Statement of
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before the
Committee on Governmental Affairs
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NOTICE

This statement is not available for public release until it is delivered at 9:30 a.m. (EDT), Tuesday, August 1, 1989.

Mr. Chairman and Members of the Committee, I appreciate the opportunity to present the Congressional Budget Office's (CBO's) analysis of the major private forecasts of the market for high-definition television (HDTV) receivers and its potential effects on the economy. The report we are releasing today was undertaken at the request of the Committee. It is an interim step toward a fuller analysis of proposed industry research consortia in the areas of HDTV, X-ray lithography, and dynamic random access memories. I want to emphasize that the scope of this interim study is limited to an examination of the economic assumptions that underlie the private market forecasts. CBO's final report will address many of the broader questions concerning the federal role in this area that are not dealt with in the current report. This interim report seeks to answer two questions:

- Will there be a large market for HDTV receivers; and

- Is this market crucial to the competitiveness of the U.S. electronics sector?

In answer to the first question, CBO finds the forecasts very optimistic about market size and certainly about timing, although some consumer products have enjoyed the level of success projected for HDTV. With regard to the second question, it is unlikely that HDTV will by itself revitalize the U.S. electronics sector. According to even the optimistic forecasts, the HDTV market is small relative to other electronic equipment markets.

BACKGROUND

Concerns about the competitiveness of U.S. industry have prompted Congressional proposals for additional federal support to increase the rate at which U.S. firms bring new technology to market. Proponents of such incentives argue that because federal agencies do not now provide much support for technologies that are near commercial development, certain U.S. industries are at a disadvantage relative to industries in countries that do provide such aid. The erosion of the international market share of several U.S. high-technology industries is interpreted as evidence of this problem. One potential new product receiving a lot of attention as a candidate for such incentives is HDTV--a term referring to television receivers with new technology that will combine computers and conventional television technology.

The desire for U.S.-based firms to have a substantial share of the HDTV market has produced a range of policy proposals that vary in size and scope. At one end, the Defense Advanced Research Projects Agency (DARPA) already has allocated $30 million over the next three years for research that relates to the HDTV display, primarily flat-panel screens. At the other end of the spectrum, the American Electronics Association has proposed a package of federal support for HDTV that would include $1.0 billion in loans and loan guarantees for manufacturing facilities, $300 million over three years to expand DARPA's HDTV research, and $50 million to develop standards.

Advocates of federal support for HDTV view it as part of a broad strategy to revitalize the U.S. electronics sector. They have different views, however, of the directions federal policies should take. Some would argue for a federal role in the development and manufacturing of consumer products. Others would like to see federal policy support the development of low-cost, high-resolution digital techniques to create images for uses in medicine, scientific instruments, and computing, as well as for consumer products. In this latter view, the consumer uses are not necessarily either the first or the most likely to find a large market.

MARKET SIZE

CBO's analysis of the private market forecasts began by asking whether the available evidence supported the forecasts of a large market for HDTV receivers. This evidence convinced us that these forecasts seem to be at the high end of the range of the industry's likely sales. No one can foresee with great confidence how successful HDTV will be. The success predicted by private market forecasts may be justified by the large price differentials consumers have paid for color television over monochrome, and by the recent rapid growth of the market for premium television receivers. Whether consumers will value the incremental benefits of HDTV as highly, however, is not clear, especially if there are intermediate and cheaper types of advanced television to choose from. Evidence from consumer surveys suggests that

viewers' preferences for HDTV vary with the program's subject matter, viewers' distance from the set, and other factors (including the picture quality of alternative standard TV sets).

The near-term success of HDTV most likely will depend on how it is brought into the consumer marketplace and on other variables that the market studies have not addressed. As has been shown in product after product, consumers place emphasis on features usually unforeseen by the "experts." The introduction of high-technology consumer products is usually followed by a lengthy trial period in which consumers, producers, and providers of ancillary services grope toward a definition of the product. By contrast, the market forecasts reviewed in this report see HDTV as successful from the start--an event that eluded some of today's most popular consumer electronics products, such as video cassette recorders (VCRs) and microwave ovens. Thus, some skepticism about the timing, if not the eventual size, of HDTV's market success seems warranted.

