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### III

## IRON AND STEEL PRODUCTS: PRELIMINARY RESULTS

#### INTRODUCTION

The preliminary indexes for iron and steel products (SITC Division 67) presented here illustrate the type of information collected in the International Price Comparison Study and some of the questions we seek to answer with these data. The findings from our indexes are compared with some of the impressions that can be drawn from previously available information.

We describe these indexes as preliminary for two reasons. The first is that much of the information to be used in the final report has not yet been collected or, if collected, not yet classified and incorporated into the indexes. Data for 1964 are still sparse, but by the end of the study 1963 and 1964 should be as well covered as the best of the earlier years. A second reason for treating these indexes as first approximations is that much experimental work remains to be done with the data—for example, in deciding on the proper degree of stratification to use for classifying commodities and in testing and comparing different sources and types of price information.

The sources of our iron and steel price quotations are diverse. From one foreign steel-importing country we have received purchase price comparisons, both place-to-place and time-to-time, covering almost every four-digit SITC subgroup within division 67. From sources in two important exporting countries we have obtained time series on these countries' export prices for a wide variety of products and, in one case, series on competitors' export prices as well. More than a dozen large U.S. companies supplied

price comparisons from their own experience. These were mainly purchase prices or price offers from the chief exporting countries for steel to be used in installations outside the United States and, for the most part, outside Europe as well. The company data included both place-to-place and time-to-time comparisons, particularly the former.

Another source of place-to-place comparisons consists of formal bidding to specification. Scattered bids for contracts in seven countries outside the United States and Europe are included in the data used so far, and more such reports are expected. In addition, several bids from U.S. and foreign steel companies on contracts for U.S. government agencies are included here, and a much larger number of these will be available for the final estimates.

The commodity coverage of the indexes presented in the following pages corresponds to that of Division 67, Iron & Steel, in the *Standard International Trade Classification, Revised*. The groups within this division and the weights assigned to each (on the basis of industrial countries' exports in 1962) are as follows:

|     | <i>Group</i>                                  | <i>Weight</i> |
|-----|---|---------------|
| 671 | Pig iron, ferro-alloys, etc.                  | 4.67          |
| 672 | Ingots and other primary forms                | 6.76          |
| 673 | Bars, rods, angles, shapes, and sections      | 23.54         |
| 674 | Universals, plates, and sheets                | 34.66         |
| 675 | Hoop and strip                                | 4.88          |
| 676 | Rails and railway track construction material | 2.45          |
| 677 | Wire  | 4.01          |
| 678 | Tubes, pipes, and fittings                    | 17.92         |
| 679 | Castings and forgings, unworked               | 1.11          |
|     |   | <u>100.00</u> |

The number of sources and number of price relatives used in our index-number computations for each of these groups may be found in Tables A-1, A-2, and A-3 at the end of this paper.

#### THE MAIN RESULTS

The main results up to this point for iron and steel products as a whole are summarized in Table 1 and Chart 1. The first three rows of figures (A) in the table and the first panel of the chart show international price indexes for the U.S., the U.K., and the European Common Market countries; the same indexes, in the form of year-

TABLE 1  
*Indexes of International Prices and Price Competitiveness,  
 Iron and Steel, SITC Division 67  
 (NBER data)*

|  | 1953 | 1957 | 1961 | 1962 | 1963 | 1964 |
|--|------|------|------|------|------|------|
| A. PRICE INDEXES (1962 AVERAGE FOR EACH COUNTRY = 100)   |      |      |      |      |      |      |
| U.S.   | 86   | 100  | 101  | 100  | 98   | 103  |
| U.K.   | 96   | 108  | 103  | 100  | 98   | 109  |
| EEC  | 96   | 117  | 105  | 100  | 98   | 110  |
| B. INDEXES OF PRICE COMPETITIVENESS OF U.S. (1962 = 100) |      |      |      |      |      |      |
| Relative to U.K.   | 117  | 112  | 103  | 100  | 99   | 105  |
| Relative to EEC  | 111  | 116  | 103  | 100  | 99   | 106  |
| C. PRICE LEVELS (U.S. AVERAGE FOR EACH YEAR = 100)       |      |      |      |      |      |      |
| U.S.   | 100  | 100  | 100  | 100  | 100  | 100  |
| U.K.   | 94   | 91   | 84   | 81   | 81   | 85   |
| EEC  | 89   | 92   | 82   | 80   | 79   | 85   |
| D. PRICE LEVELS (U.S. AVERAGE FOR 1962 = 100)            |      |      |      |      |      |      |
| U.S.   | 86   | 100  | 101  | 100  | 98   | 103  |
| U.K.   | 81   | 91   | 85   | 81   | 79   | 88   |
| EEC  | 76   | 93   | 83   | 80   | 78   | 87   |

NOTES. Minor inconsistencies among parts B, C, and D are due to rounding. Part A differs from the others because it is derived wholly from time-to-time data.

