Chapter 2

Policy Issues and Options

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INTRODUCTION

Several Federal programs are in place to help workers and communities adjust to economic disruption, and a few are designed to help companies improve their competitive performance. These programs can be extended to serve workers, communities, and firms hit by defense spending cutbacks; in fact Congress has already earmarked some extra funding for defense-related adjustment efforts. The major policy questions are whether existing programs are appropriate for meeting adjustment needs in the post-Cold War period, and if so, whether they are big enough and good enough.

Defense-related adjustment for workers and communities is not very different from adjustment to other disturbances and dislocations. Communities that suffer from defense cutbacks share many of the same problems as those hit by structural change in the civilian economy, and economic development efforts work in much the same ways for both. Affected defense workers differ somewhat from the general run of displaced workers, as they are more likely to be engineers or skilled technicians; existing programs for displaced workers may need some rethinking to meet their needs. For the most part, however, entire new Federal programs targeted to these new users are not necessary. What is needed is improved performance of existing programs and possibly some increased funding.

State and local agencies do most of the actual operation of federally funded programs to assist displaced workers. The Federal role is mainly to guide, help, and require these agencies to adopt best practice, but performance of the Federal role is often disappointing. Stronger efforts are needed to bring the average State program up to the level of the best. In particular, Federal managers could hammer home the importance of early action in response to calls for help.

Federal economic development programs, starved for funds and repeatedly threatened with extinction during the past decade, may now lack the institutional capacity to offer effective help to defense-dependent communities. They are certainly underfunded compared to the post-Vietnam War era, despite recent increased appropriations from Congress.[1] In the past decade, many States and communities took over responsibility for aggressive, innovative economic development programs. But today, some of the best are slashing their programs because of budget crises.

Most of the major defense companies are quite unlike the commercial companies that compete in the civilian economy. After four decades of Cold War, they have developed a different culture. Some have announced they have no plans or desire to substitute commercial production for declining military orders, and others may find it difficult to manage. Nonetheless, some of the big defense companies have taken initial steps to get into civilian markets. Many smaller companies already produce for both commercial as well as military customers and would like to do more on the commercial side. They could benefit from government programs that offer technical assistance for manufacturing modernization, better marketing (including exports), improved management, access to financing, and possibly financial aid for conversion to efficient commercial production.

Some government programs to improve the competitive performance of manufacturing firms already exist; most could be useful to defense firms wishing to convert, although these firms may need some extra, specialized assistance. As matters stand now, Federal programs to improve manufacturing performance are few, small, and inexperienced. However, congressional interest in expanding and supporting such programs is definitely on the rise. More programs exist at the State level, but they vary greatly in range and quality. A few States do an excellent job, but many do much less and some that were formerly outstanding are now cutting back their programs because of severe budget troubles. Because community economic development and technical assistance to firms are so closely linked (often they are identical), management of federally funded programs in these areas needs to be closely coordinated.

[1] Depending on how it is defined, Federal funding for community economic development dropped 60 to 90 percent in real terms from 1978 to 1991.

Altogether, adjustment assistance for workers, communities, and companies affected by the defense build-down will take the combined efforts of Federal, State, and local governments. The Federal displaced worker program is designed as a cooperative one with States and localities, and most of the existing community economic development and industrial extension programs are at the State and local level. But this does not mean that the Federal Government can abdicate responsibility for adjustment assistance, leaving it to States and local communities. National security needs are the responsibility of the whole Nation. When those needs change in ways that affect the livelihood of communities and citizens, help with the transition is also a national responsibility. The cost should be supportable. Adjustment programs for workers and communities affected by the defense build-down might cost an additional $100 million per year in Federal funds; the extra cost of including defense companies in Federal programs for technology diffusion and generation is hard to estimate but probably should be no greater.[2]

Some adjustment programs--especially those that help companies adopt improved technology or help workers better their skills-can give a real boost to economic performance, growth, and prosperity. Some, however, are mainly reactive. They apply band-aids to the nicks, cuts, and more serious injuries delivered to various parts of the economy by imports from capable and aggressive trading partners; by clean air laws that threaten high-sulfur coal users and endangered species laws that halt logging of old-growth Western forests; by agreements that open U.S. markets to lower-wage neighbors (the Caribbean countries and Mexico); and by steep cuts in big defense budgets that are outmoded in a post-Cold War world. Are there other options besides a proliferation of band-aids? Clearly, delaying defense cutbacks simply because they threaten job loss or community disruption is not one of them. Defense is not a jobs program. But there are other, more proactive choices.

For 40 years, Americans were united in an overriding national purpose of resisting communist expansion. There are some signs that a new national purpose is taking shape, based on a redefinition of national security to include excellence in economic performance, the provision of a comfortable and rising standard of living for our citizens, and the restoration of American leadership in a more peaceful, more prosperous, and newly democratic world.

Several new national initiatives might contribute to this purpose. One, for example, might be a strong commitment to environmental protection and cleanup, which would also provide support for an internationally competitive U.S. environment industry. Another could be rededication to top quality education and training, so that our managers, engineers, and workers equal those of our best competitors. A third possibility is restoration of a first-class transportation and communication infrastructure, including repair of worn-out systems, construction of up-to-date new ones, and support for the advance of new transportation technologies (e.g., electric cars).

Defense production, aside from its explicit goal of protecting U.S. military security, offers other genuine benefits to the Nation, the communities in which it resides, and the workers it employs. Compared with the U.S. economy as a whole, the defense sector is research and development (R&D) intensive, has a higher than average concentration of skilled workers, and pays better than average wages. Part of the point of new national initiatives is to foster the creation of new firms and industrial sectors with these same valuable characteristics on the civilian side of the economy.

This report focuses on adjustment problems and policies. Discussion of national initiatives that could spur new enterprises and contribute to stronger economic performance is reserved mostly for the second, and fina1, report of this assessment-though some of the options considered here (i.e., govern-

[2]These are very rough estimates. At present levels of service, an extra $50 million per year would be enough to serve about 25,000 displaced defense workers per year (see the discussion below). It is more difficult to judge whether an extra $50 million per year would meet the economic development needs of defense-dependent communities. That amount is a big increase in Federal economic development funds; it is about four times what has been available in recent years for *all communities* faced with sudden and severe economic distress, and it would be enough to provide 40 defense-dependent communities per year an average of $1.25 million in community adjustment assistance. Still more difficult to judge is the extra cost of including defense companies in federally funded technology programs. Several proposals in Congress (discussed below) would expand the present small Federal technology diffusion and generation programs to the level of some $200 to $300 million per year; how much of this would be available to defense companies wishing to convert to commercial production is speculative.

ment programs for technology diffusion and government partnerships for technology development) would fit well with new national peacetime initiatives.

