

Machine-tool collapse signals end of America's industrial base

by Leif Johnson

Beginning exactly one year ago, the domestic steel industry began the steepest production collapse in its history. In the 10 months preceeding June 1982, steel industry shipments sank to less than one half their previous level.

Capacity utilization of the domestic steel industry is now at 40 percent, which means that 60 percent of steel production capacity is idle. Worse, sources in the industry have produced evidence that certain domestic manufacturers, including U.S. Steel, the largest, are actively cannibalizing existing plants to maintain the operations of those plants which are still producing.

Thus it is now impossible to return the industry to anything near the reputed steel shipment capacity of between 100 and 110 million tons of 1978-79; and the total maximum capacity continues to shrink.

Of all sectors of industry, only defense orders has shown any rise in shipments during 1982, and that rise, from 166,000 tons in 1981 to an estimated 225,000 tons in 1982, is miniscule compared to the size of the steel industry.

Nor have imports, which have risen a marginal few millions tons, come anywhere near the 37-million-ton shipment collapse occurring this year as compared with 1981.

While certain industries like auto, the largest single industrial user of steel, made large inventory draw-downs of steel products early this year, even after the draw-downs were complete, shipments to the industry continued at extremely depressed levels.

Signal of contraction

It is this immense shortfall in steel shipments to industry which measures the extent of coming major production shut-downs. Each industry has a different lead time from the receipt of steel products to the production of that industry's finished goods, with auto being relatively short and oil and gas extraction much longer; but in all key industries, a short-

fall in steel shipments must eventually translate into a production drop. That indicates that total American industrial production will take another leap downward in the coming months.

For example, in the first seven months of 1982, steel shipments to the auto industry dropped by 23.2 percent. But auto production dropped only 8.2 percent from 1981 levels. It is inescapable, therefore, that auto production in the very near future must crumble to something approximating the steel shipment drop—although slightly mitigated by increased use of imported steel and further inventory draw-down.

Judging by the disparity between steel shipments and output, the most precarious sector in the U.S. economy today is construction. In the first seven months of the year, construction activity, measured by total construction put in place in constant 1972 dollars, fell by a marginal 3.1 percent. But steel shipments for construction and maintenance fell by 22.3 percent—more than seven times as much.

Yet, a collapse of some areas of construction like office buildings would have little effect on the productive real economy of the nation—although it would depress consumer sales because of lost wage earnings. Therefore, the coming decline in construction is far less serious than that in the machine tool and equipment sectors.

Production downturns in non-electrical machinery and equipment registered 11.6 percent so far this year. But steel orders from these sectors were down 33.5 percent, three times as much. Since these sectors together are the fourth-largest consumer of steel (leaving aside shipments to steel service centers), the possibility that the industry will maintain its present level of production using inventory or imported steel is nil.

As indicated by the most specialized tool-making sector, machine tools, America's tool-making capability is being

destroyed. Net orders for that industry in 1982, in current dollars, are half of what they were in 1981, which in turn was half of what they were in 1980, when orders dropped 15 percent from 1979. In constant 1972 dollars, the machine-tool orders for 1982 are estimated to amount to less than one-fifth those of 1979.

Those economists who still believe that consumer goods are the key to economic recovery might have looked at steel shipments to household-appliance manufacturers in the first seven months of the year. Shipments fell by 23.6 percent, but production fell by only 15.4 percent, indicating that contrary to the wisdom of the economists, purchasing agents for appliance manufacturers did not foresee an upturn and now look toward a further production decline.

Two industries showed that the downfall of steel shipments had already resulted in a concomitant production decline. Steel orders to rail were off 40.6 percent from last year while the value of new railroad equipment and construction put in place declined by 38.9 percent. Agriculture and agricultural machinery took 25.5 percent less steel and output declined by 23.8 percent. Some economists designate specific industries in such extraordinary decline as "mature"—well rotted out.

Another primary-metals industry—aluminum—shows

much the same pattern as steel. Although much smaller and of less generalized use throughout the economy, raw aluminum output declined 21.8 percent this year over last. Aluminum mill products only slowed by 12.7 percent, indicating here as well a further substantial production decline.

August production figures for aluminum indicate that unlike steel production, which may have bottomed out at 40 percent of capacity, aluminum continues to decline. The industry began the year with a daily raw production rate of 14,400 tons, which then declined steadily to 9,260 tons in August. Exports, which declined 37 percent in 1981 from 1980, have declined another 25 percent in 1982.

