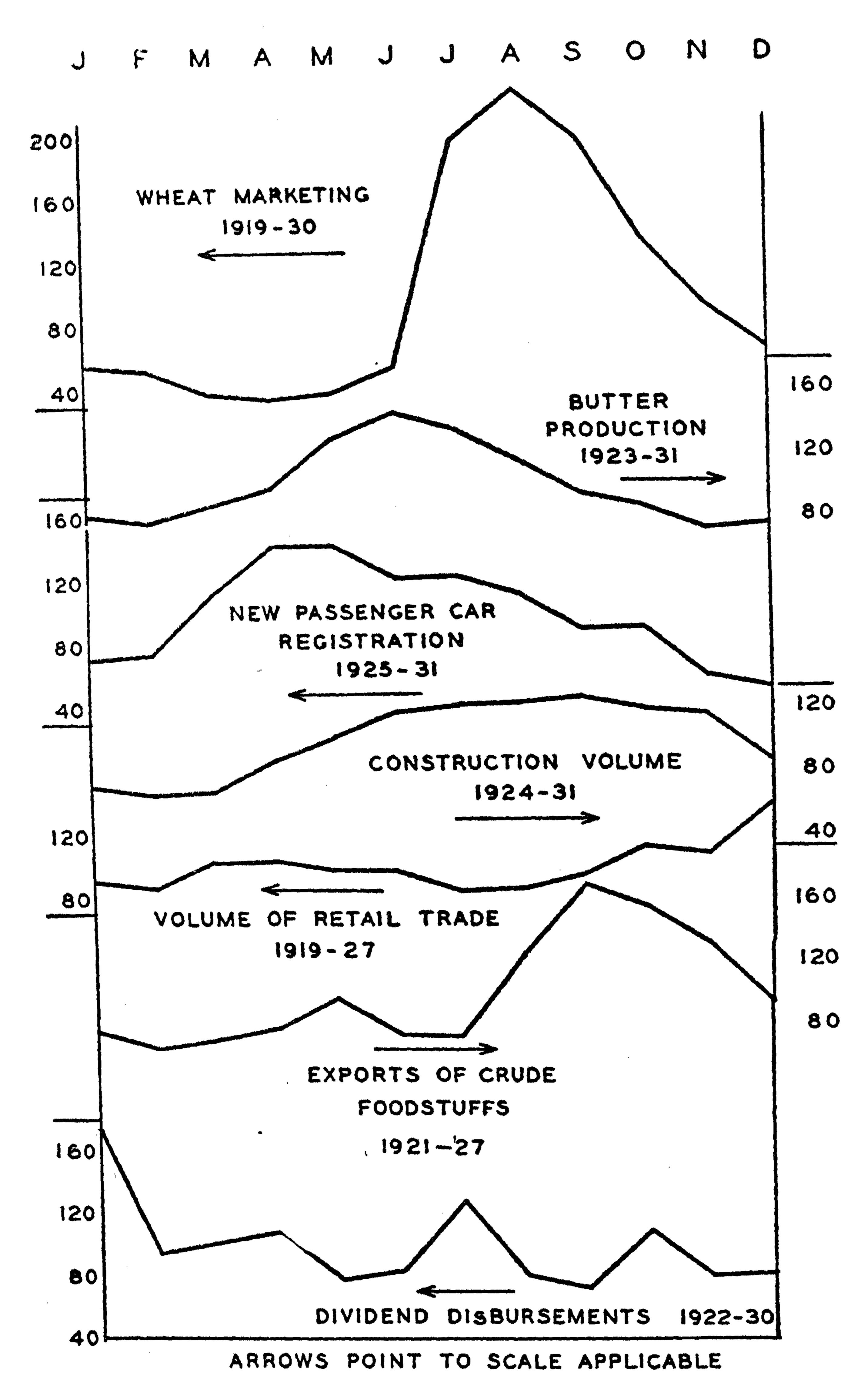


Fig. 29.—Seasonal components in a number of economic series. Source: S. Kuznets, Seasonal Variations in Industry and Trade (New York, 1933).

seasons in the narrow sense of the word, of which the December peak associated with Christmas trade is particularly pronounced.

The financial sphere also has conventional seasons; this is due to the habitual seasonal pattern in payments. The weekly payments of wages, the monthly payments of rents, and quarterly dividend payments produce certain regular seasonal peaks in banking activity, which affect to some extent the money market and the short-term rate of interest.