Do We Want the Missile Defenses We Can Build?  

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On March 23, 1983, President Reagan delivered his famous “Star Wars” speech in which he called for development of defenses capable of making nuclear weapons “impotent and obsolete.” The President’s speech raised the hope that U.S. cities could be made invulnerable, a task requiring near-perfect defense against massive Soviet ballistic missile attack, and set off a national debate on the feasibility of such highly effective defenses. Studies of the “Star Wars” concepts now under research show there is virtually no hope that they will provide near-perfect defense in the foreseeable future.

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2. The term “near-perfect” refers to systems capable of significantly reducing the costs the Soviet Union can inflict by attacking the United States’ cities, population, and economic capabilities. How well a defense must perform to be considered near-perfect depends on three factors. First is the level to which a Soviet attack against U.S. cities must be reduced before its costs are judged significantly reduced. Analysts often use the levels of damage associated with “assured destruction”—25 percent of the population and 50 percent of industrial capability—as a benchmark. There is, however, substantial disagreement: some analysts argue that defenses are of little value until potential damage is reduced far below these levels; others believe any reduction in the potential damage to U.S. cities is worth pursuing. This issue is discussed in Ashton B. Carter, *Directed Energy Missile Defense in Space—A Background Paper* (Washington, D.C.: U.S. Congress, Office of Technology Assessment, April 1984), pp. 66–67. Carter, for the sake of discussion, uses 100 megatons as the level of penetration at “which a defense would be judged near-perfect.” Second, for a given U.S. defense, the Soviet ability to inflict damage depends on the size and penetrability of its force. The third factor is the type of Soviet attack against which the defense is measured. For example, a defense that could provide some protection of U.S. cities following a U.S. counterforce attack might be unable to do so if the Soviet Union launched a first strike against U.S. cities.
3. Carter concludes in *Directed Energy Missile Defense in Space*, p. 81, that the prospect of developing near-perfect defense “is so remote that it should not serve as the basis of public expectation or national policy about ballistic missile defense (BMD). This judgment appears to be the consensus among informed members of the defense technical community.” The studies done outside the government concur with this assessment: Sidney D. Drell, Philip J. Farley, and David Holloway, *The Reagan Strategic Defense Initiative: A Technical, Political and Arms Control Assessment* (Stanford, Calif.: Center for International Security and Arms Control, Stanford Uni-

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This discrediting of the notion of near-perfect defense is shifting the ballistic missile defense (BMD) debate within the defense community to less-than-near-perfect defense, i.e., to BMD incapable of protecting U.S. cities, but having other strategic goals. These include defense of military targets and “light” area defenses that might reduce the damage to cities in small attacks even though penetrable by a large dedicated attack. Defense capable of satisfying some of these goals might be available in the near future.

Debate over BMD is likely to focus on less-than-near-perfect defense for many years. Although President Reagan directed his speech at defenses that would radically change the nuclear situation by making U.S. cities invulnerable, the speech and the strategic defense initiative (SDI) research and technology program have restored legitimacy to strategic defenses in general. The combination of this renewed legitimacy with the dubious prospect for near-perfect defenses will lend political and budgetary support to BMD capable of achieving only more modest objectives.


The two studies ordered by President Reagan following his announcement of the Strategic Defense Initiative are less pessimistic. The study of BMD technologies and systems, directed by James C. Fletcher, is the more optimistic, concluding: “The technological challenges of a strategic defense initiative are great but not insurmountable. . . . The scientific community may indeed give the United States ‘the means of rendering’ the ballistic missile threat ‘impotent and obsolete.’” The Strategic Defense Initiative: Defensive Technologies Study (Washington, D.C.: Department of Defense, March 1984), p. 23. The study of the policy implications of BMD [Fred S. Hoffman, Study Director, Ballistic Missile Defenses and U.S. National Security: Summary Report, prepared for the Future Security Strategy Study (Washington, D.C., October 1983), hereinafter cited as The Hoffman Report] is quite cautious, stating that “nearly leakproof defenses may take a very long time, or may prove to be unattainable in a practical sense against a Soviet effort to counter the defense” (p. 2); and “Such [highly effective] defenses may result from the R&D programs pursuant to the President’s goal, but it is more likely that the results will be more modest” (p. 9).

4. During the 1960s the U.S. experienced a similar shift in the objectives of BMD as it became clear that the available systems could not protect U.S. cities from Soviet ballistic missile attack. There is a striking resemblance between the debate over anti-ballistic missile (ABM) systems of the late 1960s and early 1970s and the current BMD debate. (ABM and BMD are used here interchangeably to refer to defense against ballistic missiles.) Many of the arguments examined in this article also played a role in the earlier debate. Representative arguments against ABMs are found in Abram Chayes and Jerome B. Wiesner, eds., ABM: An Evaluation of the Decision to Deploy an Antiballistic Missile System (New York: Harper and Row, 1969). Representative arguments in favor are found in Johan J. Holst and William Schneider, Jr., eds., Why ABM?: Policy Issues in the Missile Defense Controversy (New York: Pergamon Press, 1969).
This article examines the following arguments for deploying BMD that is capable of performing certain limited missions but incapable of making U.S. cities invulnerable:

—To increase ICBM (intercontinental ballistic missile) survivability
—To protect command, control, and communications and other military targets
—To defeat small Soviet nuclear attacks, thereby raising the nuclear threshold
—To increase the uncertainty confronting the attacker
—To encourage and support arms control, especially reduction of offensive forces
—To protect against accidental, unauthorized, n\textsuperscript{th} country, and terrorist attacks
—To counter Soviet violations of the ABM Treaty
—To gain the political and economic benefits of U.S. technical superiority
—To enhance the United States’ offensive capabilities

Are these arguments cogent and analytically sound? How well do they apply to the current nuclear situation? What counterarguments might be made? On balance, do the benefits of BMD deployment suggested by these arguments exceed the costs?

Proponents of BMD recommend an evolutionary deployment strategy based on the arguments stated above: the U.S. should develop and deploy “intermediate” systems, i.e., BMD capable of performing these less demanding missions, as soon as possible. The U.S. would first deploy BMD capable of performing the least demanding missions, probably beginning with the defense of ICBMs. Then, in the hope that BMD technologies improve faster than penetration techniques, defenses would take on more demanding missions with the final objective remaining perfect defense. Proponents argue that an evolutionary strategy is not risky because at each stage of deployment the benefits provided by BMD exceed its costs.\textsuperscript{5}

I argue, however, in sharp contrast to the arguments of SDI proponents, that deployment of limited or intermediate BMDs would, on balance, reduce U.S. security. The benefits of deploying these systems are found upon examination to be much less than the proponents’ arguments at first suggest. And, unless one desires to provoke an intensified competition with the Soviet

Union, the costs of BMD deployment are much more impressive: the ABM Treaty would have to be either amended or, more likely, terminated, thereby eliminating restraints on Soviet BMD; each superpower, believing that the other’s BMD threatens its security, would likely react by expanding and improving its offensive force in order to have confidence in its ability to overcome the adversary’s defense; this competition between offense and defense would exacerbate U.S.–Soviet relations; these changes in the political and strategic situation would make arms control agreements much harder to reach than today; and, finally, the economic costs of U.S. strategic nuclear forces would increase immensely. Thus, deployment of less-than-near-perfect BMD and the associated evolutionary strategy should be rejected.

Deploy BMD to Increase ICBM Survivability

This section draws on the extensive debate over the vulnerability of U.S. ICBMs in order to evaluate the benefits of protecting ICBMs with BMD. Three lines of argument are generally used to support the need for vulnerable ICBMs as part of the mix of U.S. strategic forces.7


In addition to the three arguments discussed in the text, some proponents of BMD argue that the U.S. should deploy defenses now to defend its ICBMs in order to maintain crisis stability during the transition from the current nuclear situation, in which both superpowers’ cities and industry are highly vulnerable to attack, to a situation in which defenses radically reduce this vulnerability. The crisis instability would result when the Soviet Union could partially defend itself against a retaliatory attack, but not against a U.S. first strike. See, for example, Payne and Gray, “Nuclear Policy and the Defensive Transition,” p. 284. There are two problems with this argument. First, it does not support the near-term deployment of BMD to defend ICBMs. The
First, some argue that such a force is needed to discourage a Soviet first strike, especially during a crisis. However, others answer that even if the ICBM force were completely vulnerable, the other legs of the triad ensure the United States’ ability to retaliate massively. Taking this into account, proponents of increasing ICBM survivability suggest instead that if U.S. ICBMs are highly vulnerable the Soviet Union could gain a coercive position by initiating a counterforce exchange that increases the relative size of its force to the U.S. force. BMD, then, is one way of eliminating this danger.