Part A. The international price indexes are aggregated from four-digit and, occasionally, five-digit SITC classifications, using world trade weights. Within these classifications, most of the indexes are arithmetic means of equally weighted time-to-time price relatives. An exception to this method was the U.S. 1964/1963 index. The sample was very small and gave undue weight to one source which showed somewhat atypical price changes. To offset this influence, the index was roughly reweighted by the number of observations from each source in earlier years for which the data were more complete.

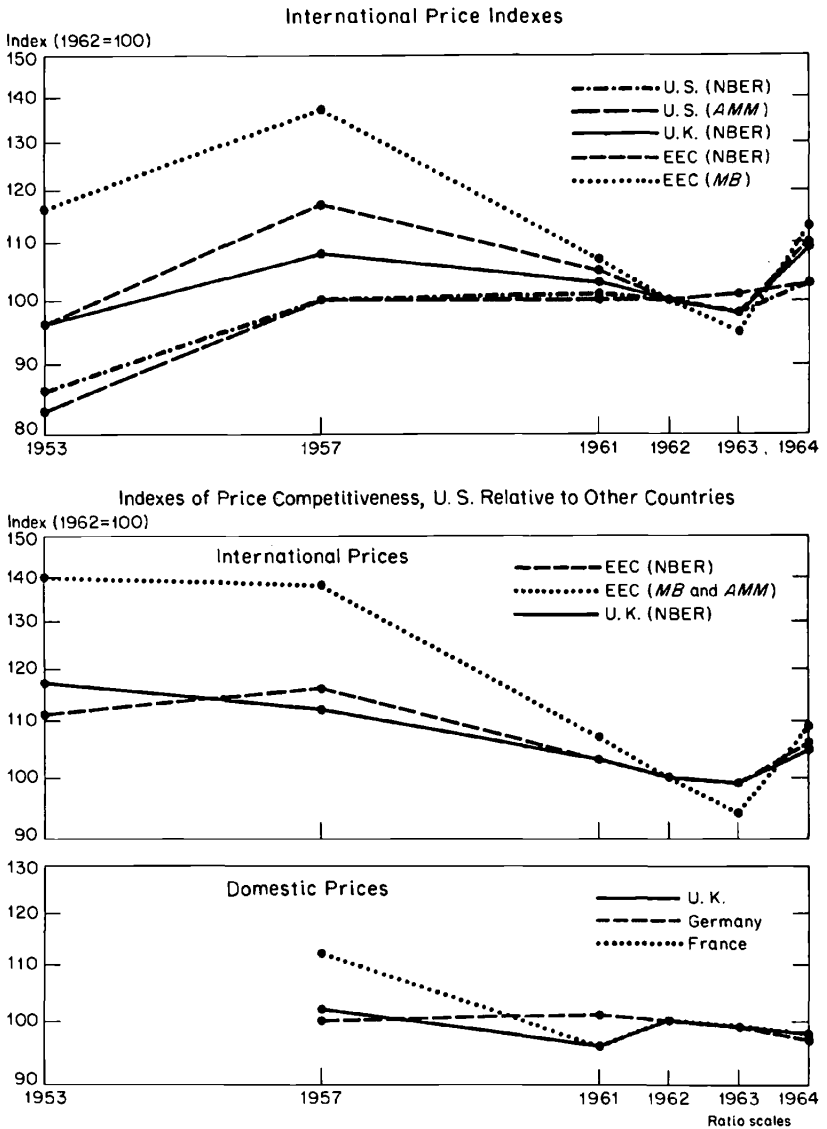
Part B. These are the aggregate of indexes of price competitiveness for four-digit SITC subgroups, calculated from either place-to-place or time-to-time data. In each subgroup the choice between the two types of data was made on the basis of several factors, including the number of sources and observations and the consistency of the price relations and price changes among the observations. The number of sources and observations for each three-digit SITC group is given in Tables A-1 and A-2.

In principle, the index of price competitiveness of the U.S. represents the ratio of the international price index of a foreign country to that of the U.S. (see Section I of this paper). Thus, for example, a rise in the U.S. index of price competitiveness relative to the U.K. indicates that U.K. prices have risen relative to U.S. prices.

Part C. The 1962 price levels are the aggregate of place-to-place indexes for that year. For other years, the price levels were not calculated from the place-to-place relatives but were, instead, derived from the indexes of price competitiveness (Part B of this table). Since the indexes of price competitiveness measure changes in the place-to-place ratios, they imply, given one year's ratio as a starting point, place-to-place indexes for the other years.

Part D. Derived from part C of this table and the U.S. international price index in part A.

CHART I  
*Iron and Steel, SITC Division 67, Indexes of International  
 and Domestic Prices and Price Competitiveness*



Source: Footnotes to Tables 1 and 2.

to-year changes, appear as the first set in Table 2. In each period, with one exception, price movements in the three areas were in the same direction, rising in 1953-57 and 1963-64 and falling between 1961 and 1963. The exception to unanimity of direction was between 1957 and 1961, when U.K. and EEC prices fell substantially from their Suez crisis levels and U.S. prices were comparatively stable.