COMPETITIVENESS IN OTHER ELECTRONIC PRODUCTS

As to the second question--Have the studies shown that the market for HDTV receivers is crucial to the competitiveness of the U.S. electronics sector?--the answer seems clearer. In evaluating the claims for HDTV made in the forecasts, CBO has found that either the markets are unlikely to be big

enough to have the hoped for effects, or the sequence of events asserted by the studies is not sufficiently developed to warrant the conclusions drawn. Even the optimistic forecasts of the potential size of the HDTV market are small relative to the other markets in the electronics sector. Thus, it is hard to believe that HDTV will by itself play a pivotal role in the competitiveness and technology development of the sector as a whole. U.S.-based electronics manufacturing firms may gain or lose market share in the next 20 years, but they already have many incentives to maintain their competitiveness and a large enough market in which to enjoy economies of scale.

Exactly how the HDTV market would change the competitiveness of U.S. producers is unclear. The entire world market for electronic equipment grew by $54 billion in 1988 to reach $461 billion. The world market for HDTV receivers and VCRs is forecast to be less than $30 billion (in 1988 dollars) by the year 2010. It seems counterintuitive to suggest that such a small market that may exist in the future is a more important driver of economies of scale, technology, and competitive success than is the growth in the present market. It would be a case of the tail wagging the dog.

Even if the HDTV market reaches a substantial size, most HDTV receivers would probably be produced in the United States regardless of whether foreign- or domestic-based manufacturers become the dominant suppliers. Large receivers are produced in the United States now primarily because of the bulk and fragility of many of the components, particularly the

television tube and the cabinet. The possible introduction of flat-panel televisions at the premium end of the market, however, might reduce the U.S. manufactured content somewhat because these panels may be easier to import. But, even if domestic firms become the dominant suppliers, some HDTV components (semiconductors in particular) probably would be imported; for example, U.S. firms dominate the personal computer market while buying many of their semiconductors from abroad.

Advocates make a case for supporting HDTV on the grounds that it will improve the competitiveness of the electronics sector. They believe that certain HDTV technologies will serve as "technology drivers" for the rest of the electronics sector and that a network of common technology and components make the knowledge gained in HDTV useful in other major electronic goods. But these advocates have presented little concrete evidence for this belief. While they have made strong claims for the importance of HDTV to continued U.S. leadership in electronics technology, these strong claims have not yet been backed up with strong evidence.

Stating that HDTV will contain high-technology components is not enough. Outside of display and imaging technology, HDTV technology is not unique. For example, the memory chips in HDTV are widely used in other products, so the contribution of HDTV to that market is likely to be marginal. Even the display and imaging technology is not unique to HDTV receivers: producers of computer workstations and others already use high-resolution

displays. U.S. computer firms continue to advance their strong positions in the markets for workstations and high-resolution imaging through R&D and other investments. Consequently, it is not at all clear that consumer products will drive or significantly spur advances in this technology. Furthermore, pushing already successful electronics companies into markets (such as consumer electronics) in which they are not naturally positioned may not serve the interests of U.S. competitiveness.

CONCLUSIONS

These conclusions do not necessarily mean that federal support for HDTV development is without merit. Support for HDTV might be justified for reasons other than competitiveness in the electronics sector--for instance, employment, national prestige, or scientific advancement. The Defense Advanced Research Projects Agency is pursuing HDTV-related technologies, primarily flat-panel display screens and digital imaging technology, for possible military applications. In addition, development of the HDTV market, although small on its own, might also have a role to play in a broader strategy for government involvement in the U.S. electronics sector, including attempts to create a U.S. industry manufacturing a whole range of consumer electronics.

Finally, the desire to foster HDTV development in the United States comes from the very laudable motive to reduce the trade deficit. That trade deficit exists, not because of a sudden loss of technological leadership, but because the U.S. economy is saving too little and absorbing too many resources for current consumption relative to U.S. production. As a result, there is a more direct route to reducing the trade deficit: decrease the budget deficit and thereby raise national saving. Discussing the programs that might be cut and the taxes that might be increased are more pertinent than conjectures about the technology of the next century.

My remarks today are not meant to foreclose the possibility that greater public intervention to foster U.S. competitiveness may be warranted. The list of possible intercessions is long, however. The Congress therefore should demand that proponents of aid to one or another industry provide convincing evidence of why their particular industry deserves preferential treatment.