Other analysts present persuasive counterarguments. They argue that the deterrent value of surviving forces is best reflected by absolute force size, not relative force size, since the former determines the amount of damage that could be inflicted. The U.S. now has more survivable weapons than are required to achieve reasonable retaliatory objectives, including especially destroying a large fraction of Soviet society. So, independent of its relative size, the U.S. force would be able to inflict essentially the same amount of damage following a Soviet attack against its ICBMs as before the attack. Thus, even if the Soviet Union could improve the relative size of its force, it could not gain a significant advantage, e.g., the ability to blackmail the U.S.

This first line of argument also ignores the enormous risks confronting a Soviet leader. Although a counterforce attack that left U.S. cities largely undamaged might encourage the U.S. not to retaliate against Soviet cities, no Soviet leader could be confident that the U.S. would respond with a purely counterforce attack. In addition, any incentive for Soviet leaders to attack U.S. ICBMs is reduced further by their awareness of the danger of undesired escalation: the difficulty of maintaining command and control of nuclear forces following a large attack and the “fog of war” make all-out war likely, even if both superpowers prefer to terminate the conflict at a lower

Soviet Union will not be able in the foreseeable future to defend its cities against U.S. retaliation: even if U.S. ICBMs were completely destroyed in a first strike, the Soviet Union would face a large retaliatory force composed of SLBMs, strategic bombers, and cruise missiles. The Soviet defense that could be deployed in the near future would not be able to protect Soviet cities from this retaliatory force and, therefore, could not significantly decrease crisis stability. Second, if the superpowers ever deploy defenses that significantly reduce the vulnerability of their homelands, then these defenses would also make their forces highly survivable, thereby greatly reducing any preemptive incentives.

level. Thus, while "pure" counterforce attacks and exchanges are possible, they are probably quite unlikely, and the conclusions that follow from their consideration should be weighted accordingly.

The second line of argument holds that the U.S. needs survivable ICBMs because they possess capabilities unavailable in the other legs of the triad. Secure communications, high accuracy, and the speed of ballistic missiles enable ICBMs to carry out reliably prompt attacks against Soviet ICBMs and other time-urgent targets. However, again, the counterarguments identify serious weaknesses. A highly survivable ICBM force is not required for more limited conflicts since a large fraction of the U.S. ICBM force would remain available following such a limited Soviet attack. Yet examination of less limited conflicts in which the Soviet Union launches an attack against all of the United States' ICBMs shows that, in these cases, there would be few, if any, time-urgent targets following the Soviet attack. Those scenarios that do require prompt second strikes are incredible and unlikely. Moreover, even if there were important time-urgent second-strike targets, deployment of BMD by both superpowers might not increase the United States' prompt second-strike capability: although U.S. BMD would make its ICBMs harder to destroy in a first strike, Soviet BMD would make it harder for surviving U.S. ICBMs to destroy Soviet targets in a second strike.

The third argument in favor of survivable ICBMs is that an invulnerable triad is more resistant to improvements in Soviet forces than an invulnerable diad. Of the three arguments this is the strongest: a survivable strategic force forms the core of the U.S. deterrent and should not be compromised. The survivability of U.S. ballistic missile submarines (SSBNs), however, reduces the importance of possessing an invulnerable triad. The threat to SSBNs remains highly theoretical. Should advances in anti-submarine warfare capabilities occur that could not be handled with countermeasures, there would likely be time for the U.S. to restructure its land- and sea-based forces.

Moreover, if the U.S. decides to increase the survivability of its ICBM force, BMD will have to be compared to the many other ways this can be achieved.\textsuperscript{12}  

In short, then, although survivable ICBMs are preferable to vulnerable ones, the benefits of increasing ICBM survivability, with BMD or other means, are relatively small.

\textit{Deploy BMD to Protect C$^3$ and Other Military Targets}

ICBMs are not the only U.S. military capability vulnerable to Soviet nuclear attack. The other legs of the triad, i.e., long-range bombers and ballistic missile submarines, are partially vulnerable; the command, control, and communications (C$^3$) systems for the strategic forces can be severely degraded by even relatively small attacks; and U.S. conventional military forces are especially vulnerable to nuclear attack. The forces could be subjected to attacks of varying intensity: at one end of the spectrum are nuclear attacks against a few conventional force targets, e.g., critical ports needed to support forces fighting in Europe, while at the other end of the spectrum are full-scale attacks against the United States’ strategic nuclear forces, including C$^3$.

Proponents of BMD tend to favor protecting military targets against the entire range of attacks because they believe that increasing the survivability of military targets reduces the adversary’s ability to achieve his objectives, thereby strengthening deterrence.\textsuperscript{13}  In contrast, opponents of BMD do not believe there is much value in defending these targets against any type of attack: the U.S. already has large retaliatory capabilities, and defense can add little to its ability to deter such attacks by threatening retaliation. This section examines the arguments for defending C$^3$. The two sections following examine arguments that apply to all types of military targets.

Some proponents of BMD argue that the U.S. should defend its C$^3$ against a large Soviet attack, maintaining that less-than-near-perfect defenses can deny the Soviet Union high confidence in its ability to destroy these targets.\textsuperscript{14}  The counterargument has two components. First, the U.S. need not be able to defeat a Soviet attack on its C$^3$ to deter it. A Soviet leader would believe

\begin{itemize}
  \item \textsuperscript{12} BMD is only one of many ways to increase ICBM survivability; others include deception, mobility, hardening, launch under attack, and arms control. For analysis of the various ways of basing the MX, see Office of Technology Assessment, \textit{MX Missile Basing}.
  \item \textsuperscript{13} See, for example, \textit{The Hoffman Report}, p. 1.
  \item \textsuperscript{14} Ibid., pp. 9–10.
\end{itemize}
that any full-scale attack on U.S. C³ targets would result in full-scale retaliation: the attack would result in a large number of U.S. casualties; it would likely destroy the United States’ ability to control, and therefore limit, its retaliation;¹⁵ and it would not be launched as part of a bargaining strategy since the attack would destroy the capabilities required for damage assessment, communication, and war termination. Consequently, if the Soviet Union attacked the United States’ command and control, it would almost certainly also attack U.S. strategic nuclear forces. The damage then would be much higher than if only C³ were attacked, thereby further reducing any U.S. incentives for restraint. In short, the only rational reason for launching a full-scale attack against C³ is to reduce the damage the U.S. could inflict in retaliation.

This, however, is infeasible for the Soviets. Although C³ is considered the weak link in U.S. strategic capabilities, analysts believe that the U.S. would almost certainly be able to retaliate massively after a Soviet attack against its command and control.¹⁶ So, the Soviet Union cannot reasonably hope to reduce the United States’ ability to inflict damage by attacking its C³ and, therefore, has virtually no incentive to launch such an attack. In this case, therefore, denial of the ability to attack C³ targets adds little, if anything, to deterrence. Thus, the benefits of protecting C³ with BMD would be small.

Still, if nuclear war appeared inevitable, a Soviet leader might, because of the slight chance of significantly reducing U.S. retaliation, rationally decide to launch a preemptive attack against U.S. C³. Thus, the importance of the second component of the counterargument: defending C³ would not significantly increase its ability to survive a dedicated Soviet attack. There are fewer than 100 critical fixed C³ targets.¹⁷ Assume that U.S. BMD were quite effective and could raise the “attack price” to 20 (i.e., the Soviet Union would have to allocate 20 warheads to the target to have confidence that it would be destroyed).¹⁸ In this case the Soviet Union would have to allocate 2000


¹⁸. An attack price of 20 is quite optimistic for systems that might be available in the next two decades, so this argument is weighted toward the defense. Most disagreement on the attack
warheads to $C^3$ targets instead of the 100 to 200 required without BMD. However, such an attack would leave the Soviet Union with approximately 4000 ICBM warheads for attacks against U.S. ICBMs and other military targets. So, BMD could raise the price of an attack on $C^3$, but even very effective BMD could not deny the Soviet Union the ability to destroy these targets with a first strike. Moreover, raising the total attack price would significantly discourage the Soviet Union from starting an all-out war only if the price exceeded the forces available: in an all-out war, holding forces in reserve would be of little value. If this point were ever reached, the Soviet Union could expand its offensive force to offset the United States’ BMD.