The adjustment programs discussed in this chapter can help displaced workers find better jobs sooner than they could on their own; they can help to keep distressed communities from falling into a downward spiral; and by working with firms on adoption of best-practice technologies and new product development, they can make a real contribution to improving American industrial competitiveness. But they are not the whole story. It takes a wholehearted national effort in everything from public school education to technology partnerships between government and industry to grow the new knowledge-intensive, wealth-creating industries that the Nation needs to strengthen its economic security.[3]

DISPLACED DEFENSE WORKERS

Many studies and years of experience have shown that displaced workers benefit from well-run assistance programs, and that the good programs have several key features in common: early action—ideally, early enough to provide comprehensive services by the time layoffs begin; collaborative efforts among the company, the workers, and public agencies; a full range of services to meet differing needs; and well-planned training suited to various workers' backgrounds and abilities.[4]

Some of the State and local agencies that operate the federally funded assistance program for displaced workers do very well by all of these measures, but the majority fall short. The most obvious weakness in programs of various States and localities is that help doesn't arrive soon enough; many workers are disillusioned or dispersed by the time assistance is finally available. Those who miss out are likely to be unemployed longer or settle for worse jobs than they would have with timely, effective help. In solving this and other weaknesses in how displaced worker projects actually operate, one element is better information sharing and guidance from the U.S. Department of Labor (DOL). Some changes in administration of the law, and perhaps in the law itself, may also be desirable.

The big Federal adjustment program for displaced workers, Title III of the Job Training Partnership Act (JTPA), is open to all workers displaced in the defense build-down-people losing jobs in private defense industries, civilian employees laid off from the U.S. Department of Defense (DoD), and veterans involuntarily discharged from the armed forces. The Title III program was created in 1982, and in 1988 was amended and renamed the Economic Dislocation and Worker Adjustment Assistance (EDWAA) program (it is often still known as JTPA Title III). In fiscal years 1991 and 1992 it was funded at all-time highs of $527 and $577 million. Congress also appropriated an extra $150 million in DoD funds to be transferred to DOL and earmarked for services to displaced defense workers in fiscal years 1991-1993.[5] This kind of multiyear appropriation could prove especially useful in the defense build-down, because the consequent displacement of workers could be bunched up rather than evenly spaced over the years, and it is impossible to predict when the greatest impacts will occur.

The JTPA Title III program had some modest success in its first few years (ch. 3), but several interrelated problems became evident. The 1988 EDWAA amendments were aimed at solving them. The main problems were: 1) adjustment services were not provided soon enough after notice of layoff; 2) the program was not reaching enough

[3]Two recent OTA reports, *Making Things Better: Competing in Manufacturing* OTA-ITE-443 (Washington DC: U.S. Government Printing Office, February 1990) and *Competing Economies: America, Europe, and the Pacific Rim* OTA-ITE-498 (Washington, DC: U.S. Government Printing Office, October 1991) discuss the kind of cooperative government-industry partnerships that promote the growth of knowledge-intensive, wealth-creating industries.

[4]U.S. Congress, Office of Technology Assessment, *Technology and Structural Unemployment: Reemploying Displaced* Adults, OTA-ITE-250 (Springfield, VA: National Technical Information Service, *1986),* ch. 6, esp. pp. 231-242, and *Plant Closing:* Advance *Notice and Rapid Response,* OTA-ITE-321 (Springfield, VA: National Technical Information Service, 1986), pp. 12-16.

[5]The full amount may not, however, be made available to displaced defense workers. In 1990, *Congress* appropriated $200 million in DoD funds to assist workers and communities affected by the defense build-down, $150 million for workers and $50 million for communities, in fiscal yews 1991-93. The defense authorization act passed in November 1991 provides that up to $30 million of the $200 million can be transferred to the Small Business Administration for loans to small businesses that suffered *"severe economic injury" as a result of the emergency deployment of troops to the Persian Gulf after July 31, 1990. Three-quarters of the $30 million would come from the fund for workers, the other one-quarter from the fund for communities. National Defense Authorization Act for Fiscal Years 1992 and 1993, sec. 1087. The full $30 million may not be granted; the seriously injured small businesses may turn out to be rather few.

eligible workers; and, 3) many States were doing so little for displaced workers that unspent funds were piling up higher every year. Since the 1988 amendments took effect, participation has risen somewhat (from 5 to 7 percent of eligible workers to about 9 percent), and States are spending more of their allocated funds. However, thorny problems remain.

DOL Supervision of, and Assistance to, State and Local Programs

DOL cannot by itself bring up the level of all State EDWAA programs to that of the best. JTPA Title III made the States partners with the Federal Government in the displaced worker program, and the States bear much of the responsibility. However, DOL is in a better position than any one State to collect information about best-practice employment and training efforts and offer technical assistance in applying them. Through oversight, Congress might encourage DOL to operate more as a partner than as an adversary to States-perhaps by forming a Federal-State policy council, or similar regional councils, that meets regularly to share information and discuss issues on the program's operation.

Congress could also encourage DOL to help local EDWAA agencies respond appropriately to local conditions as affected by defense cutbacks. For example, if a community is in deep distress (e.g., from closure of a military base or defense plant in an isolated small town) and there are scant prospects of new jobs in the local area, DOL could make sure State and local authorities are aware of the full range of EDWAA options, including relocation assistance, long-term skills training, and contributions to local economic development. The extra funds Congress appropriated specifically for services to displaced defense workers in fiscal years 1991-93 are all to be spent when and where the Secretary of Labor decides they shall be (most EDWAA funding is allocated differently, as discussed below). Thus, DOL has a special opportunity and responsibility to see that EDWAA money is spent where it can help most in the defense build-down.

Rapid Response

Despite the emphasis on rapid response in the 1988 amendments, and despite the Worker Adjustment and Retraining Notification (WARN) law that requires 60 days' notice of major layoffs, the majority of displaced workers still do not receive adjustment services at the optimal time, which is before layoffs begin. A few States (e.g., Colorado, Massachusetts) do an outstanding job of bringing services to displaced workers quickly, but many are mediocre at best, negligent at worst. Through oversight, Congress might specifically encourage DOL to collect information from the more successful States on rapid response and share it with the others.

If more forceful action seems desirable, Congress might require States to report to DOL the average time lapse between notice of layoff and provision of certain key services (e.g., personal counseling, skills assessment and career counseling, job search skills training). This would identify the States that are doing poorly and need help or incentives to improve, and those that are doing well enough to serve as models. Possibly, Congress might wish to consider a State's record on rapid response as an indicator of EDWAA program performance, rewarding those with good records. For example, a certain percentage (perhaps 10 to 20 percent) of EDWAA funds might be allocated to States on the basis of their rapid response performance.

State EDWAA officials are virtually unanimous in reporting that the WARN law has helped them learn about layoffs earlier and respond faster than they could otherwise. Several have also noted, however, that compliance seems to be somewhat spotty. Congress may wish to consider these options:

- Investigate the extent to which employers are complying with WARN legislation, given that no agency is assigned to enforce the law.
- Consider whether the triggers for WARN (numbers of employees and percentage of work force laid off within a 30-day period) may be causing anomalous results, i.e., some larger layoffs escape triggers that apply to smaller layoffs.