In general, U.K. and particularly EEC prices fluctuated more sharply than U.S. prices. They fell substantially between 1957 and 1962, while U.S. prices were virtually stable, and rose more than U.S. prices from 1963 to 1964. Some evidence not yet incorporated in the indexes suggests that we may have understated the fall in international prices between 1957 and 1961, particularly for the EEC countries, and that the differences among the areas were probably greater than those shown in Table 1. Such differences in price behavior have been commented on in the past.<sup>22</sup>

The second set of figures in Tables 1 and 2 and the second panel in the chart show the indexes of price competitiveness described in Section I of this paper. Those in Table 1 describe U.S. price competitiveness relative to the U.K. and EEC in each year compared to the competitive position in 1962, and those in Table 2 show year-to-year changes in price competitiveness. For example, the figure of 105 for the 1964 index relative to the U.K. in Table 1 indicates that U.K. prices of internationally traded goods rose by 5 per cent relative to U.S. prices between 1962 and 1964,<sup>23</sup> or that the ratio of the U.K. price level of internationally traded goods to the U.S. level was 5 per cent higher in 1964 than in 1962.

U.S. price competitiveness vis-à-vis the U.K. declined in every period shown here between 1953 and 1962 or 1963. Relative to the

<sup>22</sup> The OEEC Iron and Steel Committee reported in 1960 that "there is a fundamental difference in the export price policy pursued by producers in the various exporting areas . . . producers in the E.C.S.C. and Japan . . . seem to adopt a much more flexible policy . . . to try to expand their share of the export market by making price sacrifices. . . . This policy is in marked contrast to that followed in the United States, and, it would seem, in the United Kingdom, where the steel industries seem less disposed to offer heavy cuts in prices to overseas consumers. . . ." *The Iron and Steel Industry in Europe*, Paris, May 1960, p. 97.

<sup>23</sup> Strictly speaking, that the U.K. price index for 1964 was 105 per cent of the U.S. price index (1962 = 100 for both indexes). As was pointed out earlier, we have placed U.S. prices in the denominator in all these calculations.

EEC, U.S. price competitiveness deteriorated rapidly after 1957. There was little change between 1962 and 1963, but in 1964 the direction was reversed and the U.S. improved its competitive position relative to both areas. These last estimates are very tentative and may err in the direction of underestimating the improvement in the competitive position of the U.S.

As already noted, the indexes of price competitiveness may be computed from either time-to-time international price indexes or place-to-place international price comparisons. The indexes in Tables 1 and 2 are not based on either method exclusively. For each four-digit SITC subgroup for each period, a decision was made as to whether the time-to-time data or the place-to-place data would yield the most reliable index of price competitiveness. These separate four-digit indexes of price competitiveness were then aggregated into the three-digit group indexes and then into the indexes for all of division 67.

The time-to-time indexes were more frequently used because the four-digit place-to-place indexes tended to move erratically, owing to several factors. For one thing, the place-to-place price ratios were characterized by wider dispersion than the time-to-time ratios, and the place-to-place price relations often varied among commodities within four-digit subgroups. Therefore, changes in the commodity composition of the samples within four-digit subgroups produced spurious movements from one year to the next in the place-to-place ratios. The solution to this problem is a finer classification of commodities within the four-digit subgroups to eliminate these unintended shifts.

The differences in the resulting indexes of U.S. price competitiveness for pairs of years produced by these alternative methods are as follows:

|                          | 1961/1957 | 1962/1961 | 1963/1962 |
|--------------------------|-----------|-----------|-----------|
| Relative to U.K.         |           |           |           |
| NBER index (Table 2)     | 92        | 97        | 99        |
| Time-to-time data only   | 94        | 98        | 99        |
| Place-to-place data only | 86        | 95        | 105       |
| Relative to EEC          |           |           |           |
| NBER index (Table 2)     | 88        | 97        | 99        |
| Time-to-time data only   | 92        | 97        | 100       |
| Place-to-place data only | 82        | 98        | 107       |

The third bank of figures (C) in Table 1 gives estimates, calculated from the indexes of price competitiveness, of U.K. and EEC international price levels for each year relative to that of the U.S. Both were lower than the U.S. price level in every year shown. The gap between U.S. and foreign prices was greatest in 1962 and 1963, when both U.K. and EEC prices were about 20 per cent lower. Our tentative estimates for 1964 indicate that the gap has narrowed to 15 per cent. The U.S. position was more favorable in 1953 and 1957, when European prices were about 10 per cent lower than those of the U.S. For iron and steel products in general, U.K. and EEC international price levels have been closer to each other than to the U.S. level, with the U.K. prices usually slightly above EEC except in 1957.

The last set of figures (D) compares each international price level to that of the U.S. in 1962. The most recent European price levels appear from these calculations to be similar to those of the U.S. in 1953, and even the highest levels of European prices (in 1957) are below the lowest reached by the U.S. after the initial year.

#### COMPARISONS WITH PUBLISHED EXPORT PRICES

Other sources of export price information are leading trade journals, notably the *Metal Bulletin*, published in London, and the *American Metal Market*. The former, in particular, is widely cited for its information on steel prices.<sup>24</sup>

Coverage of U.K. export prices in these sources appears to be too limited for the computation of indexes, but we have been able to compute fairly broad indexes for EEC iron and steel exports (from the *Metal Bulletin*) and for U.S. exports (from the *American Metal Market*). These indexes appear in Table 2.