**Deploy BMD to Defeat Small Soviet Attacks, Thereby Raising the Strategic Nuclear Threshold**

Some proponents of BMD assert that a moderately effective BMD could reduce the probability of nuclear war by protecting the U.S. from a small Soviet nuclear attack. Without BMD, nuclear war could start with the use of only one or a few nuclear weapons. Therefore, goes the argument, because a thin defense might completely intercept a small attack, it would require the attacker to launch a larger attack. But, the argument continues, the Soviet Union might be unwilling to launch a large attack because it would constitute too large an escalation. So, even if the U.S. could not prevent the Soviet Union from destroying certain targets, there is value in requiring the Soviet Union to attack with a large number of weapons. Donald Brennan argues:

[It] is very likely that a government that would otherwise plausibly consider escalating an intense crisis to the strategic nuclear level would have second thoughts about the matter if it was obliged to fire a large-scale salvo rather than one or a very few weapons.19

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It is far more likely, however, that both attacker and defender would care more about the number of targets destroyed than about the number of warheads that were launched. A thin defense could increase the attack price, but could not prevent the Soviet Union from destroying a relatively small number of targets. BMD would not force the Soviet Union to attack more targets, only to use more weapons. Since this larger Soviet attack would not do significantly more damage than would an attack not increased by the need to overcome BMD, the probability of U.S. counter-escalation should not increase significantly. So, BMD should not significantly influence Soviet decisions unless the attack price were high enough to severely deplete the Soviet force, thereby placing the Soviet Union at meaningful military disadvantage. However, a moderately effective BMD protecting a relatively small number of targets could not have this effect.

Thus, less-than-near-perfect BMD would not deny the Soviet Union the ability to use limited nuclear attacks for military or bargaining purposes. The Soviet Union, as part of a bargaining strategy, for instance, could still escalate a war with a small nuclear attack to demonstrate its resolve and to increase the United States’ assessment of the probability that the war would escalate to yet higher levels.

More important in the context of the current debate, the Soviet Union would still be able to mount limited nuclear strikes for military purposes. For example, the Hoffman Report argues that during a large conventional war in Europe the Soviet Union might launch a limited strategic nuclear attack against U.S. force projection targets to deny the U.S. the ability to provide military support to Western Europe, and that BMD could play a key role in deterring this type of attack. BMD of moderate capability, according to this argument, by forcing the Soviet Union to increase the size of its attack, would reduce Soviet confidence in its ability to destroy these targets without running too high a risk of further escalation.20

20. The Hoffman Report maintains that: “In the event of imminent or actual large-scale conflict in Europe, another high-priority Soviet task would be to prevent quick reinforcement and resupply from the United States . . . . In the absence of defenses, the Soviets . . . could also accomplish this task with higher confidence by means of quite limited nuclear attacks on such [reception] facilities in Europe and on a restricted set of force projection targets in CONUS . . . . [A]n intermediate ballistic missile defense deployment of moderate capabilities could force the Soviets to increase their attack size radically. This would reduce or eliminate the Soviets’ confidence that they could achieve their attack objectives while controlling the risks of a large-scale nuclear exchange.” The Hoffman Report, pp. 10–11.
However, the Soviet Union can maintain high confidence of destroying the small number of U.S. force projection targets by increasing the number of weapons directed at each target. Increasing the total number of weapons, while holding the number of targets fixed, would not significantly increase the damage to the U.S. Therefore, the larger attack seems to be hardly riskier than the smaller attack. Moreover, a Soviet leader willing to attack the U.S. with nuclear weapons presumably is prepared to run extremely large risks. BMD would not increase significantly the risk of attacking a few U.S. targets and, therefore, would be unlikely to change such a leader’s decision. Thus, the Hoffman Report’s argument appears quite weak.

**Deploy BMD to Increase the Uncertainty Confronting the Attacker**

Proponents maintain that BMD would strengthen deterrence by increasing Soviet uncertainty about the success of an attack, thereby making it less attractive. The Hoffman Report argues, “Uncertainty about the offense-defense engagement itself contributes to deterrence of attack by denying confidence in the attack outcome.”21 An Administration description of the SDI states:

> Effective defenses against ballistic missiles have potential for enhancing deterrence. . . . they could significantly increase an aggressor’s uncertainties regarding whether his weapons would penetrate the defenses and destroy our missiles and other military targets. It would be very difficult for a potential aggressor to predict his own vulnerability in the face of such uncertainties.22

This argument, however, overstates both the potential of defenses to increase uncertainty and the benefits if uncertainty were increased. First, the argument that increasing uncertainty strengthens deterrence is incomplete: it overlooks the effect of the Soviets’ defenses on their deterrence calculation. If both superpowers deployed defenses, an attacker would face greater uncertainty about both the effectiveness of his attack and the effectiveness of the adversary’s retaliation. The net effect of defenses is, therefore, indeterminate.

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21. Ibid., p. 10.
22. “The President’s Strategic Defense Initiative,” p. 3.
The attacker’s willingness to take risks determines how uncertainty would affect deterrence. A conservative Soviet decision-maker would likely overestimate the capability of the U.S. defense and underestimate the capability of his own defense. As a result, deterrence would be strengthened. However, an overconfident Soviet decision-maker would underestimate the capability of America’s defense and overestimate the capability of his own defense; hence, deterrence would be weakened. It may well be that, more often than not, decision-makers who face potentially catastrophic outcomes will act cautiously. However, uncertainty is not unambiguously good, and we should not overlook the possibility of a decision-maker who in a dire situation optimistically evaluates uncertainties about force capabilities.

Second, the argument that BMD will increase uncertainty significantly applies only to large attacks against military targets. As discussed above, if the number of targets is not large, then the attacker can overcome the defense by increasing the size of the attack. Uncertainties about the effectiveness of the defense could require the attacker to increase further the size of the attack to ensure high confidence of success. However, for BMD available in the next two decades, compensating for uncertainties could make the overall attack price prohibitively high only for a large target set. Moreover, the Soviet Union could reduce the significance of the increased attack price by expanding its offensive force—which would likely cost less than the U.S. BMD.

Finally, for the reasons discussed above, these large Soviet attacks against U.S. ICBMs, C³, and other military targets are now adequately deterred. Supporting this conclusion, and especially germane to this argument, is the fact that large technical and operational uncertainties already exist about the effectiveness of a Soviet attack, especially one directed at hardened targets.

A decision-maker who could be deterred by uncertainties about attack out-

23. We should not overlook the fact that defenses shift the most probable outcome of an attack as well as the distribution that surrounds it. Thus, there are cases in which defenses would tend to strengthen deterrence, independent of the nature of the decision-maker. For example, if both countries deploy BMD that unambiguously protects only forors, then a decision-maker considering a counterforce attack and anticipating countervalue retaliation would find that BMD makes attacking less attractive. In this case, as in others, the effect of uncertainty about the adversary’s BMD depends on the specific decision-maker.

24. Crises in which ill-founded expectations of military success may have led to riskier crisis policies and, as a result, wars are discussed in Richard Ned Lebow, Between Peace and War: The Nature of International Crisis (Baltimore: Johns Hopkins University Press, 1981), pp. 242–247.

comes would likely be deterred by the uncertainties that already exist. In
contrast, if these uncertainties in combination with the other reasons for not
launching a counterforce attack are not adequate to deter a Soviet decision-
maker, then the additional uncertainty created by BMD is likely to have little
effect. In sum, if the uncertainty created by BMD is beneficial, it can at most
strengthen deterrence only slightly.

Deploy BMD to Encourage and Support Arms Control, Specifically Offensive
Reductions

Proponents of BMD maintain that defenses reduce the military utility of
nuclear weapons, thereby making it easier to trade away existing offensive
weapons and less attractive to build additional ones. Moreover, continues
the argument, if the cost of building offenses to defeat defenses is greater
than the cost of building defenses, i.e., the "cost-exchange ratio" favors the
defense, then U.S. deployment of defenses might essentially force the Soviet
Union to give up its offensive capability. Presumably President Reagan’s
statement that research and development of BMD "could pave the way for
arms control measures to eliminate the weapons themselves" was based upon
these reasons.26

Opponents, however, argue convincingly that deploying BMD will not
facilitate arms control, warning that if BMD reduces the Soviet Union’s ability
to perform strategic missions, then it will simply increase the size and
penetrability of its force to restore these capabilities. Moreover, because
offensive reductions would further reduce Soviet capabilities, it will then be
harder for the superpowers to limit offensive forces once the U.S. deploys
BMD.27 Five points support this counterargument.