Some of the problems with rapid response are related to delays in getting access to the national reserve funds controlled by DOL. Eighty percent of EDWAA funds are distributed to the States; 20 percent remain in the hands of the Secretary of Labor. These discretionary national reserve funds are distributed to States and local EDWAA agencies on the basis of need, in response to formal proposals. They are intended to meet unforeseen needs, since the whereabouts of plant closings and mass layoffs cannot be reliably predicted. Removing delays in the

distribution of DOL discretionary funds is especially important for displaced defense workers, since all the extra funds that Congress appropriated to meet the needs of this group is to be allocated and spent at the discretion of the Secretary of Labor. A particular problem for States and local agencies is that, even if they eventually receive national reserve grants, DOL rules do not allow them to recoup from the grant what they have already spent up front from their own (often limited) funds to assure quick delivery of services.

There are reasons, of course, for DOL to require that applicants for grants make a solid factual case, to guard against dangers of waste or abuse. The opposite danger, however, is that bureaucratic rules can get in the way of fast, effective action. Part of the answer is to strengthen cooperative relations and trust between DOL and the State and local agencies. Congress may also wish to consider some of the following specific changes in handling discretionary EDWAA grants:

- Direct DOL to allow States and local EDWAA agencies to be reimbursed from discretionary grants (when and if granted) for EDWAA funds they have already spent to hasten the delivery of services to displaced workers.
- Encourage DOL to respond faster to requests by States and local EDWAA agencies for grants from the national reserve and other discretionary funds; this might be done by limiting the amount of detail required in grant proposals and by giving States clearer guidance on the requirements for applications.
- Require that DOL turn around proposals for discretionary grants within 10 business days.

Training

The 1988 amendments to JTPA Title III required that 50 percent of EDWAA funds be spent for training; in specific cases, State Governors may reduce the requirement to 30 percent. This requirement was a response to findings of too little emphasis on training in EDWAA's early years, and reflected a laudable public policy goal. However, the mandated 50 percent for training does tend to interfere with project flexibility, especially when the preponderance of displaced workers in a project are professionals or highly skilled technicians, as is quite often the case in defense layoffs (see the discussion below of retraining for engineers displaced from defense industries). DOL officials sometimes insist on an even higher proportion of funds spent for training as a condition of approval for grants from the national reserve fund.

Another problem is that, even though the law places few restrictions on training, DOL policy is to limit training to displaced workers who are 'most in need' or are unlikely to find work in their same occupation. This means in practice that displaced workers who are already skilled but want to improve their skills in the same occupation may be barred from getting EDWAA training. This is not only hard on the individual worker involved, but could defeat the purpose of providing a more adept and highly skilled work force to U.S. industry and thereby improving competitiveness. It could be an obstacle to using EDWAA funds for retraining of displaced managers or engineers who might want to choose that option.

Some options that Congress may wish to consider for adding flexibility, improving the quality of training, and making it available to a wider range of displaced workers are as follows:

- Direct DOL to offer retraining to displaced workers who are interested in and able to benefit from it, including workers who want to upgrade their skills; Congress might wish to clarify the language of the law so as to make it unequivocal that training may be offered to people who already have marketable skills.
- Make the present mandatory allocation of 50 percent of EDWAA funds for training a guideline rather than a requirement; any change in the 50 percent training requirement should be accompanied by redoubled efforts by DOL to offer State and local programs technical assistance so that training does not get short shrift.
- Allow projects more than 1 year in which to meet the *50* percent training requirement.

Effective Allocation of EDWAA Funds

The full EDWAA appropriation is divided up in two ways. First, 80 percent of the funds are allocated among States on the basis of unemployment in each State and how that relates to national unemployment. (The other 20 percent, as noted, goes into the national reserve fund, to be distributed at the Secretary's discretion to States or local agencies.) Before 1988, States had full control of their Title III funds, but under the amendments, the States must

distribute to substate areas half their allocation at the beginning of the program year, and distribute another 10 percent in the course of the year as the need arises. Part of the reason for requiring allocation to substate areas was that many States were not spending their money or delivering services adequately to displaced workers. Another reason was probably political; local government officials (who usually dominate in the substate areas) and longtime providers of employment and training services have considerable influence with Congress. Another change in the 1988 law is that if States carry over more than 20 percent of their year's EDWAA finding, the Secretary *must* reallocate that carryover to other States that have spent at least 80 percent of their own allocation.

It is not clear that these changes are having the intended positive effects. It is also questionable whether the formula for allocation of EDWAA funds to States is as effective as it might be in meeting the needs of displaced workers. Since the 1988 amendments have been in effect for only 2 full program years, Congress may wish to gather information through hearings and other oversight about how the amendments are working before considering changes in the law. Questions to investigate might include the following:

- Is the present allocation system splintering State EDWAA allocations into such small pots of money at the substate level that it is often hard to create a viable entity to respond to layoffs?
- Does the mandatory distribution of 60 percent of the State's allocation to substate areas deprive State programs of needed flexibility and responsiveness to unforeseen displacement?

Many States have chosen Service Delivery Areas (SDAs) to develop services for displaced workers, even though the SDAs' experience is in employment and training for low-income and disadvantaged people, not displaced workers. Although some SDAs do a good job with displaced workers, others do not. Alternatives to the SDAs, or competition from other service providers, could result in services that better meet the special needs of displaced workers (particularly among displaced defense workers, the needs of engineers and highly skilled technicians). Further questions Congress might wish to pursue include:

- Can States be educated and encouraged to look further than the SDAs for well-qualified grantees at the substate level?
- Is the mandatory reallocation of EDWAA carryovers of more than 20 percent having the desired effect of bringing services to more displaced workers? Are some local agencies using EDWAA money for other purposes simply to avoid the reallocation-for example, serving with EDWAA funds disadvantaged or low income clients, such as the homeless, who are eligible for other employment and training programs?
- Is the mandatory reallocation of carryovers leaving too little flexibility to respond to varying economic conditions? Would it make sense to allow DOL to accumulate a "rainy day" EDWAA reserve fund that it could draw down in recessions and build up in prosperous times, since the demand for services to displaced workers is greater during hard times (especially for training, the most expensive service).

Congress may also wish to consider modifying the formula that governs allocation of EDWAA funds to States, to reflect more accurately the States' experience with displacement.[6] The 1988 law mandates that data from DOL's Bureau of Labor Statistics (BLS) Mass Layoff Survey be given a weight of 25 percent in the formula, but this is not done because the survey is incomplete. An alternative might be to include BLS data on unemployment due to job loss in the formula for allocation of EDWAA money to States. Although these data include people who were Freed from their jobs as well as those who were laid off, they are more closely correlated with dislocation than the aggregate unemployment data that are now used in the formula.