From 1953 through 1963, the NBER international price indexes for the United States follow very closely those computed from published export prices. The discrepancies, although small, are almost all in one direction, and therefore cumulate through the period, with the NBER indexes declining slowly but regularly with respect to those from *American Metal Market* data. Then, in 1963-64, there is a reversal: the NBER indexes rise substantially, and the indexes computed from published prices rise only slightly. The dif-

<sup>24</sup> See, for example, *The Iron and Steel Industry in Europe*, p. 177.



TABLE 2  
*Year-to-Year Comparisons of International and Domestic Prices and  
 Price Competitiveness, Iron and Steel, SITC Division 67*

|  | <u>1957</u><br>1953 | <u>1961</u><br>1957 | <u>1962</u><br>1961 | <u>1963</u><br>1962 | <u>1964</u><br>1963 |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|
| A. NBER DATA   |                     |                     |                     |                     |                     |
| International Price Indexes                                |                     |                     |                     |                     |                     |
| U.S.   | 116                 | 101                 | 99                  | 99                  | 105                 |
| U.K.   | 113                 | 95                  | 97                  | 97                  | 112                 |
| EEC  | 122                 | 89                  | 96                  | 98                  | 113                 |
| Indexes of U.S. Price Competitiveness                      |                     |                     |                     |                     |                     |
| Relative to U.K.   | 96                  | 92                  | 97                  | 99                  | 106                 |
| Relative to EEC  | 104                 | 88                  | 97                  | 99                  | 107                 |
| B. PUBLISHED EXPORT PRICE DATA                             |                     |                     |                     |                     |                     |
| International Price Indexes                                |                     |                     |                     |                     |                     |
| U.S.- <i>American Metal Market</i>                         | 121                 | 101                 | 100                 | 101                 | 102                 |
| EEC- <i>Metal Bulletin</i>                                 | 118                 | 78                  | 93                  | 95                  | 118                 |
| Index of U.S. Price Competitiveness                        |                     |                     |                     |                     |                     |
| Relative to EEC  | 98                  | 77                  | 94                  | 95                  | 116                 |
| C. UNIT VALUE DATA   |                     |                     |                     |                     |                     |
| U.S. Export Unit Value Index                               | 126                 | 105                 | 101                 | 98                  |                     |
| D. DOMESTIC PRICE DATA                                     |                     |                     |                     |                     |                     |
| Domestic Price Indexes                                     |                     |                     |                     |                     |                     |
| U.S.-BLS   | 127                 | 102                 | 100                 | 99                  | 101                 |
| U.S.-Iron and Steel Board                                  |                     | 104                 | 100                 | 101                 | 102                 |
| U.K.-Iron and Steel Board                                  |                     | 97                  | 104                 | 100                 | 100                 |
| Germany-Iron and Steel Board                               |                     | 105                 | 99                  | 100                 | 100                 |
| France-Iron and Steel Board                                |                     | 89                  | 104                 | 100                 | 100                 |
| Index of U.S. Price Competitiveness (Iron and Steel Board) |                     |                     |                     |                     |                     |
| Relative to U.K.   |                     | 94                  | 104                 | 99                  | 99                  |
| Relative to Germany  |                     | 102                 | 99                  | 99                  | 98                  |
| Relative to France   |                     | 85                  | 105                 | 99                  | 98                  |

NOTES

Part A. See Notes to Table 1.

Part B. *American Metal Market* prices for each year were taken from the issue closest to July 1. They appear to be posted prices, and there is no indication that any deviation of market from posted prices would be recorded. No prices are listed for Groups 671, 672, and 679. Data for Group 678 are given only at the end of the period.

*Metal Bulletin* price data, also collected from issues closest to July 1, purport to represent actual market conditions rather than posted prices. There are, unfortunately, very few items listed, and only four of the three-digit SITC groups in Division 67 are covered at all. These groups do, however, account for two-thirds of the value of trade in Division 67. The chief group omitted is SITC 678, tubes, pipes, and fittings.

Part C. This index is a reweighting of the series composing the Department of Commerce export unit value indexes by the 1962 world trade weights used for this study. No attempt was made to widen the coverage of the official unit value indexes, and the few departures from the Department of Commerce list were forced by our use of some four-year links instead of one-year links and by the use of a single base year instead of shifting bases. (The Department of Com-

ference is sufficient to restore approximately the 1961 relation between the NBER index and the index based on *American Metal Market* prices.

It is conceivable, given the thinness of the data on which the NBER indexes for 1963-64 are based, that this sudden reversal is only a sampling aberration. Further data collection should eventually settle this question. However, another possibility is worth considering. The index based on the list prices published in the trade journals may understate the flexibility of American prices.