First, U.S. BMD would not reduce the value the Soviet Union places on
being able to perform certain missions with nuclear weapons; rather, BMD
might increase the difficulty of performing these missions. Therefore, the
utility of nuclear weapons would remain high, and the Soviet Union is likely

Initiative,” p. 6; Gray, “A New Debate on Ballistic Missile Defense,” pp. 68–69; Payne and Gray,
“Nuclear Policy and the Defensive Transition,” p. 839; Keyworth, “The Case for Strategic
in Science and Technology, Fall 1984, pp. 28–29; and The Hoffman Report, p. 11.
27. See, for example, McGeorge Bundy, George F. Kennan, Robert S. McNamara, and Gerard
Smith, “The President’s Choice: Star Wars or Arms Control,” Foreign Affairs, Vol. 63, No. 2
to react to U.S. BMD by increasing the size and penetrability of its offensive force to defeat the United States’ defense.

Some analysts respond that if both superpowers deploy BMD, then the value of being able to carry out counterforce and countervalue attacks would be reduced. Both superpowers, therefore, would be willing to forgo their ability to perform these missions. For example, if U.S. BMD eliminates the Soviet ability to destroy U.S. forces, then the U.S. need not be able to destroy Soviet forces; so, continues the argument, Soviet defense of its forces would not threaten a necessary U.S. mission, and the U.S. would be willing to reduce the size of its offensive force.28 ‘This logic, however, fails to explain superpower behavior heretofore. Since presumably each superpower could reduce the other’s offensive force requirements by reducing the size of its own offensive force, this logic predicts that negotiations would have produced large mutual reductions of the superpowers’ offensive forces. Yet not even minor reductions in strategic nuclear offensive forces have occurred. Why should we expect deployment of BMD to totally reverse the way the superpowers define their security requirements and plan their forces? Second, even if the superpowers followed this unrealistic logic, BMD would not spur the radical reduction of Soviet forces required to protect U.S. society. The BMD proponents’ argument holds that the superpowers will give up the capabilities threatened by the adversary’s BMD. However, in the coming decades each superpower could deploy at most moderately effective BMD, leaving its adversary with a redundant assured destruction capability and the ability to destroy a large fraction of its fixed military targets. There would be no more incentive than today to trade away these capabilities. In

28. D.G. Brennan, applying this logic, argues that BMD could lead to symmetric reductions in the homeland vulnerability of the superpowers; see “Post-Deployment Policy Issues in BMD,” in D.G. Brennan and Johan J. Holst, Ballistic Missile Defence: Two Views, Adelphi Paper No. 43 (London: International Institute for Strategic Studies, November 1967), p. 9. Arguing in a similar vein, Payne and Gray maintain that the Soviet Union’s reluctance to reduce its ICBM force stems, in part, from its doctrinal requirement for a damage-limitation capability. Currently, ICBMs form the core of this capability, providing an offensive counterforce capability. Therefore, continues the argument, because Soviet strategic defense could substitute for Soviet ICBMs in this damage-limitation role, Soviet deployment of defenses would make the Soviet Union more willing to reduce the size of its offensive force. (Payne and Gray, “Nuclear Policy and the Defensive Transition,” p. 839.) This argument, however, appears logically inconsistent: at least in theory, offensive counterforce, strategic defense, and/or negotiated reductions of the adversary’s offensive force could be used to reduce the adversary’s ability to inflict damage. Thus, at this level of generality, it is unclear why the Soviet doctrinal priority given to reducing the U.S. ability to inflict damage does not now favor negotiated reductions of offensive forces.
addition, each superpower, looking to the future through a conservative planning lens, is likely to fear improvements in the other’s defense that leave it at a strategic disadvantage, possibly even to the point of unease about its assured destruction capability. From this perspective, the adversary’s defense actually increases the value of excess offensive forces since redundant weapons serve as a hedge against the adversary’s development of a superior strategic defense. Fear of this possibility will encourage both superpowers to increase the size of their offensive forces. Offensive reductions would make the possibility of improvements in the adversary’s defense more threatening.

Third, the cost-exchange argument of proponents of BMD, while not without merit, suffers serious weaknesses. According to this argument, the superpowers should be willing to reduce their offensive forces, or at least freeze them, if the cost of maintaining an assured destruction capability exceeds the cost of the defensive system required to deny this capability. However, the cost-exchange ratio of such highly effective defenses is likely to heavily favor the offense for the foreseeable future. For one thing, the only concepts proposed for highly effective area defense require expensive boost phase technologies, which still appear susceptible to defeat by relatively inexpensive countermeasures. In addition, defenses become more costly as they are asked to perform more demanding missions since they must be able to defeat the full range of offensive countermeasures, which in turn makes the cost-exchange ratio more favorable to the offense. Furthermore, because each superpower would believe that its fundamental security interests were threatened by the adversary’s defense, it would likely be willing to pay a disproportionate sum to defeat it—even if a favorable cost-exchange ratio existed, it would not be sufficient to subdue competition between each superpower’s offense and the other’s defense.

30. Ibid., pp. 45–46. In addition to technical countermeasures, such as decoys, there are tactical countermeasures. A city defense must engage almost all of the attacking warheads. Thus, unlike a defense of silos, it does not benefit from the leverage provided by preferential defense. In fact, just the opposite applies, since the offense can defeat the defense by concentrating its attack on cities of especially high value. Carter, “BMD Applications,” in Carter and Schwartz, Ballistic Missile Defense, p. 170.
31. For example, Brennan argues that the cost-exchange ratio would likely have to exceed 5 to 1 to dominate U.S. planning. See “Post-Deployment Policy Issues,” in Brennan and Holst, Ballistic Missile Defence: Two Views, p. 7.
Fourth, the inclination to offset the adversary’s defense would probably be reinforced by military institutions: no organization is likely to concede that its missions that are threatened by the adversary’s defense are not vital to the country’s security. For example, it is hard to imagine the U.S. Air Force accepting the argument that Soviet BMD was so effective that the U.S. should no longer maintain the capability to target Soviet forces or that U.S. ICBMs had become virtually worthless and should be retired. Indeed, past Soviet defense deployments have instead motivated American offensive programs: the American MIRV was spurred in part by Soviet BMD, and the current B-1, Stealth, and air-launched cruise missile programs are responding to Soviet air defense deployments.

Finally, and possibly most important, deploying BMD will not facilitate the limitation and reduction of offensive forces if it has a destructive effect on overall superpower relations. If the adversary’s deployment of strategic defenses is understood to reflect aggressive intentions, as it almost certainly would be, then the superpowers are likely to be unable to pursue offensive limits or any other form of arms control.

Proponents also argue that BMD would make possible large reductions in offensive forces by reducing the difficulty of adequately verifying such a treaty. At force levels much lower than today’s, the superpowers would require extremely effective verification capabilities because even small numbers of illegal nuclear weapons could be strategically significant. Defenses reduce the danger of cheating and breakout at these low levels by reducing the importance of an advantage in the number of weapons. Thus, BMD could increase U.S. confidence in its ability to detect significant violations by raising the level at which cheating becomes militarily significant. Therefore, continues this argument, BMD would allow the U.S. to relax its verification requirements for agreements that radically reduce offensive forces.32

Although this argument might apply in certain situations, it is not an argument for deploying defenses now. The superpowers have not made progress toward the successful negotiation of large offensive reductions. Verification and breakout are far from the most serious barriers to these agreements. Massive offensive reductions will not be negotiated in the near future, so this argument should not influence current U.S. policy. Moreover, for the reasons discussed above, deployment of BMD will reduce the superpowers’ ability to negotiate offensive reductions.

32. See, for example, Payne and Gray, “Nuclear Policy and the Defensive Transition,” p. 838.
Deploy BMD to Protect Against Accidental, Unauthorized, Nth Country, and Terrorist Attacks

Some BMD proponents focus on the danger posed by certain small nuclear attacks and maintain that BMD could reduce the damage if one of these attacks occurred. The source of a small attack could be an accidental or unauthorized launch of Soviet missiles or some country other than the Soviet Union (an n-th country) or a terrorist group.  

Clearly, if one of these small ballistic missile attacks occurs, then the U.S. would be better off with a ballistic missile defense that can reduce the damage than without one. The importance of this argument, however, also depends upon the likelihood of such attacks. As with all nuclear attack scenarios, estimating probabilities of occurrence, even relative probabilities, is highly speculative. The probability of an accidental Soviet ballistic missile attack, at least during normal peacetime conditions, is generally believed to be quite small. In addition, improvements in Soviet command and control and maintenance of forces that need not be placed on high alert during crises or launched under attack could further reduce this probability. (These improvements would likely to be in the interest of both superpowers.)