Unemployment Insurance

Adequate unemployment insurance (UI) is especially important for displaced workers because it is often the only form of publicly provided income support for those who want to undertake skills training. Because of various changes in eligibility rules and the virtual elimination of extended UI in

[6] See Chapter 3 for discussion of the EDWAA funding formula.

the past decade, only 32 percent of unemployed workers were drawing UI in 1990, compared to a range of 42 to 75 percent in the 1970s.[7]

Congress may wish to consider providing extra income support for displaced workers who opt for skills training—not only because of the benefits to the individual workers but also because training can provide a more capable work force for U.S. firms. Although EDWAA funds may be used as income support for workers in training, this is rarely done. Extending UI benefits for this purpose is a possibility. Another Federal program, Trade Adjustment Assistance (TAA), offers as much as 78 weeks of income support, at the level of UI benefits, to workers who are certified as having lost jobs due to imports and are enrolled in approved training courses. In 1990, some 18,400 of the 62,618 workers certified as losing their jobs due to imports enrolled in TAA-sponsored training courses.

The cost of extended income support (whether as extended UI benefits or in some other form) for displaced workers in approved training could be substantial. One way to contain costs would be to require evidence of a real commitment to training, for example, workers might be required to sign up for training no later than the mid-point of their regular 26-week eligibility for UI benefits, rather than waiting until the benefits run out. Another possibility would be to limit the program to displaced defense workers.

To get a rough idea of the possible costs of such a program, assume that workers in long-term training would, on average, receive an extra 26 weeks of income support at $160 (the estimated U.S. average benefit in 1990) so that the average extra cost per worker would be $4,160. The demand for long-term training is likely to be limited; even in EDWAA projects that emphasize training and do a good job of it, only about 20 to 30 percent of participants choose that option, and presumably fewer still would select long-term training. About 163,000 displaced workers enrolled in EDWAA projects in 1989-90; if 15 percent of them were in long-term training, the extra cost of income support for a year would be some $100 million. If the benefit were limited to displaced defense workers, the cost might be around $16 million a year. This estimate assumes that displacement of civilian defense workers would be 200,000 per year over the 4 years 1991-95. (Because most ex-service men and women who want training can use the more generous GI Bill, they are not included). It further assumes that about 12-13 percent of civilian defense workers enroll in EDWAA (which is somewhat above recent enrollment rates), and that 15 percent of those choose long-term training, meaning that 3,750 displaced defense workers per year would be receiving extended income support while in training.

Retraining of Active Workers

One possibility for encouraging firms to convert from military to commercial production, using at least *some* of their current work force, is to offer some government help in retraining workers, Commercial production often involves different and in some ways more demanding work than military production. The EDWAA program does not extend to active workers, but only to workers who have been laid off or have received notice of layoff. Some States have programs that help fund training of active workers—notably California's Employment Trainin g Panel, which is funded by a small employers' payroll tax similar to the UI tax. However, there is little experience at the Federal level with public programs to help retrain active workers.[8] The extra $150 million that Congress appropriated for services to displaced defense workers is a possible source of funds for a demonstration project to retrain active workers, since demonstration projects are allowed under the legislation. DOL could be encouraged to create a pilot project for retraining active workers in a defense company converting to commercial production.

Funding

In earmarking $150 million in DoD funds, to be transferred to the EDWAA program for adjustment services to displaced defense workers, Congress chose a way to provide for this group without adding bureaucratic complications or depriving other dis-

[7]In November 1991, Congress and the administration reached agreement on extending UI benefits for periods of 4 to 20 weeks, depending on the local unemployment rate. This change will increase the coverage of UI, but not to the peak levels of the 1970s.

[8]See U.S. Congress, Office of Technology Assessment, *Worker Training: Competing in the New International* Economy (Washington, DC: U.S. Government Printing Office, September 1990).

placed workers.[9] With EDWAA funding at a high of $577 million in fiscal year 1992, and with the addition of the extra $150 million, it might be expected that the funds would prove adequate to deal with the extra burden of displacement from defense cutbacks. However, both State and Federal EDWAA officials told OTA in fall 1991 that many States and localities were getting so many demands for services that, at the current pace, their regular allocations would run out before the end of the program year (June 30, 1992). The recession, frequent layoffs, and high unemployment rates seemed to be the main reason for the exceptional demands for service, though they might also reflect the effects of WARN notices and expanding knowledge about the EDWAA program among companies and workers.

However, at the same time regular allocations were running low, State and local requests for grants from the Secretary of Labor's national reserve fund were coming in so slowly that it seemed that fund of about $105 million might not be exhausted by the end of the year. DOL officials speculated that some State and local officials who were strapped for regular EDWAA funds don't really know how to apply for the grants effectively, and those who do may be too overwhelmed with work to take time for the demanding job of grant application. All this adds emphasis to the need to streamline the process for applying for DOL discretionary grants. This is especially important for displaced defense workers, since all the extra $150 million designated for services to that group is DOL discretionary funding.

Supposing DOL solves the problems of getting its discretionary grants promptly to where they are needed, the extra $150 million may be sufficient for serving displaced defense workers, If 200,000 defense workers are displaced per year over the next 3 years (a high estimate, see ch. 3), and if 12-13 percent of those workers should opt for EDWAA services (a moderate estimate, considering recent participation rates of less than 10 percent), then about 25,000 displaced defense workers per year might apply for services. If the cost of services is about $2,000 per participant (as it was in program year 1990), then an extra $150 million might prove roughly adequate.[10] The fact that it can be spent over 3 fiscal years adds flexibility. However, if the economy remains weak, demands for EDWAA services could continue at high levels and funds could run short. Also, the $150 million from DoD is all in DOL's discretionary funds and, as noted, there are serious delays and difficulties in getting those funds to the places where they are needed. Finally, if the quality of services were upgraded-for example, by providing extended income to workers in long-term training-the present level of funding could fall short. Congress may wish to monitor the rate of spending, both of the regular appropriation and the extra amount from DoD, to make sure that the funds fit the needs.

Civilian Employees of the Department of Defense

The number of civilian DoD employees displaced by defense spending reductions will be relatively few, since DoD plans to effect most of the reduction through attrition. However, some will certainly be affected (e.g., there are already substantial layoffs at several naval shipyards). In many ways, adjustment services for displaced civilian DoD employees are broader than for workers displaced from defense industries. Through oversight, Congress may wish to see whether the programs that look good on paper are working well in practice. A few additional options might be considered.

- DoD and DOL could be encouraged to make sure that all installations know about EDWAA and how to use its services, especially the training options. DoD could also encourage directors of the transition assistance programs on military bases to make sure their program services reach displaced civilian DoD employees as well as military personnel.
- DoD could be encouraged to provide information and technical assistance to base commanders and personnel officers on the value of aggressive outplacement efforts and labor-management committees to take part in or direct retraining and reemployment efforts.

[9] As noted, this fund may be diminished by as much as $22.5 million, since Congress decided to make this portion available for loans to small businesses seriously injured as a result of troop deployments in the Persian Gulf War.

