

activity is a useful basis for study. Total activity is used in Tables 1 and 2, except for the ratio of fuel and electricity costs to value added by manufacture. A more detailed examination of similar ratios for individual industries rather than industry groups would reveal certain relationships between cost profiles and the technology of industries, and the type of economic use or market served by them.

From Table 1 it will be seen that four industry groups make much more intense use of purchased fuel and electricity than manufacturing as a whole. In descending order of their fuel and electricity costs as a percentage of gross value of production, these industry groups are: non-metallic mineral products industries (including cement manufacturers), paper and allied products industries, the primary metal industries, and the chemical and chemical products industries. The last group does include some secondary manufacturing, as do the other groups, but in general these four industry groups are primarily engaged in transforming natural resources into inputs for other industries. Manufacturing processes characteristic of some industries in these groups include heat-consuming types of chemical transformation of materials or the mechanical attrition of materials, with consequent heavy demands for energy. They are also generally capital-intensive industries, as evidenced by payrolls being below the average for manufacturing as a percentage of total value added, and net earnings and profit ratios (Table 2) being well above the average for manufacturing. (Although profit ratios also reflect other features of a company's financial structure, capital-intensity tends to create a necessity for a higher profit ratio on sales for a given return on the owner's investment as well as on the total assets.)

In all four groups except the chemical industries, salaries are a low percentage of payrolls by comparison with all manufacturing. The chemical industries, like the petroleum and coal products industries, have a high proportion of highly paid specialist employees and a high ratio of salaries to payroll. The petroleum and coal products industries, although also engaged in the chemical transformation of natural resources like some of the individual chemical industries, have a very low ratio of payroll to gross value of production and to value added and (as shown in Table 1) are the most materials-intensive industry group of all. This is partly because oil companies are split statistically into establishments in the mineral industries, regarded as selling to their own companies' (or others') refineries, while, for instance, cement plants in the non-metallic mineral products industries typically quarry their most important materials within accounting units included in the manufacturing industries. Refineries are also able to make use of products of their own processes, reducing the cost of purchased fuel. Many considerations like these affect industrial ratios.

Although it is difficult to generalize about materials-intensity, it will be noticed that the five industry groups in Table 1 showing greater materials-intensity than all manufacturing industries use large amounts of natural resources or may transform or assemble considerable quantities of imported materials or parts. (The motor vehicle industry, which assembles large quantities of parts, many imported, is included in the transportation equipment industries.)

The labour-intensive industries constitute a clearly recognizable class of industry at the industry group level. This characteristic may be measured on the basis of gross value of production (Table 1) or in respect to total value added (Table 3). Table 3 shows that some of the industries most subject to import competition are at the top range of labour-intensity, on the basis of value added; the natural resource industries, except for the wood products industries, tend to be at the lower end of the scale. Comparison of wages and salaries as a percentage of value added indicates that salaries tend to be low in relation to wages; that is, production labour tends to bulk larger in the over-all payroll than for manufacturing as a whole. The fuel-intensity, measured in Table 3 by costs of purchased energy per dollar of value added by manufacture, tends to be low in the labour-intensive industries. It is also noteworthy that industries at the top end of the scale tend to sell finished products.