

Table 9.—Hourly wage rates for chemical industries of selected countries, 1965

[All figures in dollars per hour]

Country :		
United States -----		2. 89
United Kingdom -----		1. 28
Germany, Fed. Rep.-----		1. 09
France -----		0. 84
Italy -----		0. 67
Japan -----		0. 65

NOTE.—These data overstate the percentage differences between the United States and foreign costs by not including fringe benefits, which are usually a higher percentage abroad than in the United States. However, they are used in this study in order to present the least favorable comparison for United States plants.

Source: Compiled by Manufacturing Chemists' Association from various sources and reported in Appendix 4 of "MCA Position on the Kennedy Round Agreements, the Supplemental Agreement Relating Principally to Chemicals, and Proposed Trade Policy Legislation." The MCA statement reported some 1966 hourly wage rates, but 1965 was latest year for which hourly wage rates were reported for all of above-listed countries.

These data tend to understate average foreign costs in relation to United States costs because they do not contain an estimate of the fringe benefits, which are a higher percentage of base wages in Germany than in the United States. However, these Manufacturing Chemists Association figures are used in order to present the least favorable comparison for the United States plants.

It is necessary to correct the average wage rates for differences in productivity. Productivity estimates made on the basis of average output per employee indicate that U.S. productivity per employee is several times higher than that of Germany. For example, OECD data for 1964 indicate an apparent productivity of German chemical industry workers of 36% of the U.S. chemical workers.² However, such comparisons are based on existing operations in both countries and do not consider equivalent productivity for equivalent plants, including size and instrumentation. Therefore, such figures are not realistic when comparing U.S. and German dye-manufacturing facilities, as it is believed that the German scale of operation and equipment compare favorably with those in the United States. Hence, it is desirable to use an estimate of productivity based on comparable facilities. Though no thorough study of the subject seems to exist, the best estimates available of productivity in comparable chemical plants in various countries are shown in Table 10. On the basis of data in this table, German productivity was taken as 75% of U.S. The use of the 75% figure rather than the 36% figure results in a lower estimate of foreign costs in comparison with United States costs.

3. Other employees: The ratio of German to United States average monthly costs, including fringe benefits, of professional and technical personnel in the chemical industry was calculated from the Kastens citation in Table 10. No estimate is available for differences in productivity of "other employees," but this cost is so small compared with overall costs that any necessary correction would not change the conclusions of this study.

4. Other expenses: There is some question whether the costs of comparable plants are higher or lower in the U.S. than abroad. Several references indicate that construction costs are about 10% less in Germany than in the United States;³ however, in November 1967 the president of a major U.S. engineering and construction company stated that U.S. construction costs were lower because of the very high productivity of U.S. labor.⁴ Interest costs and utility costs are less in the United States than in Germany. Although there seems to be some basis for estimating that this cost category—"other expenses"—would be lower for the U.S. than for Germany, it is believed that for the purposes of this study that it is satisfactory to assume U.S. and German costs are equal.

A U.S. tariff of 30% on all dyes is proposed as part of the ASP Package. The above analysis indicates that on the average for the same sized plant a tariff

² Calculated by the author from Organization for Economic Co-operation and Development, *op. cit.*, pp. 5 and 7 of Supplement.

³ See my "Engineering Overseas Projects," *Hydrocarbon Processing*, Vol. 42 (June 1963), p. 8; and Arthur D. Little, Inc., *Revised Data on the Chemical Industry in the United States, Europe and Japan* (May 1965), p. 8.

⁴ Charles C. Bonin, President of Chemical Construction Corporation, in an address to the Chemical Marketing Research Association, Philadelphia, November 9, 1967 (see *Chemical and Engineering News*, November 20, 1967, p. 34).