[10] The DOL estimate for cost per EDWAA client is about $1,350 for program year 1990. However, DOL's method of figuring the cost involves double counting of EDWAA clients, since it counts *all* participants for the program year, including those who enrolled the previous year. OTA's cost-per-client estimate is based on the number of new enrollees in the program year. Total participants in the EDWAA program were 282,089 in 1990. New enrollees were 186,888. EDWAA spending was $380.3 million.

- DoD might be given authority to keep civilian employees eligible for employee assistance programs up to 6 months after separation.

Engineers

Among displaced defense workers, engineers are of special concern. First, they are being laid off in relatively large numbers in the defense build-down, because they are disproportionately employed in defense jobs, and also because they are first in line to go when new weapons systems are canceled or postponed. Second, it is a waste of a valuable national resource if engineers do not find new jobs that make use of their technical abilities.

So far, it appears that despite the recession, most engineers laid off from defense jobs are not having as much trouble finding new jobs as those caught in the build-down after the Vietnam War. A positive factor is the fairly prosperous condition and hefty backlogs of orders in the commercial aircraft industry. Another plus is that many engineers are willing to relocate, and have something of a national job market through their professional associations. Still another is that many of the large defense companies are offering reemployment services to their displaced engineers (often serving engineers and other salaried employees more quickly and more effectively than their displaced blue-collar workers). On the other hand, it is not always easy or automatic for an engineer to switch from defense to the commercial side even in the aircraft industry. A substantial share of displaced engineers who have found new jobs are reemployed in the defense industry and may be heading for further displacement as the build-down continues.

Many of the options that Congress might consider to improve services to all displaced workers apply equally to engineers, especially improvement in rapid response. However, some special considerations also apply, in particular with regard to training. Two factors distinguish engineers' retraining needs from those of most other displaced workers. First, many do not want or need retraining; their skills are salable. This is why the requirement that 50 percent of an EDWAA project money be spent on training is often misplaced in projects serving engineers. A contrary consideration is that when engineers do need retraining, a meaningful course of study is likely to be longer and more expensive than the average 4-month training courses offered to EDWAA clients. When engineers are served in the same projects as other workers (often a favorable arrangement), the retraining needs of a very few engineers could soak up all the project's training budget. An answer that makes sense for retraining engineers displaced from defense work might be applied more broadly as well; there is a long-recognized but often unmet need for engineers to continue their training throughout their working lifetimes.

Funds from multiple sources could be sought to support retraining of displaced engineers and continuing education for engineers in general. It is in the national interest to make use of engineers' skills, and it makes sense to provide some public funds to meet their training needs. It also makes sense to tap other government programs, beyond EDWAA, for the purpose. Private companies and the engineers themselves also benefit from continued training and retraining, and should take some of the responsibility. For retraining of engineers, Congress might consider the following options:

- Provide through the National Science Foundation grants and scholarships specifically targeted to engineers for continuing education.
- Encourage through tax incentives company training programs for midcareer engineers,[11] such as Boeing provided for some engineers from its military aircraft division in Wichita to enable them to work in the commercial division;
- Establish a technical assistance program to collect and sham information on successful company-provided training for midcareer engineers.
- Provide financial support for retiring and laid-off scientists and engineers who want to pursue second careers as junior and senior high school math and science teachers. Partial payment of tuition costs for alternative credentials programs (now becoming more widely available) might be provided through EDWAA, if DOL is directed to allow EDWAA training funds to be used for the purpose even though the displaced professional has marketable skills. An alterna-

[11] OTA's recent report, *Worker Training* (op. cit. 1990) proposed a number of policy options to encourage or induce companies to be more active in providing training for their employees. One option was to impose a payroll training levy to pay for public training programs, but to exempt employers who provide adequate training themselves.

tive is to revive a program like the 1950s-era National Defense Education Act, which provided loans for tuition and then forgave a portion of the principal and interest for each year the recipient taught.

In addition, some more general options to improve the delivery of government funded services to displaced engineers might be considered. Through oversight, Congress might direct DOL to give State and local EDWAA agencies technical assistance and encouragement to attend to the training and reemployment needs of engineers and other technically trained workers. Most EDWAA agencies have little experience with professionals and white-collar workers and some are reluctant even to offer them services, believing that highly skilled people can do well enough on their own. However, if Congress wishes to encourage provision of adjustment services to engineers and other professionals, it may also have to monitor adequacy of EDWAA funds. In late 1991, with the continuing recession and heavy demands for services, some State programs were conducting a form of triage. They saved most of their scarce resources for what they regarded as the neediest workers, and sacrificed services to engineers.

Veterans

Quite a broad range of transition services is available to members of the armed forces who may be involuntarily retired or denied the chance to reenlist. In addition, severance pay is offered to involuntary separates who have served more than 6 years but are not eligible for retirement. Congress has recently passed several laws that improve these transition and separation services. Oversight of how they are working is probably the major option Congress will now wish to consider. It seems likely that ex-service men and women returning to civilian life will be better regarded by prospective employers and have chances at better jobs than veterans in some previous eras, both because they are better educated and trained than many civilians in their age cohort and also because the Gulf War enhanced the reputation and public perception of members of the armed services.

The group most likely to be adversely affected by the defense build-down is not veterans, perhaps not even those involuntarily separated (who probably will be relatively few), but young people deprived of the chance to enter the armed services in the first place. The services are the most color-blind large institution in the United States, and have offered unusual opportunities both for training and employment to young black men, especially those from the South. Alternative institutions offering similar opportunities (e.g., a national youth service corps) might conceivably be created, but unless they have strong goals of their own as institutions, they are not likely to command the respect and attract the same caliber of young people as the armed services.

DEFENSE-DEPENDENT COMMUNITIES

For the communities that will be seriously affected by withdrawal of defense spending, government programs for economic development assistance can contribute to recovery, though they cannot by themselves restart a stalled local economy. Federal programs for community economic development must be based on cooperation with the States and localities. And they must, by their nature, involve cooperation with and assistance to private businesses. Economic development and programs of technical assistance to business (as discussed below) are closely related.

Today, States are far more active in economic development than the Federal Government, and some (e.g., Pennsylvania) do a creative, effective job. However, performance among different States is very uneven, and in 1991, when many State governments were financially strapped, some that were formerly outstanding (e.g., Michigan) pulled back and abandoned some of their economic development programs. Even in better times, there is a limit to the funds States have to offer. There is a place for Federal action, though it is not likely to have as much effect as it did in the 1970s. Not only was direct funding for economic development much higher then than it is today, but other Federal programs that supported community development (e.g., clean water programs) were also far larger.

In 1990 Congress appropriated an extra $50 million in DoD funds to assist defense-affected communities.[12] This is a big addition to the pre-

[12] As noted, this amount *maybe* diminished by as much as $7.5 million, since Congress has made this portion available for loans to small firms that were seriously injured as a result of troop deployments in the the Persian Gulf War.

existing Federal program to help distressed communities restart their economies; it was funded at about $12 million a year. However, if the defense build-down proceeds rapidly, this augmented Federal support probably will not be enough to meet the need, even given the increased State and local capacities. Compared to the amounts spent responding to the defense build-down of the 1970s, $50 million will not go far.[13]

DoD is supposed to funnel the $50 million in economic development funds to the Commerce Department's Economic Development Administration (EDA), which can then spend the funds through fiscal year 1993. However, as of November 1991, the transfer of funds from DoD to EDA had not yet been accomplished. EDA's Title IX program offers planning and implementation help to communities affected by sudden and severe economic disruption. DoD's own small Office of Economic Adjustment (OEA, funded at about $6 million in fiscal year 1992) helps communities plan for coping with both defense plant layoffs and military base closings, though it has much more experience with the latter.