There is considerable evidence that the U.S. price index based on published prices moved more sluggishly than actual prices. One point is that the decline in the NBER indexes relative to published prices in 1961-62 and 1962-63—suggesting some shading of prices by American companies in reaction to European and Japanese competition—was quite pervasive among the four-digit SITC groups and was apparent in data from a number of sources. A revealing fact about the published U.S. prices is that reinforcing bars, a product subject to intense foreign competition, drop out of the index after 1961, when published prices were withdrawn by U.S. companies. Thus the international price index from published export prices does not reflect the subsequent behavior of this price, one indication of which is the fact that the BLS reported

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*Notes to Table 2 (Concluded)*

merce sometimes changes the composition of its index to provide the best year-to-year link).

Approximately thirty unit value series are incorporated into this index; about half of them are semimanufactures and half are finished manufactures. The major gaps, from the point of view of the world trade weights, are ingots (SITC 672) and wire rods (SITC 673.1).

Part D. Among the domestic price indexes the one computed from BLS series is by far the most complete, with fifty-six specifications including at least two in every three-digit group. The U.K. Iron and Steel Board prices are confined to the first five three-digit groups in Division 67. These account for almost three-quarters of the trade in 67, but exclude the more highly manufactured products.

We combined the published prices into unweighted indexes for four-digit SITC subgroups and aggregated these into three-digit groups and the total index for SITC 67, using the world trade weights described earlier.

The numbers of observations for indexes of published export and domestic prices are given in Table A-3.

These indexes of price competitiveness, unlike the NBER indexes above, were derived from the price indexes.

a fall of 4 per cent from 1961 to 1962 and a further 11 per cent from 1962 to 1963 in the domestic price of reinforcing bars.<sup>25</sup>

If the reason suggested here for the discrepancies in 1961-63 is correct, namely, that list prices failed to reflect some shading of actual U.S. export prices to meet foreign competition, the shift in 1963-64 is a logical one. The rise in U.S. list prices between 1963 and 1964 may have been accompanied by a curtailment of discounting from list prices, with the consequence that actual export price offers rose by more than the increase in list prices.

The relation between NBER and *Metal Bulletin* prices for EEC exports was in the opposite direction; it is the published prices in this case that show the more violent fluctuations. In particular, the published price indexes fell sharply between 1957 and 1961, but they fell more than the NBER indexes in 1961-62 and 1962-63 also, and then rose more in 1963-64. It is possible that the index derived from *Metal Bulletin* prices is more volatile than EEC export prices in general because of the small number of commodities covered. These tended to be the ones most important in trade and include several, such as wire rods and concrete reinforcing bars, that have been subject to particularly severe international competition. Products of alloy steels or those incorporating other special features, not as standardized as those in the *Metal Bulletin* list, or those playing a less important role in international competition, may have undergone less violent price fluctuations. The NBER price collection, taken in large part from the purchase experience of private companies, includes more of such items.

For the most part, the index of U.S. price competitiveness relative to the EEC based on published data gives a magnified version of the fluctuations shown in the NBER index. The declines are larger in each of the periods from 1957 through 1963, and the increase is larger from 1963 to 1964. However, the index from published data shows not only larger fluctuations than the NBER index but also a much greater deterioration in the U.S. competitive position vis-à-vis the EEC countries over the whole span of years: 23

<sup>25</sup> U.S. Bureau of Labor Statistics, *Wholesale Prices and Price Indexes*, various issues.

per cent instead of the NBER estimate of 4 per cent since 1953, and 21 per cent instead of 9 per cent since 1957.

#### COMPARISONS WITH EXPORT UNIT VALUES

The third section of Table 2 gives an index derived from U.S. export unit values, constructed, as far as possible, from those commodities used by the Department of Commerce in its official export unit value index (for which no separate iron and steel component is published). No effort was made to widen the coverage of the official index or to pass judgment on the quality of the individual unit value series used. The main alteration in the unit value data was the reweighting by world trade weights for a single year in place of the Commerce Department's shifting U.S. export weights. However, some minor changes in commodity composition were necessary because of our use of four-year time spans for two of the periods.

The largest difference between the unit value and NBER indexes is in 1953 to 1957, when the unit value index rose by ten points more (as did the domestic price index); the index from published export prices was midway between the two. In 1957-61 the unit value index increased by more than any of the other three, but in the following two years, when prices were relatively stable, the differences were small.

Steel products present fewer problems for the construction of unit value indexes than most other kinds of manufactured goods. Physical-quantity data are given in the trade statistics, and the degree of commodity detail is substantial: over 100 separate commodity numbers are available in Schedule B (the U.S. export trade commodity classification) for products in SITC Division 67. Furthermore, steel products are comparatively homogeneous.

#### COMPARISONS WITH DOMESTIC PRICES

Since changes in international competitiveness are often inferred from movements of domestic prices, we show, in the lowest panels of Table 2 and Chart 1 some computations on this basis. From 1953 to 1957, U.S. domestic prices increased more rapidly than did the

NBER international price indexes. Between 1957 and 1963, the two indexes moved quite similarly, and from 1963 to 1964 the international price index rose relative to domestic prices. As might be expected, European international prices diverged more frequently and by greater amounts from domestic prices, falling relatively in most cases in each of the periods between 1957 and 1963, and then rising by 10 per cent or more relative to domestic prices in both the U.K. and EEC countries in 1963-64.