The probability of n-th country attacks depends upon the number of countries that threaten the U.S. with nuclear weapons carried on ballistic missiles. Referring to this as the n-th country problem suggests there will be many countries that might launch small ballistic missile attacks against the U.S. In fact, of the countries that now have this capability—the Soviet Union, China, France, and the United Kingdom—only the Soviet Union is not a U.S. ally. During the late 1960s the possibility of a Chinese ballistic missile capability was presented as the principle reason for deploying a light area defense. That capability has developed more slowly than then anticipated, and the

Chinese have now deployed only a few ICBMs. More importantly, U.S.–Chinese relations have improved significantly. Furthermore, not many countries are likely in the near future to acquire the capability to attack the U.S. with nuclear weapons delivered by ballistic missiles. In addition to the problem of acquiring nuclear weapons, countries face the more difficult task of building long-range ballistic missiles. The U.S. could reduce the future size of n-th country and terrorist threats by giving higher priority to slowing the proliferation of nuclear weapons and ballistic missiles.

Possibly most important in terms of this argument, BMD could not prevent a determined adversary from attacking the U.S. with nuclear weapons by some other means of delivery. The country or terrorist group could deliver nuclear weapons by aircraft, ships, and a variety of clandestine means much more easily than by building intercontinental missiles. In addition, although the proliferation of nuclear weapons and advanced means of delivery does increase somewhat the threat of nuclear attack against the U.S., the U.S. ability to retaliate should be sufficient to deter most countries—especially since most presumably would lack a second-strike capability, and thus would stand at America’s mercy after they attacked.

This discussion does not, of course, prove that accidental or n-th country ballistic missile attack is impossible, nor that a light BMD would be of no value. It does, however, suggest that these attacks are highly unlikely and that BMD is unlikely to make a significant difference in preventing n-th countries from delivering nuclear weapons to U.S. cities if they want to.

Deploy BMD to Counter Soviet Violations of the ABM Treaty

Some proponents of BMD argue that the U.S. should withdraw from the ABM Treaty to counter Soviet violations of arms control treaties. Colin Gray holds that:

Soviet violations now work uniquely to their benefit, however, so the United States would have little to lose by abandoning treaties that only restrain its behavior.

He further argues that Soviet violations of the ABM Treaty have given them a superior near-term breakout potential. In addition, if the U.S. fails to respond to these violations, the Soviet Union may conclude that the U.S. lacks the determination necessary to achieve its foreign policy objectives.39

There seems to be little question that the large phased-array radar the Soviets have built near Krasnoyarsk violates the treaty’s prohibition of early warning radars that are not located on the periphery of the Soviet Union and facing outward.40 However, this violation does not threaten the United States’ strategic capabilities, and, therefore, does not provide the Soviet Union with a significant military benefit. Moreover, the U.S. can deny the Soviet Union any breakout advantage that the combination of this violation with ongoing Soviet BMD programs allowed by the treaty might provide. First, by increasing the ability of its ballistic missile force to penetrate future Soviet BMD systems, the U.S. can reduce the benefits of Soviet breakout. Second, by bringing its BMD programs to the pre-deployment stage allowed by the ABM Treaty, the U.S. can ensure that the Soviet Union cannot gain a significant advantage in a BMD deployment race. Whether the U.S. actually needs to increase its ability to rapidly match potential Soviet BMD deployment is questionable, however, since the danger now posed by Soviet breakout is quite small. In short, Soviet violations do not create a critical military need to abandon the ABM Treaty.

Soviet violation of the treaty is therefore, at least for now, a political problem. Any treaty violation, even if not militarily significant, is politically significant, calling into question the wisdom of engaging in arms control agreements with the Soviet Union, and creating fears that, over time, Soviet violations really will make a military difference. Thus, assuming effective limitation on both superpowers’ BMD is in its interest, the United States’

39. Ibid., pp. 141–152.
40. The U.S. has charged the Soviet Union with violations or probable violations of many arms control treaties, including SALT II and the Threshold Test Ban Treaty as well as the ABM Treaty. In addition to the radar, potential violations of the ABM Treaty are said to include development of mobile ABM components and the concurrent operation of SAM and ABM components. Problems of Soviet compliance with the ABM Treaty are reported in “The President’s Unclassified Report to the Congress on Soviet Non-Compliance with Arms Control Agreements” (Washington, D.C.: The White House, February 1, 1985); “The President’s Report to the Congress on Soviet Noncompliance with Arms Control Agreements” (Washington, D.C.: Office of the Press Secretary, The White House, January 23, 1984); and General Advisory Committee on Arms Control and Disarmament, “A Quarter Century of Soviet Compliance Practice Under Arms Control Commitments: 1958–1983, Summary” (Washington, D.C., October 1984). For an analysis of the Administration’s findings, see F.A.S. Public Interest Report, Vol. 37, No. 3 (March 1984), and Arms Control Today, Vol. 14, No. 3 (March–April 1984).
response to the Soviet radar should be designed to preserve the ABM Treaty by establishing that the Soviet Union cannot gain an advantage by cheating on arms control agreements.

This argues against rushing to withdraw from the ABM Treaty to deploy counterbalancing defensive capabilities: since the treaty still holds the potential to significantly restrict Soviet BMD, withdrawing because of the Soviet radar would be like "throwing the baby out with the bath water." The U.S. should continue to demand that the Soviet Union provide satisfactory explanations of their apparent non-compliance with arms control treaties. Discussions of compliance should be pursued in the Standing Consultative Commission (SCC) to minimize unnecessary political posturing. If Soviet explanations prove unsatisfactory, the U.S. will have to search hard for options that both preserve the ABM Treaty and make it clear that the Soviet Union cannot gain advantages by violating arms control agreements. Analysts, with these objectives in mind, have suggested a variety of ways this compliance problem might be resolved. One is for the Soviet Union to modify the radar to reduce its early warning capability—its orientation might be changed to make it look more like a radar designed to track satellites, which is what the Soviets now claim it is. Another suggests the U.S. try to reach a common understanding with the Soviet Union in the SCC to allow deployment of defensive systems that match or offset Soviet violations. For example, Michael Krepon suggests "a common understanding . . . limiting the number of large phased-array radars, regardless of their stated purpose." While such an adjustment of the ABM Treaty to accommodate violations of its provisions would strike a symbolic blow to the treaty, and more generally to arms control, which requires U.S. confidence in Soviet treaty compliance, it would preserve the treaty's fundamental objectives and would demonstrate that the Soviet Union cannot gain an advantage by cheating on agreements. Alternatively, the U.S. might accept apparent Soviet non-compliance as the result of divergent interpretation of ambiguities in the ABM Treaty but insist

41. The SCC was established by Article XII of the ABM Treaty. It provides a forum to consider "questions concerning compliance"; "possible proposals for further increasing the viability of this Treaty, including proposals for amendments"; "proposals for further measures aimed at limiting strategic arms"; as well as other issues related to compliance with and implementation of the treaty.

upon supplementing the treaty with clarifications that eliminate the possibility of similar problems in the future.

It is likely, however, that satisfactory resolution of this non-compliance issue depends more on the determination of the U.S. and the Soviet Union to preserve the ABM Treaty and on U.S.–Soviet relations more broadly than on the merits of these specific approaches. A strong U.S. commitment to preserving the treaty may be a prerequisite. If this commitment exists and is matched by comparable Soviet interest in preserving the treaty, then the U.S. will likely be able to design a response that it can negotiate with the Soviet Union and sell to its public and allies.

**Deploy BMD to Gain the Political and Economic Benefits of U.S. Technical Superiority**

Colin Gray argues:

If, as seems unavoidable, the United States must sustain military competition with the Soviet Union for many decades to come—since the political fuel for the competition cannot be cut off—it is cost effective to compete most vigorously in those areas wherein the structural basis for an enduring lead is present, and with regard to which the Soviet Union, for excellent reasons, harbors the deepest of anxieties.43

In other words, even if BMD cannot meet its military objectives, it can contribute more broadly to U.S. strategy.

