

### The Evolution of the System since 1945

With this schematic model, developments since 1945 can be quickly sketched. On the producer side, the United States and Soviet Union rapidly emerged as the dominant "first tier" producers. They virtually monopolized global military R&D spending, together accounting for approximately 80 percent in the 1980s, and made most of the major technological innovations. They produced two-thirds of the world's total of weapons (the vast majority of which were for domestic consumption) and captured a share of the global arms export market that, between 1960 and 1990, never dropped below 50 percent.<sup>10</sup> In the mid-1980s, the two superpowers produced around \$175-200 billion annually in weapons, and exported on average about \$35 billion worth of arms each year (hence less than 20 percent of their production was exported). Despite the massive political and economic transformations after the end of the Cold War, this highlights the fact that the future pattern of proliferation of conventional weapons will be largely determined by the policies pursued by these two producers.

The post-1945 "second tier" producers were close to the United States and Soviet Union in technological terms, but far behind in size and scope. The major European arms producers (West Germany, France and Britain, and to a lesser extent Italy, Czechoslovakia and Poland) together did not produce more than \$50-60 billion worth of arms annually throughout the 1980s, and they accounted for about 30-40 percent of global arms exports (around \$15 billion a year). They depended much more heavily, however, upon arms exports to realize economies of scale, or merely to keep their national industries alive: the norm was for between 25 and 40 percent of their production of major weapons systems to be exported, and this figure steadily increased over time.<sup>11</sup> Between them, they produced virtually the entire range of modern weapons, with the exception of the most advanced items, such as stealth and cruise technologies.

Production in the developing world (the "third tier") was insignificant until the mid-1970s, when arms industries in states such as India, Israel and South Africa began producing simple versions of major weapons systems at relatively low levels of sophistication. More states joined the producer club over time, but only a few of them made significant investments in R&D, or had a large enough domestic

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<sup>10</sup> Figures in this section, except where noted, from Krause, *Arms and the State*, Tables 8, 9, 10.

<sup>11</sup> In the late 1980s, the French aircraft producer Dassault estimated that it needed to produce 40 planes a year to maintain its production teams; this meant (given French government orders) that at least 25 percent of production needs to be exported. Sweden originally estimated that one-third of the production of its new generation *Gripen* fighter needed to be exported, and cost estimates for the French *Rafale* assume that one-half of production will be exported. *Aviation Week and Space Technology*, 9 January 1989; Andrew Moravcsik, "The European Arms Industry at the Crossroads," *Survival*, 32:1 (January/February 1990), 82n.