Considering the small size of the Federal effort today, it is especially important to target the resources where they are most needed, and to provide help fast and effectively. Congress might consider several options along these lines:

- Congress may want to closely monitor the demand for the funds appropriated so far, to see whether communities hit by defense cuts are able to get what they need. If the funds are near depletion, Congress may want to consider appropriating additional funds.
- EDA's worst failing has been delay. Congress might wish to set mandatory deadlines for EDA to respond to proposals from communities for economic development grants.
- Congress may want to allow and encourage OEA to provide planning grants to defense-dependent communities before any layoffs or closures are announced. If communities begin early to organize and plan economic development, they will be in a better position to respond to defense cuts if and when they happen.
- Both EDA and OEA assistance could be focused better on the neediest communities. OEA could concentrate its responses to military base closings and defense industry layoffs on places where the jobs loss is significant in the local economy. For EDA grants, the thresholds that determine whether communities are eligible could be refined; communities with a combination of high unemployment and low employment growth could qualify for development grants ahead of others, even with smaller absolute numbers of dislocated workers.
- Federal community economic development and business assistance programs might encourage and assist state and local applicants to direct their support chiefly to the kind of enterprises that are basic to the local economy, that create economic activity and jobs in other sectors (i.e., have a high multiplier effect), and that sell goods and services outside the local community; for example, a manufacturing plant or a service enterprise that deals with more than local customers would get more support than a mom-and-pop dry cleaning plant.
- If limited funds are more focused, EDA could be encouraged to market its programs more actively, particularly to defense dependent communities; many communities find out quite belatedly that EDA development grants exist.
- Most defense-dependent states and cities are attempting to cope with the threat of defense cuts. However, they are not always aware of approaches adopted by their counterparts in other parts of the Nation. Congress could encourage EDA or OEA to fund organizations such as the National Governors' Association and the National League of Cities to operate clearinghouses of information on economic development and employment adjustment responses to the defense build-down.

There are also possibilities for better cooperation among the Federal agencies responsible for economic development, or perhaps for reassigning responsibilities:

- Relevant agencies in the Department of Commerce could be directed to coordinate their activities with EDA and help improve the Title

[13]For example, the Federal Government provided $20 million from 1971 *to* 1975—$53 million in 1991 dollars—in economic development assistance to Wichita, KS during the defense build-down after the Vietnam War. This compares with the total of $50 million Congress has provided for aid to all communities affected by the present defense build-down for the years 1991-93. (See ch. 6 for details).

IX program; for example, the National Institute of Standards and Technology, which operates the Federal Manufacturing Technology Centers, might advise EDA on how to support manufacturing modernization as part of a community economic development program.

- At present, the responsibilities of DoD's Office of Economic Adjustment mostly stop with helping defense-affected communities plan for economic development. One alternative would be to give OEA, rather than EDA, responsibility for implementing plans for defense-affected communities, using the extra $50 million in DoD funds appropriated for the purpose. OEA's advantages include a tradition of quick response to community calls for help, and long experience in planning responses to military base closures. It could be helpful to have one agency involved in both planning and implementation of responses to defense cutbacks, rather than having OEA hand off to EDA.
- Traditionally OEA's expertise and work has been focused on helping-communities respond to military base closings. It is less practiced in dealing with community impacts from layoffs in defense industries, but is gaining experience. The impacts from the defense build-down in the 1990s will probably fall at least as heavily on communities dependent on defense industry as on communities dependent on military bases. OEA could be encouraged to work more actively with communities and regions dependent on defense industries.

Congress might also consider some adjustments in policies specifically related to base closings. Generally, the community impacts from base closings will be relatively moderate and the places seriously affected will be few. However, a few closings are large enough, and the communities involved are dependent enough, that recovery could be difficult, particularly if base reuse efforts do not begin promptly. For these cases, the following options might be considered.

. DoD's policy of selling bases for full market value could interfere with recovery in some communities; some success stories of the past depended on the community's receiving the property at less than market value. Congress may want to direct DoD to develop a pricing policy that takes community effects into account, transferring the base to the community at reduced or even no cost where impacts from the closing are likely to be substantial. OTA's calculations suggest that moderate to significant impacts might result from the closure of 10 to 17 bases in Rounds One and Two (ch. 6).[14]

- Prompt action is important if communities are to reuse military bases for economic development purposes. Congress might wish to encourage the military services to make base commaders aware that early action and cooperation with local communities on base reuse are high priority duties. Base commanders might be instructed to schedule transfer of base property before the base closes, if possible. This could include a schedule for vacating sections of the base and leasing them to the community on an interim basis.
- The law's requirement that DoD give other military services, other Federal agencies, and representatives of the homeless rights of frost refusal before communities can bid on base property delays the disposal process. Congress may wish to put time limits on the rights of other bidders for the property, or perhaps move communities toward the front of the line.
- Current law can be interpreted to require that environmental cleanup of all the base property be completed before the property can be transferred. Because few bases will be completely cleaned up before closure, this makes prompt disposal difficult. Congress may want to allow DoD to transfer portions of bases that are clean, or perhaps allow transfer of the entire base so long as cleanup efforts have begun.[15] DoD might also be directed to give priority for cleanup to bases that are slated for closure. Measures would have to be in place to ensure that DoD remains accountable for the cleanup.

Finally, Congress may want to consider developing a Federal policy that would discourage the

[14]The Defense Authorization Act as passed by the Senate (S. 1507) contained a provision that would require DoD to transfer bases to be closed to communities at no cost, unless the community is not experiencing or will not experience a significant adverse economic impact from the closure. This provision might have covered as many as 50 or 60 bases. However, the conference committee deleted the provision.

[15]A bill in the 102d Congress, H.R. 2179, proposed to allow Federal agencies to subdivide property for transfer, thus allowing parcels Of bases scheduled for closing to be transferred while other parcels await or undergo cleanup.

practice of competitive bidding by States and localities to induce firms to locate new plants or facilities within their area. From the national point of view, this is at best a zero-sum game, and it can be costly and destructive. Several approaches are possible, without infringing on states' and localities' traditional authority over land use decisions. For example, Congress might encourage the Secretary of Commerce to invite all the Directors of State Departments of Commerce to a national meeting to discuss the problems in providing inducements to firms.[16] The Secretary could work with the States on an agreement to eliminate or at least limit the incentives States provide to foreign firms. Similarly, OEA and EDA could encourage communities, especially larger ones, to focus their efforts on helping new firms start and existing ones expand, and reemphasize industrial recruitment as a solution for all defense-affected communities.