In light of the preceding analysis, which suggests that the benefits of less-than-near-perfect BMD are quite small, this argument may reflect a key underlying source of disagreement on BMD policy. From this perspective, the BMD debate becomes a proxy for answers to questions like: Is intense military competition a necessary and/or desirable extension of ongoing political competition? Would U.S. security be increased by a competition that threatens the Soviet Union with the specter of technological, if not strategic, inferiority? Should the U.S. use military competition to drain the inferior Soviet economy, thereby weakening the Soviet Union overall? BMD is part of a general national security debate that, with some danger of oversimplification, can be characterized as occurring between analysts who stress the existence of common U.S. and Soviet interests and analysts who emphasize

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the existence of conflict and competition. Although complete analysis of this debate is beyond the scope of this paper, it is useful to make the potential role of BMD explicit.

First, while military competition between the U.S. and the Soviet Union will continue for the foreseeable future, the superpowers have some control over its intensity. Deploying defenses will almost certainly increase the competition: Soviet deployment of BMD will increase U.S. leaders’ doubts about the adequacy of their offense, and vice versa. As a result, the current competition in offensive forces would be exacerbated; and, of course, a new full-fledged competition in defenses would likely be set in motion. Advocates of defenses often disagree with this prediction, pointing to the buildup of offensive forces since the signing of the ABM Treaty to support their case. Their argument, however, which compares the arms buildup we have experienced to no buildup, is misleading. The correct comparison is between the buildup we have experienced and the one we would have experienced had there been no ABM Treaty (and had extensive BMD been deployed).

Second, a competition in BMD combined with an increased competition in the offensive forces that the BMD challenged would greatly increase the economic cost of strategic nuclear forces to both the U.S. and the Soviet Union. Since this competition would not significantly increase U.S. security, it could be “cost effective” only in the sense that it places more of a strain on the Soviet economy than on the U.S. economy.44

Third, the use of BMD to achieve military and economic advantages is incompatible with the achievement of arms control agreements—the Soviet Union will not accept highly inequitable agreements. Analysts cannot argue consistently that BMD is a means of achieving both objectives.

In short, there is virtually no doubt that BMD will increase the intensity of nuclear weapons competition and exacerbate superpower relations. Thus, it is clear that disagreements about how to improve U.S. security could result in divergent conclusions about the deployment of BMD. Analysts who believe that intensified superpower competition and initiatives to weaken or

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44. This argument assumes the Soviets will follow the U.S. in deploying BMD, which is likely to be the case. It is interesting to note, however, that the Soviet Union could respond by increasing and improving only its offensive force. It would likely cost the Soviet Union far less to offset the United States’ BMD than it cost the U.S. to build the BMD, i.e., the cost-exchange ratio is likely to favor the offense heavily. In this case (which, granted, is unlikely to occur), the U.S. deployment of BMD would move the arms competition into an area of U.S. disadvantage—its security would not be increased, and its economy would be drained more than the Soviet Union’s.
intimidate the Soviet Union are in the U.S. interest will tend to favor deployment of BMD, and vice versa.

**Deploy BMD to Enhance U.S. Offensive Capabilities**

Lastly, some proponents favor marrying BMD with air defense, civil defenses, and offensive counterforce in order to reduce the Soviet Union's ability to retaliate following a U.S. first strike. In this scheme, BMD would blunt Soviet retaliation already weakened by an American attack against Soviet strategic nuclear forces and command and control. This BMD mission is less demanding than protecting against a Soviet first strike: American offenses aid in limiting damage by providing a kind of “pre-boost-phase” or “silo phase” intercept that leaves the defense with fewer retaliatory warheads to destroy. Proponents present two reasons for pursuing this essentially offensive strategy. First, much like the familiar “Star Wars” arguments, this combination of offensive counterforce and active defense would enable the U.S. to reduce the cost to itself of an all-out war. Second, by denying the Soviet Union a similar capability, the U.S. would create a situation in which an all-out war would be much more costly for the Soviet Union than for the U.S. This clear superiority, continues the argument, would increase the United States' ability to protect third areas (such as Western Europe) from Soviet conventional attack, i.e., it would strengthen extended deterrence. This is especially true, continues the argument, because Soviet leaders view military conflict in these traditional military terms—they are more afraid of being defeated than of suffering retaliatory damage.

This argument falls uncomfortably between the argument for “Star Wars,” which imagines both superpowers with impenetrable shields, and the arguments for less-than-near-perfect defenses: this defense is not good enough to protect the U.S. against a first strike against its cities, but is good enough to contribute significantly to defense against a second strike. Moreover, because proponents of this damage limitation strategy want to gain a strategic advantage, this use of defenses, unlike the President’s version of “Star Wars,” cannot be cast as mutually beneficial to both superpowers.

45. This comparison actually includes two separable factors: first, does the defense provide the U.S. with an advantage or does it benefit both superpowers roughly equally; and second, can an offensive counterforce attack significantly increase the ability of U.S. defenses to reduce the costs of Soviet retaliation? At least in theory, therefore, there are four possible kinds of situations in which defenses reduce the vulnerability of the U.S. homeland.
This argument has not played a prominent role in the current public debate over the SDI, but it was an important argument for BMD for many years before President Reagan’s 1983 initiative, and it likely remains important in the minds of many BMD advocates today. For instance, Colin Gray, who has forcefully framed arguments for less-than-near-perfect defenses, also argues that to satisfy its extended deterrence requirements the U.S. must acquire a significant damage limitation capability, while maintaining the ability to destroy the Soviet state. Specifically, he asserts that combining an offensive strategy with homeland defense should reduce U.S. casualties to about 20 million.46

The feasibility of offensive damage limitation has received less attention than the more benign image of a defense that does not require the U.S. to strike first. Analysis of “Star Wars” has focused on the competition between U.S. BMD and Soviet ballistic missiles, countermeasures, and tactics. A complete analysis of the feasibility of combining offense and defense to reduce Soviet retaliatory capabilities would also examine the competition between U.S. offensive counterforce and the survivability of Soviet retaliatory forces. Most analysts believe that the U.S. deployment of offensive counterforce weapons cannot provide the ability to reduce significantly the potential cost of Soviet retaliation: first, the cost-exchange ratio in a competition over the Soviets’ ability to retaliate massively against U.S. cities and industry favors the offense; second, the Soviet Union values this capability highly and, therefore, will pay large sums to maintain it. These are the same reasons that U.S. BMD cannot win such a competition against Soviet ballistic missiles. Thus, the strongest argument against this damage limitation strategy is likely to be that it is technically and economically infeasible. This is especially true since defenses protecting Soviet forces would presumably reduce the effectiveness of the United States’ first strike. Studies of the feasibility of this offensive damage limitation strategy that addressed potential synergisms between offensive counterforce and active defense, however, would fill a gap and help to clarify the debate.

This brief discussion suggests a new dimension of the debate over less-than-near-perfect defense. An evolutionary deployment of BMD by the U.S.

might, in theory at least, lead to two distinct outcomes: in one the U.S. gains superiority, while in the other both superpowers are presumed to benefit from the mutual reduction of the vulnerability of their homelands. The reader, then, is reminded that a larger debate about these final objectives looms in the background of the current debate over less-than-near-perfect defenses. Moreover, if the envisioned U.S. superiority requires offensive counterforce, then its desirability raises additional difficult questions: the safety of counterforce has been challenged on grounds that it invites preemptive war, which in turn makes the control and termination of conventional wars more difficult.

The Costs of Deploying BMD

The ABM Treaty now severely restricts the BMD deployments of both superpowers. Extensive U.S. deployment of BMD can be obtained only by amending or terminating the treaty, thereby allowing Soviet deployment. Switching from a nuclear situation in which neither superpower has extensive BMD to one in which both do would have significant strategic, political, and economic costs for the United States.