It is clear that quite different conclusions regarding the last seven years' developments could be drawn from the domestic price data. Between 1957 and 1962, they suggest a much smaller decline in U.S. price competitiveness than is described by the NBER indexes, and between 1961 and 1962 they show an improvement while the NBER indexes show a worsening of the U.S. competitive position. In 1963-64 the comparisons based on domestic prices indicate a deterioration in the U.S. position and the NBER series suggest a turn toward improvement.

#### RESULTS FOR THREE GROUPS OF IRON AND STEEL PRODUCTS

Tables 3 and 4 show international and domestic price indexes and indexes of price competitiveness for the three most important components of iron and steel products: SITC Group 673, bars and shapes; SITC Group 674, plates and sheets; and SITC Group 678, tubes and pipes. Together these account for about three-quarters of total world trade in iron and steel products. The indexes are shown only through 1963 because the sample is too small for 1964.

The results for all iron and steel products are, on the whole, mirrored in the main components shown here. For example, the U.S. international price indexes all show price increases in 1953-57 and declines in 1961-62, and the total range in the other two periods is only four or five percentage points.

In order to test the effect of some more elaborate commodity weighting schemes contemplated for later stages of the study, an experiment was performed on the EEC international price index for SITC Group 673, in which the problem of shifting weights within four-digit subgroups was a serious one. The composition

TABLE 3  
 Year-to-Year Comparisons of International Prices and Price Competitiveness,  
 SITC Groups 673, 674, and 678  
 (NBER and other data)

|                                       |                    |      | <u>1957</u> | <u>1961</u> | <u>1962</u> | <u>1963</u> |     |
|---------------------------------------|--------------------|------|-------------|-------------|-------------|-------------|-----|
|                                       |                    |      | 1953        | 1957        | 1961        | 1962        |     |
| INTERNATIONAL PRICE INDEXES           |                    |      |             |             |             |             |     |
| NBER data                             | U.S.               | 673  | 117         | 102         | 99          | 95          |     |
|                                       |                    | 674  | 113         | 102         | 99          | 100         |     |
|                                       |                    | 678  | 121         | 98          | 98          | 99          |     |
|                                       | U.K.               | 673  | 116         | 100         | 94          | 98          |     |
|                                       |                    | 674  | 105         | 89          | 97          | 94          |     |
|                                       |                    | 678  | 120         | 97          | 102         | 100         |     |
|                                       | EEC                | 673  | 126         | 91          | 91          | 98          |     |
|                                       |                    | 674  | 125         | 85          | 96          | 95          |     |
|                                       |                    | 678  | 115         | 87          | 98          | 100         |     |
| Published data                        | U.S.               | 673  | 125         | 102         | 100         | 100         |     |
|                                       |                    | 674  | 117         | 100         | 99          | 101         |     |
|                                       | EEC                | 673  | 129         | 80          | 84          | 99          |     |
|                                       |                    | 674  | 109         | 74          | 100         | 92          |     |
|                                       | Export Unit Values | U.S. | 673         | 128         | 102         | 101         | 102 |
|                                       |                    |      | 674         | 120         | 100         | 101         | 96  |
| 678                                   |                    |      | 130         | 119         | 101         | 96          |     |
| INDEXES OF U.S. PRICE COMPETITIVENESS |                    |      |             |             |             |             |     |
| NBER data                             | Relative to U.K.   | 673  | 100         | 98          | 95          | 104         |     |
|                                       |                    | 674  | 93          | 87          | 97          | 94          |     |
|                                       |                    | 678  | 91          | 92          | 96          | 102         |     |
|                                       | Relative to EEC    | 673  | 108         | 89          | 92          | 103         |     |
|                                       |                    | 674  | 109         | 84          | 98          | 95          |     |
|                                       |                    | 678  | 95          | 89          | 100         | 102         |     |
| Published data                        | Relative to EEC    | 673  | 103         | 79          | 84          | 99          |     |
|                                       |                    | 674  | 94          | 74          | 101         | 91          |     |

NOTE: See notes to Tables 1 and 2 for descriptions of indexes.

of each subgroup was stabilized at the weighting pattern of the year in which data were most plentiful, so as to eliminate the effects of increasing proportions of certain types of data. The result of this procedure was to reduce the 1961/1957 index from 91, as published in Table 3, to 88, somewhat closer to the index based on published prices.