DEFENSE COMPANY ADJUSTMENT

Although some major defense companies consider their strategy in response to defense cutbacks their business alone, there are possibilities for a constructive government role in the transition of defense companies into more commercial activities. The potential is perhaps greatest for small and medium-size companies. Many of these companies already have some commercial customers, but need to shift to more commercial production to survive. Technical, marketing, or financial assistance from government programs can help small companies make the shift. Some government programs of this sort already exist to help businesses, especially manufacturing firms, improve their competitive performance. The programs are mostly at the State level, but few States have a very broad range of well-established technical assistance services to business. The few small programs at the Federal level are barely established (none is more than 3 years old). Altogether, these programs would need more resources and more focus if they are to make a substantial contribution to helping defense companies expand their commercial business-as well as helping firms in general make good use of technology to better their performance.

It is possible to envision government programs that would help to develop technologies with both military and commercial applications (dual use technologies), and to strengthen industries that could both supply defense needs efficiently and compete successfully in world commercial markets (dual use industries). The final report of this assessment will consider whether and how such programs might be developed. It will also discuss (at least in general terms) programs that would advance new, peacetime national goals while strengthening the competitiveness of U.S. firms and industries. The policy options outlined below for company adjustment are only a first installment. Further policy options for company adjustment, related to the development of dual use technologies and industries and to fulfillment of new national goals, will appear in the final report of this assessment.

Government Programs for Technology Diffusion

As a frost step, Congress may wish to add resources and focus to existing programs for technology diffusion that could also help defense companies make the transition to more commercial production. At the top of the list is a Federal-State partnership. So far this is rudimentary. The National Institute of Standards and Technology (NIST) program of assistance to State technology extension programs (STEP), created in 1988, has so far been tiny, with funding that has never exceeded $1.3 million per year. In November 1991, Congress authorized the creation of a new, far more ambitious program of support for State and local technology extension efforts (the National Manufacturing Technology Extension Program), to be funded by DoD at ***$50*** million per year.[17] However, the conference committee on appropriations declined to fund the program for fiscal year 1992. The purpose of the program would be to improve the quality, productivity, and performance of U.S. manufacturing ' 'foundation' firms (under 500 employees); Federal grants would match funding from State and local governments and nonprofit organizations to support technology extension programs that have government and industry participation. Options along this line might include the following:

[16] Inducements t. newly established foreign firms can be a special competitive problem for longer established U.S.-owned firms, which have benefited from no such inducements.

[17] This provision was included in the Defense Authorization Act.

- Broaden NIST support to State programs that provide a wide range of industrial services to improve companies' performance. The services might include consulting services to improve manufacturing processes, grants to work with universities in developing new products, and help in finding new markets. NIST might give encouragement and special consideration to State programs that provide comprehensive services to firms in a one-stop center (e.g., Pennsylvania's Industrial Resource Centers).
- Increase funding substantially for the Federal Manufacturing Technology Centers.[18]
- Extend technology and financial assistance to help small firms create cooperative networks for purchase of equipment, joint training, bids on large contracts, and marketing efforts. Some small defense firms are already forming such networks in an attempt to get into more commercial business. Congress might also consider legislation to explicitly remove antitrust restraints from cooperative networks of small firms that band together to bid on commercial orders.[19]

In addition to measures that maybe helpful to all firms in improving their competitive performance, including defense firms that want to move into more commercial production, Congress may wish to consider some options directly targeted toward those defense firms making the transition:

- In providing Federal support for State industrial service programs, direct that priority be given to firms wishing to convert to commercial production. Federal funding on the order of $25 million per year would be enough to help States serve as many as 5,000 to 20,000 fins, depending on the level and kind of service.
- Provide additional economic development funds for defense-affected communities and direct EDA to use the funds to help defense firms expand into commercial markets; this might be done by funneling the Federal money into existing State programs, as described above.
- Allow the DoD funds already provided for defense-related worker and community adjustment to be used proactively to avoid closures and layoffs, in such activities as retraining of the active work force and technical and management assistance for defense firms wishing to move into more commercial production.
- Add to the list of purposes for NIST's Manufacturing Technology Centers technical assistance in converting from defense to commercial production.

Many of the options outlined above have the broad aim of modernizing America's manufacturing firms and strengthening U.S. commercial competitiveness. At the same time, they could ease conversion and support dual use manufacturing abilities. Another approach with the same aim might be a government purchase and leasing system for up-to-date production equipment. A public or quasi-public entity could buy from U.S. producers such items as computer numerically controlled (CNC) machine tools or robots, and lease them at subsidized rates. The system would have the dual advantages of providing U.S. equipment builders with a reliable purchaser, and promoting the use of modern machinery among U.S. manufacturing firms, especially small firms that are less likely to do so on their own than larger fins. In recent years, after the U.S. machine tool industry went into precipitous decline, the United States has limited imports of machine tools on national defense grounds. A purchase-and-leasing system could strengthen U.S. machine tool builders in a positive way, and could be especially appropriate in helping defense firms convert to commercial production with better chances of success.

- Congress may wish to establish a leasing company for modern production machinery such as CNC machine tools, buying them from U.S. companies and leasing them at subsidized rates to small firm, or to defense firms converting to more commercial production, or possibly to any U.S. firm. The cost to the government of such a program might rise from about $5 million in the first year (assuming a modest beginning) to a few tens of millions per year for a mature program.[20]

[18]The Congress authorized $15 million fo, the program in fiscal year 1992, Up from $10 million in fiscal year 1991.

[19]Bills in the 102d Congress @R. 1604 and S.479) would ease antitrust restraints on cooperative production ventures, but are nOt explicitly directed to small fins.

[20]A similar program in Japan leased or sold (on preferential installment purchase terms) $350 million of equipment in 1987. Assumin g that the government paid 20 percent of that cost, in subsidies and administrative expenses, the government cost would be $70 million a year.

Government-Industry Partnership for Technology Development

Another set of proposals might be useful for defense firms that see possible commercial applications for technologies developed for the military, but are unwilling to bear all the risks involved. The general argument for government-industry partnership in developing generic or precommercial technologies is that some of these technologies promise large benefits to society but are so risky, and the payoff to individual firms is likely to be so small, that industry will not undertake them without government help.[21]

In 1988, Congress established the Advanced Technology Program (ATP) under the direction of NIST to take part in such government-industry R&D partnerships. ATP can contribute a minority share, up to half of the project costs. ATP's first awards, amounting to $10 million, were given in 1991 to 11 grantees (consortia and single companies), chosen from 249 applicants. Congress provided ATP with $35 million for the next round of awards (of which $10 million will probably go for continued work by the first round winners), and has increased ATP funding for fiscal year 1992 to $47 million. Other proposals in Congress would set up additional government-industry partnerships for the development of critical technologies, under the aegis of various agencies including DoD, the Department of Energy, and the National Aeronautics and Space Administration. [22] Still another proposal is to create industry-led National Centers of Manufacturing and Process Technology, to focus on testing and application of process technologies within specific fields, such as advanced materials, electronics fabrication, or general manufacturing .23

. If Congress adopts proposals before it for substantially increased funding for government-industry partnerships for new technology development, some defense firms will undoubtedly take advantage of them in projects to convert military technologies to commercial use.[24]

- To focus more tightly on development of defense companies' military technologies for commercial uses, Congress might establish companion programs in the Departments of Commerce and Defense that would contribute government funds to industry-led ventures for this kind of technology development. Technologies selected for development could be for new or improved products or manufacturing processes, and might be developed for dual use as well as commercial applications.