The costs of such a shift depend upon whether the ABM Treaty is amended or terminated. The vulnerability of ICBMs has created interest in amending the treaty to allow defense of only ICBMs. Such a treaty would, in theory, continue to restrict the most important potential threat to U.S. capabilities from Soviet BMD, i.e., reduction of the U.S. ability to retaliate against Soviet value targets, including cities and economic and industrial capabilities. Therefore, the costs of amending the treaty are smaller than terminating it because the strategic capability of Soviet BMD would continue to be constrained. In practice, however, such an amendment is likely to represent a large step toward termination of the treaty. First, U.S. attempts to amend the treaty might be unsuccessful, with one possible outcome being the total loss of constraints on BMD. For example, the U.S., having committed itself to an amendment to allow deployment of ICBM defenses, might, following unsuccessful renegotiation, choose to withdraw from the Treaty altogether instead of allowing the Soviet Union to block its deployment of BMD. Negotiating an amendment that allows defense of only ICBMs promises to be especially difficult because the Soviet Union is likely to be more interested
in protecting leadership, command and control, other military targets, and economic targets than in protecting ICBMs.\textsuperscript{47}

Second, Soviet systems ostensibly deployed to protect ICBM silos might provide some protection of other targets as well. Even if the actual area defense capabilities of these systems were small, United States analysts and targeting staff would tend to give them the benefit of the doubt, creating fears about whether the amended treaty serves U.S. interests and spurring moves toward complete termination of the treaty. Finally, extensive Soviet deployment of BMD would increase concern that the Soviet Union could gain a strategic advantage through breakout. Concern about Soviet breakout potential is an important factor in the reassessment of U.S. strategic defense policy now taking place. These concerns would only be increased by ICBM defenses that provide a base for a nationwide defense. Moreover, amendments to the treaty that allow still more extensive deployment, e.g., defense of C\textsuperscript{3} as well as ICBMs or a thin area defense, would suffer even more severely from these problems. In short, amending the ABM Treaty is likely to hasten its termination.

Soviet BMD, which would almost certainly be deployed following the amendment or termination of the ABM Treaty, would reduce the ability of U.S. reentry vehicles to penetrate to their targets. However, strategic defenses available in the foreseeable future could not deny the United States the ability to perform its key deterrent missions. First, the Soviet Union will remain unable to protect its cities and industry. The U.S. now has a very large survivable strategic nuclear force, only a small fraction of which must penetrate Soviet defenses to destroy a large fraction of Soviet value targets. The Soviet Union, like the U.S., will be unable to deploy anything approaching the necessarily near-perfect strategic defense in the foreseeable future. Moreover, to eliminate any possible reduction in its ability to retaliate, the U.S. could, and almost certainly would, increase the number and penetrability of its ballistic missiles; increase the survivability of its ICBMs with BMD or by other means; and continue to maintain bombers and cruise missiles to penetrate Soviet air defenses. Furthermore, by maintaining an unquestionable ability to retaliate massively against cities and other targets of value the U.S. could ensure a high degree of crisis stability: the Soviet Union would be unable to reduce significantly the costs of a U.S. attack, so striking first

and incurring U.S. retaliation would be essentially as bad as being struck first. 48

Second, whether Soviet BMD could protect military targets would depend upon the value the U.S. places on being able to destroy these targets. Soviet BMD could make the total price of attacking large target sets, for example ICBMs and other military targets, quite high. However, an expanded and improved U.S. ballistic missile force could offset the Soviet BMD. The question, then, is would the U.S. be willing to pay potentially vast sums to maintain its full menu of retaliatory options against Soviet strategic forces and other military targets? There is substantial disagreement about the need for such a capability. Ironically, it is the advocates of deploying BMD to strengthen deterrence who believe that counter-military retaliation is important for deterrence, especially extended deterrence; they are likely to see Soviet defense of military targets as more threatening than do opponents of BMD.

A large expansion of Soviet BMD deployments might reduce significantly the threat posed by the French, British, and Chinese nuclear forces. Most analysts believe these independent nuclear forces increase U.S. security and,

48. My argument here differs from that of opponents of BMD who argue that mutual deployment of BMD will undermine the United States’ deterrent capabilities and reduce crisis stability. In fact, at least to first order it appears inconsistent to argue both that the offense will prevail in an offense-defense competition and that the superpowers’ deployment of BMD will significantly reduce their strategic capabilities. It is possible, however, to make such an argument by including what might be considered second order considerations. For example, one could argue that uncertainties and/or misperceptions created by BMD could lead a risk-taking decision-maker to launch a nuclear attack that would otherwise be deterred. However, while this argument has merit, it would not apply if the superpowers reacted to each other’s defenses with offenses that offset not only the most probable performance of the defense, but also offset worst-case estimates that far exceed the most likely estimate. In this case, which is the one BMD opponents use to predict an endless expansion of offensive forces, the uncertainties created by BMD would be quite small, especially when compared to the uncertainties that already exist.

The argument that less-than-near-perfect BMD will decrease crisis stability suffers from essentially the same weaknesses. The strongest incentive to preempt would exist when a country could significantly reduce the potential costs of an attack against its cities by launching a counterforce first strike. The BMDs that might be available in the next two decades could not provide this damage-limitation capability against a competitive offensive threat. This conclusion is reinforced by the fact that defending forces is less demanding than defending cities. Thus, mutual deployment of BMD could increase both countries’ ability to retaliate against cities and industrial capabilities, tending to increase crisis stability. If defenses in combination with offensive counterforce ever begin to provide a significant damage-limitation capability (an outcome that available analyses suggest is unlikely), then crisis stability would likely be reduced. Working against crisis stability is the fact that defenses would be more effective against a ragged retaliatory attack, one not optimized to defeat the defense, and against a smaller retaliatory attack than a larger first strike. Even then, however, the decrease in crisis stability might not be large since such highly effective defenses would greatly increase the survivability of retaliatory forces.
therefore, would consider this effect of Soviet BMD to be negative. In addition, because their nuclear capabilities would be threatened by amendment or termination of the ABM Treaty, U.S. efforts to change the treaty would likely strain its relations with these allies.

While the U.S. would be able to maintain its deterrent capabilities, the political costs of this offense-defense competition would be large. Soviet defenses will appear threatening to the U.S., and vice versa. The Soviet Union's BMD, like the ability it now has to attack U.S. strategic nuclear forces, will be understood by many analysts to reflect aggressive intentions. Analysts will likely see deployment and improvement of Soviet BMD as attempts to gain a strategic advantage, to undermine U.S. deterrent capabilities and, in the long run, to disarm the U.S. Soviet defenses will raise U.S. force requirements, making agreements to limit offensive forces harder to achieve than today and making U.S. security seem harder to maintain. Uncertainties about the effectiveness of Soviet defenses will continue to drive up U.S. force requirements. The natural tendency of U.S. force planners to assume the best about Soviet defenses and the worst about their own would likely generate unending fears that U.S. offense and defense were both inadequate. In this environment of increased mutual fear and hostility, the superpowers are more likely to overlook their common interests and to see only hostility in each other's actions. The result could well be a reduction in their ability to avoid and to manage crises.

The economic costs of deploying BMD will depend on the objectives of the U.S. defense and the size and penetrability of the Soviet offense. Any militarily significant BMD will cost tens of billions of dollars.49 No one knows how much a highly effective multi-layer BMD including boost-phase intercept

49. Very few estimates of the cost of less-than-near-perfect defenses are now available. Although analysts have raised the possibility of deploying BMD to perform these less demanding missions, they have not specified in any detail the goal of the defense deployment, the BMD technologies that would be deployed, or the Soviet threat the defense would confront. Without this information, realistic cost estimates cannot be developed. A useful point of reference may be the Army's 1980 cost estimate for its Low-Altitude Defense System (LoADS) to defend the MX missile based in multiple protective shelters (MPS). A LoADS system to defend 200 MX missiles based in 4600 shelters was projected to cost $8.6 billion in 1980 dollars. This was a low estimate, which did not include the cost of additional warning and threat assessment systems and C3 systems required to support LoADS. See Office of Technology Assessment, MX Missile Basing, p. 125. A traditional BMD of 1000 fixed ICBMs would likely be many times as expensive: first, the number of missiles to be defended is much larger; and, second, the defense, lacking the leverage provided by MPS basing, would have to be able to charge a much higher attack price than LoADS. Defense of ICBMs is discussed in detail in Carter, "BMD Applications," in Carter and Schwartz, Ballistic Missile Defense, pp. 122-146.
(if ever developed) would cost; rough estimates fall in the 500 billion to one trillion dollar range.\textsuperscript{50} Whatever the goal of the defensive system, the cost of deploying BMD would be far greater than the cost of the initial BMD system. The U.S. would improve its BMD to offset changes in the Soviet ballistic missile force. In addition, there would be the cost of improving and/or expanding the U.S. offensive force to offset Soviet BMD. Moreover, certain strategic defense goals, e.g., defeating small Soviet attacks, require the U.S. to deploy expensive air defenses against Soviet bombers and cruise missiles.

\textit{Conclusion}

This analysis finds that the deployment of less-than-near-perfect defenses would provide, at most, small benefits on concerns of second or third order importance; deterrence would not be strengthened significantly. Yet the costs of deploying BMD are found to be extensive: U.S. offensive force requirements would increase, U.S.–Soviet competition would intensify, serious arms control efforts would likely disappear, and the economic costs of strategic nuclear forces would increase immensely.