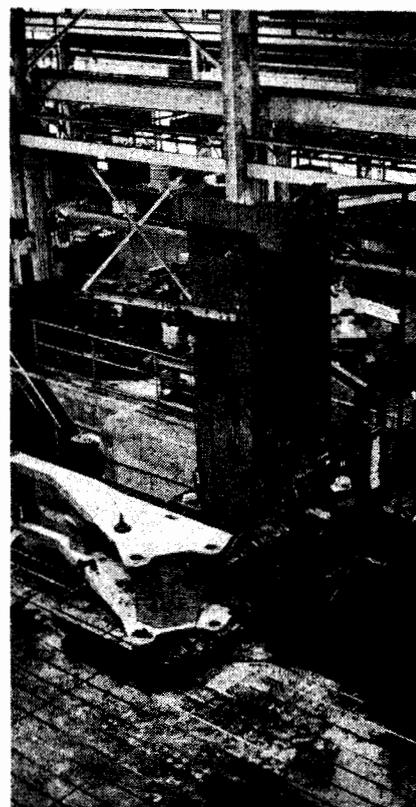
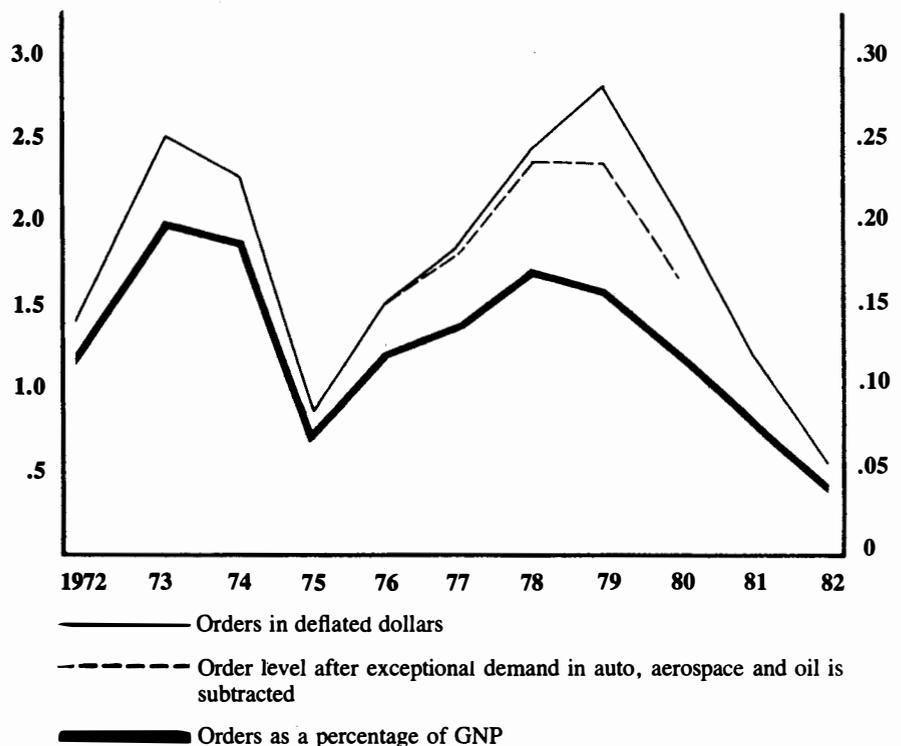
The longer-term decline: machine tools

While the short-term effects of the disastrous drop in steel shipments presage another plunge in production, the longer-term decline in machine tool orders and in skilled labor in the industry indicate that the nation is rapidly losing its capacity to create its own tools.

Three items describe the decline in the nation's tool-making capacity. First, the ten-year decline in domestic tool-orders as a percent of Gross National Product (in 1972 dollars); second, a concomitant decline in the skilled workers necessary to the tool industry; and third, the extraordinary

Machine-tool orders

(billions of 1972 dollars)



recent rise in imports, which are proportionately far greater than imports of steel.

In constant 1972 dollars, net new orders for 1973 and 1974 were \$2.5 billion and \$2.3 billion, respectively, reflecting a normal, healthy level of production. The 1975-76 recession produced a ruinous drop in orders, which recovered during the very large auto industry, aerospace, and oil and gas industry retooling.