It was suggested earlier that part of the difference between our

TABLE 4  
*Year-to-Year Comparisons of Domestic Prices,  
 SITC Groups 673, 674, and 678*

|                           | <u>1957</u><br>1953 | <u>1961</u><br>1957 | <u>1962</u><br>1961 | <u>1963</u><br>1962 |
|---------------------------|---------------------|---------------------|---------------------|---------------------|
| U.S.                      |                     |                     |                     |                     |
| BLS Data                  |                     |                     |                     |                     |
|                           | 673                 | 131                 | 104                 | 99                  |
|                           | 674                 | 124                 | 104                 | 100                 |
|                           | 678                 | 132                 | 100                 | 100                 |
| Iron and Steel Board Data |                     |                     |                     |                     |
|                           | 673                 |                     | 104                 | 100                 |
|                           | 674                 |                     | 104                 | 102                 |
| U.K.                      |                     |                     |                     |                     |
| Iron and Steel Board Data |                     |                     |                     |                     |
|                           | 673                 | 99                  | 103                 | 100                 |
|                           | 674                 | 96                  | 106                 | 100                 |
| Germany                   |                     |                     |                     |                     |
| Iron and Steel Board Data |                     |                     |                     |                     |
|                           | 673                 | 109                 | 100                 | 100                 |
|                           | 674                 | 103                 | 99                  | 100                 |
| France                    |                     |                     |                     |                     |
| Iron and Steel Board Data |                     |                     |                     |                     |
|                           | 673                 | 94                  | 107                 | 100                 |
|                           | 674                 | 85                  | 103                 | 100                 |

NOTE: See notes to Table 2 for descriptions of indexes.

indexes for EEC international prices and those derived from published prices was that the latter were too volatile because the number of commodities was small and the index therefore not representative. The fact that differences between NBER and published price indexes for four-digit groups or individual commodities are smaller than those in the total indexes of Table 2 confirms our impression that part of the difference between the NBER and published indexes arises from the selection of commodities in the latter.

Comparisons of the unit value and NBER price indexes for the more detailed components show wider differences and more frequent cases of movements in opposite directions. The unit values for tubular goods exhibit particularly erratic behavior. Between 1957 and 1961, for example, they increased by 19 per cent, while the NBER index declined by 2 per cent and the wholesale price index showed no change. This cannot be explained as a vagary of the unit value series for one or a few commodities, since it is based on fourteen relatives, of which twelve showed increases of more than 11 per cent. It seems likely that the tightness of supplies in

Europe following the Suez crisis led to the purchase from American suppliers in 1957 of large quantities of cheaper pipe, especially for Venezuela and Canada, not ordinarily bought in the U.S. By 1961 the U.S. was again exporting smaller, more specialized, and therefore more expensive pipe. Because the system of pipe classification in U.S. trade statistics omits some critical price factors, such as diameter, the unit value index is vulnerable to this kind of error.

Comparison of the NBER indexes with domestic prices for individual groups confirms the conclusion that domestic price movements are an untrustworthy guide to changes in international price relations. For example, in 1961-62 they show stable or increasing prices, while many other indications point to international price declines, particularly in Group 673.

#### CONCLUSION

As already noted, additional work remains to be done in the iron and steel group. In addition to improving coverage for 1963 and 1964, we plan to experiment with finer commodity subdivisions, to compare price relations reported by different classes of respondents, to attempt to produce separate indexes for France and Germany, and to include Japan.

It is possible that further investigation of individual published price observations will lead to the conclusion that some of them should be incorporated in our price indexes. Consideration will also be given to supplementing our data with selected export and import unit value series, and we will at least attempt to see what light our data throw on the reliability of these customs data.

We are satisfied, however, that the methods developed in the International Price Comparison Study represent a feasible approach to the measurement of international price competitiveness, at least for the relatively homogeneous types of products included in the iron and steel division. We believe it is a superior approach in principle and that the other sources of information about price competitiveness explored in this paper—published export prices and domestic prices—cannot be relied upon to serve the same purpose. The next major step in our study is to show that the methods can be applied in the area where a more severe test has to be met—the highly differentiated products of the machinery groups.





TABLE A-2  
 Number of Sources and Observations, NBER Place-to-Place Indexes,  
 by 3-Digit SITC Groups

| SITC Class | 1953    |       | 1957    |       | 1961    |       | 1962    |       | 1963    |       | 1964    |       |
|------------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|
|            | Sources | Obsr. | Sources | Obsr. | Sources | Obsr. | Sources | Obsr. | Sources | Obsr. | Sources | Obsr. |
| 671        | 1       | 2     | 1       | 2     | 1       | 2     | 1       | 2     | 1       | 2     | 1       | 2     |
| 672        | 1       | 1     | 1       | 1     | 1       | 1     | 1       | 1     | 1       | 1     | 1       | 1     |
| 673        | 1       | 1     | 2       | 8     | 7       | 48    | 6       | 31    | 4       | 46    | 2       | 12    |
| 674        | 1       | 4     | 2       | 15    | 4       | 35    | 6       | 66    | 6       | 36    | 2       | 5     |
| 675        | 3       | 5     | 3       | 6     | 3       | 6     | 3       | 6     | 3       | 6     | 3       | 6     |
| 676        | -       | -     | -       | -     | 1       | 14    | 2       | 8     | 1       | 7     | -       | -     |
| 677        | 1       | 1     | 2       | 6     | 2       | 5     | 2       | 4     | 2       | 6     | -       | -     |
| 678        | 1       | 21    | 3       | 21    | 6       | 206   | 10      | 188   | 7       | 144   | 2       | 15    |
| 67         | 4       | 35    | 5       | 59    | 13      | 317   | 16      | 306   | 12      | 248   | 8       | 41    |
| U.K./U.S.  |         |       |         |       |         |       |         |       |         |       |         |       |
| 671        | 1       | 2     | 2       | 5     | 3       | 8     | 3       | 8     | 2       | 5     | 2       | 5     |
| 672        | 1       | 3     | 1       | 5     | 1       | 5     | 1       | 5     | 1       | 5     | 1       | 5     |
| 673        | -       | -     | 3       | 8     | 3       | 28    | 3       | 22    | 3       | 9     | -       | -     |
| 674        | 1       | 1     | 4       | 32    | 4       | 48    | 5       | 63    | 3       | 38    | 3       | 9     |
| 675        | 1       | 4     | 2       | 5     | 2       | 7     | 4       | 8     | 3       | 6     | 3       | 7     |
| 676        | 1       | 1     | 1       | 2     | 1       | 2     | 1       | 2     | 1       | 2     | 1       | 1     |
| 677        | -       | -     | 2       | 11    | 3       | 10    | 3       | 8     | 2       | 11    | 2       | 4     |
| 678        | 2       | 34    | 2       | 46    | 5       | 178   | 9       | 272   | 6       | 147   | 4       | 29    |
| 67         | 2       | 45    | 5       | 114   | 13      | 286   | 18      | 388   | 14      | 222   | 11      | 63    |
| EEC/U.S.   |         |       |         |       |         |       |         |       |         |       |         |       |