This conclusion undermines the argument for an evolutionary deployment of BMD that hinges on the belief that less-than-near-perfect defenses would provide net benefits at each stage of deployment. My analysis reaches the opposite conclusion: U.S. deployment of the ballistic missile defense that might be available in the foreseeable future, assuming the Soviet Union also deployed BMD, will reduce U.S. security. Thus, an evolutionary strategy can be defended only with the hope that perfect or near-perfect defenses will someday be developed.\textsuperscript{51} However, given the extremely low probability of such an effective defensive system ever being developed and deployed, the U.S. should reject the evolutionary deployment strategy.

Because deployment of less-than-near-perfect BMD is not in the United States’ interest, priority should be given to preserving the ABM Treaty. The SDI conflicts with this objective. Although the Administration stresses that the SDI is only a research program and is therefore permitted by the ABM

\textsuperscript{50} See, for example, R. Jeffrey Smith, “Schlesinger Attacks Stars Wars Plan,” \textit{Science}, November 9, 1984, p. 673.

\textsuperscript{51} Although feasibility is a necessary condition for pursuing an evolutionary strategy, it is not a sufficient condition. For an analysis of the desirability of mutually deployed near-perfect defenses, see Charles L. Glaser, “Why Even Good Defenses May Be Bad,” \textit{International Security}, Vol. 9, No. 2 (Fall 1984), pp. 92–123.
Treaty, its enthusiasm for and commitment to the deployment of BMD conveys a willingness to terminate the treaty. Moreover, development and testing now planned in the SDI strain the limits of the treaty, and the BMD deployments envisioned by the SDI will require its termination. The Soviet Union must wonder whether they should expect the U.S. to withdraw from the treaty by the early 1990s.

Most important for preserving the ABM Treaty is for the Reagan Administration to change its course. Ideally, President Reagan would reverse himself completely, announcing that new studies show the SDI is a mistake. More realistic steps include reductions in funding for the SDI and a relaxation of commitment to the long-term goal of near-perfect defense. Unfortunately, the Administration appears unwilling to rein in its SDI even slightly.

Somewhat ironically, the U.S. should continue research and development of BMD that is permitted by the ABM Treaty in order to reduce the potential benefits to the Soviet Union of withdrawing from the treaty. Such a policy, designed to deter Soviet deployment of BMD, requires a careful balancing of conflicting pressures. Pursuit of BMD activities allowed by the treaty could have two negative effects. First, U.S. R&D could provide support in the Soviet Union for increased BMD R&D. This would be counterproductive if the net effect was to increase pressure in the Soviet Union to amend or withdraw from the treaty. Second, the larger the U.S. R&D effort, the stronger the domestic pressure will be to loosen the treaty constraints: larger budgets will increase the influence of those responsible for BMD, and successful R&D will create pressures for deployment. The momentum of R&D could threaten the objective it was initiated to achieve.

To avoid undermining the ABM Treaty, the U.S. should be absolutely clear about its reasons for pursuing R&D: 1) to deter Soviet withdrawal from the treaty; and 2) to hedge against Soviet breakout from the treaty. Providing these reasons for R&D cannot, however, be convincing to the Soviet Union or to domestic constituencies if U.S. leaders are simultaneously talking about the substantial future benefits of BMD. Thus, R&D designed to preserve the ABM Treaty should be supported by policy statements declaring the United States’ long-term interest in preserving a nuclear situation in which neither superpower has deployed BMD extensively.

R&D that approaches the constraints imposed by the ABM Treaty should be understood to have served its purpose: the Soviet Union would no longer be able to achieve an advantage in this area of BMD technology. The treaty should not be amended to allow R&D to continue since this would not be
necessary to achieve either of the objectives stated above. Moreover, we should recognize that there are significant advantages to pursuing R&D at less than the fastest possible rate since this will reduce the negative effects of R&D. The “best” rate requires a balance between keeping reasonable pace with the Soviet Union and controlling the pressures stimulated by R&D for amendment of the ABM Treaty.

Beyond these changes in its current policy, the U.S. should explore policies to strengthen the ABM Treaty. First, because certain treaty constraints are open to interpretation, the U.S. and the Soviet Union should, in the SCC, try to develop a shared understanding of the treaty’s boundaries. Where permitted research ends and prohibited development begins is not absolutely clear; whether certain technologies are components of an ABM system, and therefore banned, or are something less than components, and therefore allowed, can be even less clear. The U.S. and the Soviet Union are likely to undermine the treaty if they press the limits of possible interpretations. Working through these issues will require that each superpower believes the other is interested in preserving the treaty. Changes in current U.S. policy are, therefore, a prerequisite for strengthening the treaty.

Second, the ABM Treaty is threatened by potentially dual-capable weapons, including anti-tactical ballistic missiles, surface-to-air missiles, and antisatellite weapons, which are not banned and could reduce its effectiveness. The ABM Treaty covers only defense against strategic ballistic missiles and therefore does not ban anti-tactical ballistic missiles (ATBM). ATBMs could, however, contribute to the unraveling of the ABM Treaty. Drawing a precise line between ABMs and ATBMs is necessarily difficult: certain strategic weapons, e.g., short-range SLBMs, have trajectories similar to long-range tactical ballistic missiles. An extensive ATBM deployment would have some capability against strategic offensive systems and would be certain to create fears that its ABM capability could be upgraded. In addition, there is an important asymmetry: Soviet ATBMs can be deployed on Soviet territory. Because,


53. Stephen Weiner, “Systems and Technology,” in Carter and Schwartz, Ballistic Missile Defense, p. 73. The relationship between ABM and ATBM is cast in a positive light by The Hoffman Report, which states, “The advanced components, though developed initially in an ATM mode, might later play a role in continental United States (CONUS) defense” (p. 3).
by definition, the U.S. homeland is beyond the reach of tactical missiles, U.S. deployment of ATBMs on its territory would violate the ABM Treaty. The combination of this asymmetry with the ATBM’s ability to intercept certain strategic missiles could place the U.S. in a situation where the Soviet Union appears to have an extensive ABM capability and the U.S. has none. A ban on ATBMs would close a significant loophole in the ABM Treaty.54

There is also substantial overlap between BMD and ASAT technologies.55 The point at which an ASAT system qualifies as an ABM system, i.e., is capable of intercepting strategic ballistic missiles in flight trajectory, is unclear. Thus, the potential dual capability of ASAT weapons may provide an opportunity to circumvent the ABM Treaty. Agreement to limit or ban ASAT testing and deployment would reinforce the treaty. Although a complete assessment of ASAT arms control is beyond the scope of this paper, it is important to note that the BMD issue is of much greater moment than the ASAT issue.56 This assertion is not intended to minimize the significance of ASATs, but rather to highlight the central importance of strategic defenses. Area defenses could, at least in theory, threaten the adversary’s capability to retaliate, which is essential for deterrence. By contrast, satellites provide extensive military support, but their role is not entirely irreplaceable.57 In this sense the BMD and ASAT issues are incommensurate: the importance of the area BMD decision overwhelms the ASAT decision. This weighs heavily in favor of limiting ASAT capabilities.

The Reagan Administration now faces something of the opposite choice: successful ASAT arms control negotiations would place severe restrictions on BMD development and deployment. This would be hard to reconcile with the Administration’s commitment to strategic defense. Independent of the Administration’s beliefs about the value of mutual ASAT restraints, the close

54. Analysis of whether the net benefit of mutual deployment of ATBMs exceeds the risk that such deployment poses to the ABM Treaty is beyond the scope of this paper. Potential benefits of NATO deployment of ATBMs are discussed in The Hoffman Report, pp. 3, 10–11.
relationship between BMD and ASAT makes success in ASAT arms control unlikely.

While this article argues against the deployment of BMD and in favor of strengthening the ABM Treaty, the foregoing analysis also suggests a general observation about BMD policy: because none of the options for BMD deployment are without costs, we must address difficult trade-offs. Arguments in the BMD debate that suggest that deploying BMD brings only benefits are incomplete; they advocate, but do not analyze. Analyses of the benefits of defending U.S. targets tell only part of the story and will always favor deployment of BMD. Making the U.S. invulnerable to Soviet attack has undeniable appeal, but is an unrealistic objective and only distorts U.S. defense policy. U.S. security requires complete analysis of the more realistic limited BMD options. Such analysis, however, will direct the U.S. away from BMD and toward policies to maintain and strengthen the ABM Treaty.