Then the bottom fell out. 1982 orders are currently running at less than one-fifth those of 1978, while the order backlog, which the industry must have to guarantee continuity of production capability, is expected to be less than \$400 million, about one-seventh its level in 1979.

If the industry does not receive a large number of orders soon, it will eat up its remaining backlog by spring of 1983 and then be forced to shut its doors.

Orders are in sight, which may turn out to be both the industry's and nation's misfortune, however. The first substantial order will be nearly \$1.2 billion from the Ford Motor Company to finish its last retooling. However, Ford is throwing the nearly bankrupt machine-tool industry into intense and possible ruinous competition over the Ford business. Worse, Ford is forcing the machine-tool industry to come up with the financing for the sales, putting the tool manufacturers in a position very much like the one German industry faced under Herman Goering's post-1938 buildup for World War II.

The industry, which is the keystone of the capital-goods sector of the U.S. economy, will thus get orders whose effect will be to bankrupt them. This will create a general reorganization of the industry into a much smaller one, geared increasingly toward war industries.

This transformation of the real economy into a military economy is in general form identical to what transpired in Germany, Italy, and Japan under fascist governments in the 1930s. The process is markedly visible in the decade-long decline of machine-tool industry orders as a percentage of total Gross National Product.

From a level of 0.20 percent of GNP in 1973 and 1974, machine-tool orders (leaving aside the recession of 1975-76) dropped to 0.17 percent in 1978, 0.16 percent in 1979, and then began a disastrous fall in 1980. In that year, machine-tool orders amounted to only 0.12 percent of GNP, dropping to 0.08 percent in 1981, and then, in the current year to a mere 0.04 percent.

Decline in skilled tool-making manpower

In a recent secret analysis on possible manpower shortages for a military buildup in the United States, the Departments of Labor, Commerce, and Defense concluded that there will be no significant shortages of skilled blue-collar manpower and only very marginal shortages in highly specialized design engineers.

Given a steady deterioration in America's skill levels, and the chronically low levels of graduating engineers and

other scientific personnel, how could these three departments arrive at such a conclusion?

The secret manpower study was premised on the shift of much of the remaining industrial sector—after it had been shrunk—into the military. Under such conditions, no significant shortage would appear, especially since the Pentagon would resort to increasingly authoritarian requisitions of manpower from what they call the “civilian” sector.

The attenuation in labor skills in the real economy is exemplified by the decline in the number of skilled machine-tool workers. According to a study in the July 1982 *Monthly Labor Review*, employment of job and die setters declined from 97,000 in 1974 to 91,000 in 1980, the latest year for which figures are provided. Tool-and-die makers slipped from a 1977 high of 193,000 to 176,000 in 1980.

For an industry where men in their seventies are frequently found on the shop floor, some putting in a full work-week, and where the average age is extraordinarily high, the most critical issue is the rate of replacement.

The Bureau of Labor Statistics (BLS) reports a sharp drop in apprenticeship completion for machinists and tool-and-die makers since 1970. For machinists, completions in 1970 were 3,822; completions in 1979 were only 2,450, after a steady decline in the intervening years. For tool-and-die makers, from a 1972 level of 2,825, completions dropped to 1,807 in 1979.

Ironically, despite the drop in completions, the BLS reports a massive 50 percent increase in number of machinists employed in industry between 1972 and 1980. As tool-company personnel and production managers loudly and frequently assert, many of the “machinists” they employ are badly skill-deficient. Thus, it is the declining numbers of the most highly skilled tool-and-die makers and setters categories that more accurately reflect the attenuation of skill levels in the U.S. machine-tool industry.

Remarkably, the BLS study concludes that there is no particular shortage of highly skilled workers, since there is unemployment amongst these tradesmen. They do not, of course, examine the average age of this section of the workforce.

The third indicator of the decline of the domestic tool industry is the explosion of imports that occurred in the last decade. From zero imports at the beginning of the 1970s, foreign tool-makers, particularly the Japanese, have gained between 25 and 30 percent of the U.S. machine-tool market. Foreign-produced lathes account for half of U.S. consumption, and a third of machining centers are now imported. In the “low end” of the market, the cheapest tools, Japanese producers in some cases have a larger share of the market than the largest U.S. machine-tool producers.

If the U.S. economy were growing, an increased rate of importation of machine tools would be a healthy and welcome sign. But coming during the onset of the Second Great Depression, this development points to one of the most serious internal weaknesses in the U.S. economy.