TABLE A-3  
*Number of Observations, Published International and Domestic Price  
 Data, Time-to-Time Indexes, by 3-Digit SITC Groups*

|     | 57/53                             | 61/57 | 62/61 | 63/62 | 64/63 | U.K. Iron and Steel Board |       |       |       |
|-----|-----------------------------------|-------|-------|-------|-------|---------------------------|-------|-------|-------|
|     |                                   |       |       |       |       | 61/57                     | 62/61 | 63/62 | 64/63 |
|     | U.S.-BLS                          |       |       |       |       | U.S. and U.K.             |       |       |       |
| 671 |                                   |       | 8     |       |       | 2                         | 2     | 2     | 2     |
| 672 |                                   |       | 4     |       |       | 3                         | 3     | 3     | 3     |
| 673 |                                   |       | 13    |       |       | 16                        | 16    | 16    | 16    |
| 674 |                                   |       | 9     |       |       | 10                        | 15    | 15    | 12    |
| 675 |                                   |       | 3     |       |       | 3                         | 3     | 3     | 3     |
| 676 |                                   |       | 3     |       |       | -                         | -     | -     | -     |
| 677 |                                   |       | 2     |       |       | -                         | -     | -     | -     |
| 678 |                                   |       | 11    |       |       | -                         | -     | -     | -     |
| 679 |                                   |       | 3     |       |       | -                         | -     | -     | -     |
| 67  |                                   |       | 56    |       |       | 34                        | 39    | 39    | 36    |
|     | <u>U.S.-American Metal Market</u> |       |       |       |       | GERMANY                   |       |       |       |
| 671 | -                                 | -     | -     | -     | -     | 1                         | 1     | 1     | 1     |
| 672 | -                                 | -     | -     | -     | -     | 3                         | 3     | 3     | 3     |
| 673 | 18                                | 19    | 11    | 18    | 19    | 16                        | 16    | 16    | 16    |
| 674 | 18                                | 18    | 13    | 22    | 18    | 10                        | 15    | 14    | 11    |
| 675 | 4                                 | 7     | 5     | 8     | 1     | 3                         | 3     | 3     | 3     |
| 676 | 4                                 | 4     | 6     | 6     | 6     | -                         | -     | -     | -     |
| 677 | 3                                 | 3     | 3     | 3     | 3     | -                         | -     | -     | -     |
| 678 | -                                 | -     | -     | 8     | 8     | -                         | -     | -     | -     |
| 679 | -                                 | -     | -     | -     | -     | -                         | -     | -     | -     |
| 67  | 47                                | 51    | 38    | 65    | 55    | 33                        | 38    | 37    | 34    |
|     | <u>EEC-Metal Bulletin</u>         |       |       |       |       | FRANCE                    |       |       |       |
| 671 | -                                 | -     | -     | -     | -     | 2                         | 2     | 2     | 2     |
| 672 | -                                 | -     | -     | -     | -     | 3                         | 3     | 3     | 3     |
| 673 | 3                                 | 4     | 7     | 8     | 7     | 16                        | 16    | 16    | 16    |
| 674 | 4                                 | 6     | 6     | 5     | 5     | 10                        | 15    | 15    | 12    |
| 675 | 1                                 | 1     | 1     | 1     | 1     | 3                         | 3     | 3     | 3     |
| 676 | -                                 | -     | -     | -     | -     | -                         | -     | -     | -     |
| 677 | 3                                 | 3     | 3     | 3     | 3     | -                         | -     | -     | -     |
| 678 | -                                 | -     | -     | -     | -     | -                         | -     | -     | -     |
| 679 | -                                 | -     | -     | -     | -     | -                         | -     | -     | -     |
| 67  | 11                                | 14    | 17    | 17    | 16    | 34                        | 39    | 39    | 36    |