Opportunities for adapting military technologies to civilian uses could arise in connection with commitment to new national goals. As noted, this subject will be further explored in the final report of this assessment, but a suggestion is offered here. Transportation in the United States is ripe for new technologies. The field of smart highways and smart cars is especially promising. A tiny Federal program to support R&D in intelligent vehicle and highway systems is in existence, and is supplemented by State programs, in particular California's. Expansion of this program might provide some exciting opportunities for defense companies, especially some of the highly sophisticated aerospace companies concentrated in Los Angeles, to adapt their military technologies to a new, important commercial use.[25] Similar opportunities exist in electric vehicle manufacture, again particularly in the Los Angeles area, where tough clean air laws effectively require that a growing proportion of the city's vehicles be electric. The Surface Transportation Act of 1991 includes a program to fund electric vehicle consortia that encourages defense and aerospace firm participation. This program could be expanded if successful.

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[21] For further discussion of this subject, see U.S. Congress, Office of Technology Assessment, *Making Things Better*, op. cit., ch. 2; *Competing Economies*, op. cit., ch. 2.

[22] See, e.g., the Critical Technologies Act of 1991 (S. 1327) and Advanced Manufacturing Technologies Act of 1991 (S. 1328), which were rolled into the Defense Authorization Act; also, the High Performance Computing Act of 1991 (H.R. 656), and the Manufacturing Strategy Act of 1991 (s.1330).

[23] S. 1330, the Manufacturing Strategy Act of 1991. The centers would have to receive at least half their funds from sources that are not Federal, and could, if successful, be funded for up to 10 years. A similar scheme, the Critical Technology Application Centers, was authorized by the Congress in the Defense Authorization Act, but the conference committee on appropriations denied funding for the program.

[24] For example, one of the first-round ATP awards went to a project for developing flat panel display technology that was military in origin.

[25] These opportunities may b, more appropriate and appealing to first and second tier subcontractors who SUpply components to prime aerospace contractors than to the primes themselves (see ch. 7).

Tax Incentives for Conversion

Still another approach to encouraging or easing conversion is to provide tax breaks for companies making the transition to more commercial production. Possibly, companies making investments in R&D to develop commercial products might be allowed a tax credit for the expense; or a company investing in new production equipment might be allowed rapid depreciation of the investment or a tax credit. In a previous report, *Making Things Better,* OTA discussed in some detail the pros and cons of tax expenditures for lowering the cost to business of investing in new technology or production equipment.[26] There is some question as to the efficacy of these tax measures. There is no question that they are expensive, especially investment tax incentives. And the problem of expense is aggravated at a time of towering Federal budget deficits-plus a budget agreement that requires reduced spending somewhere else, or compensating rises in taxes elsewhere, for every new spending program or tax expenditure. However, there is plenty of evidence that something is needed to lower capital costs for U.S. companies, to stimulate long-term investments in technology development and adoption. Moreover, a complex mixture of tax stimuli has been used very effectively in Japan, together with other measures to keep capital costs to business low.

Tax incentives might be focused solely on defense companies converting to commercial production on grounds of the advantages to society, first, in avoiding disruption to defense-dependent communities and loss of jobs, and second, by preserving R&D teams that may be able to adapt military technologies to valuable commercial purposes. However, the policy would give defense companies an advantage that may be unfair to competing companies that have never been in the defense business and have not needed to convert. A tax incentive policy for conversion is in any case a blunt instrument. It could be used by more or less technologically adept companies, in more or less defense-dependent communities, so that the desired social effects from conversion would be diluted. If Congress wishes to consider tax incentives to stimulate long-term investment, the potential benefits from making the incentives broadly applicable are clearer than the benefits from limiting the incentives to conversion by defense companies.

One tax incentive, however, might be specifically directed to encouraging the transfer of military technologies to commercial applications. Defense companies that do not have the interest or ability to get into commercial production themselves might still be encouraged to help. In the past, at least one major defense company (GE's Aerospace Division) helped to form small startup companies to exploit commercially military technologies the division had developed; some of the entrepreneurs involved were former GE managers and engineers. The help from GE Aerospace took the form of licensing technology on affordable terms and, in some cases, putting up a sizable chunk of equity funds for startup financing.

Congress might consider giving favorable tax treatment to investments by large companies in startup companies formed for the purpose of developing commercial applications of military technologies; for example, the large company might be allowed to deduct a portion of such investments from taxable income. Alternatively, the same tax treatment could be available to any large company that provides financial assistance to a small entrepreneurial spinoff company, whether or not the technology involved was originally military.

Considering that many large defense companies are in difficult financial straits, with heavy debt loads and declining profits, even substantial tax breaks might not induce them to invest in spinoff enterprises. However, they should be in a good position to identify military technologies they have developed that have commercial potential and may respond to tax incentives to license those technologies to others.

Intellectual Property Rights and Development Cost Recoupment

Certain DoD practices or regulations that are intended to make defense procurement cheaper or easier to manage may be a serious impediment to companies' developing commercial applications of military technologies. One of these is the DoD regulation that requires companies to pay the department back for what it spent on a military technology if the company sells a product based on that

[26] U.S. Congress, Office of Technology Assessment, *Making Things Better,* op. cit., February 1990, pp. 41-49 discusses options to improve the U.S. financial environment for long-term investment in technology development and production equipment. .

technology to a non-DoD customer. Nothing in law specifically requires DoD to demand a payback if a company sells a commercial product based on DoD-funded technology. It is inconsistent with laws that encourage granting private companies intellectual property rights to technologies developed in Federal laboratories, and forms a barrier to commercialization of military technologies. Another problem for defense companies is DoD's insistence on taking control over data rights related to military technologies for which DoD has paid all or part of the development costs. If these proprietary data are released to other companies, they could lose much of their appeal for commercial development by the originating company.

Congress may wish to consider the following options to lower or remove these barriers:

- Direct DoD to abolish its requirement for a payback on its development costs for military technologies if companies want to develop commercial products based on the technologies.
- Encourage or direct DoD to work with companies on settlement of the data rights issue in ways that protect legitimate government interests but also allow companies to keep data rights secure, so that commercialization of the technology is appealing.
- Direct DoD to license technologies developed for military purposes and paid for (partly or wholly) by DoD funds on a royalty-free basis to companies with plans to develop the technology for commercial purposes.