Assessing Capabilities in International Politics: Biased Overestimation and the Case of the Imaginary ‘Missile Gap’

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ABSTRACT How states assess the capabilities of their adversaries and rivals is of paramount importance to the theory and practice of international relations. This paper presents a framework for understanding why states overestimate the capabilities of their adversaries. Three types of overestimation are presented, consisting of conscious/rational, erroneous and biased overestimation. In order to demonstrate the phenomenon of biased overestimation in international politics, the case of the ‘Missile Gap’ (1957–61) controversy in the United States is examined.

KEY WORDS: Overestimation, Missile Gap, Assessment of Adversaries

How states assess the military capabilities of their adversaries, both in absolute terms and relative to their own capabilities, is a critical aspect of international politics. Recent research in this area has focused on how overconfidence can affect a leader’s estimates of their adversary’s capabilities. The premise of this line of argument is that leaders and their advisors (under certain conditions) overestimate their own capabilities relative to their adversaries, possess unrealistically rosy views of their prospects of prevailing in war, and believe they can control the future to a greater extent than is either likely or possible.1

1Traditionally, psychologists use the term ‘overconfidence’ with respect to subjects’ belief in the accuracy of their judgments. However, the term ‘overconfidence’ here follows the convention in the international relations literature and refers instead to instances in which leaders are overconfident with respect to their military efficacy or prospects for victory. Similarly, ‘underconfidence’ in this article refers to the belief in military (in)efficacy and (poor) prospects for victory.
The net result of these ‘positive illusions’ is more frequent and longer lasting wars than would otherwise be the case.\(^2\)

However, students of the history of international relations will not be surprised to learn of another persistent (and related) problem: leaders often overestimate the capabilities of their adversary (and as a result, underestimate their own capabilities relative to their adversary). The overestimation of an adversary can involve their military capabilities, expenditures and finances or even their intentions.\(^3\) In these cases, leaders imagine their opponents to be stronger, more powerful, more aggressive, and more dangerous adversaries than they are in reality.

This article will attempt to shed light on the under-studied phenomenon of overestimation\(^4\) in international politics, and suggest a framework for doing so. In particular, the focus of this article is on overestimation that results from psychological bias, termed ‘biased overestimation’. Biased overestimation occurs when individuals’ estimates of the capabilities of their adversary are (without their awareness) systematically adjusted upwards as a result of cognitive bias. This is (as far as the author is aware) the first attempt to examine overestimation in international politics, and as such it is an exploratory study more so than a deductive theory of overestimation. There are several possible types of overestimation (outlined below and explored in more detail throughout the article) in addition to biased overestimation. This makes it critical to establish a proper framework before proceeding to the next steps of formal hypothesis formulation and testing.


\(^3\)A related phenomenon is the overestimation of the resolve of one’s adversary. Tang, for instance, has hypothesized that leaders often overestimate the resolve of their adversaries in crisis situations. They do this despite the past actions of their adversaries which would have, in numerous cases, led them to a more accurate estimation of their resolve. Shiping Tang, ‘Reputation, Cult of Reputation, and International Conflict’, *Security Studies* 14/1 (2005), 54.

\(^4\)From this point forward, any reference to ‘overestimation’, unless otherwise specified, will always refer to overestimation of an adversary, an not to overestimation of one’s own capabilities.
The analysis that follows will also illustrate the concept of ‘biased overestimation’ by examining a notable instance of overestimation: the ‘missile gap’ crisis in the United States, which took place between 1957 and 1961. During the period of the missile gap, United States intelligence officials and decisionmakers drastically overestimated the number of inter-continental ballistic missiles (ICBMs) possessed by the Soviet government.

This case study is useful in two respects. The first is that the concept of biased overestimation introduced in this article provides a compelling explanation for what has been, until now, a historical puzzle. The gap controversy has been attributed to – among other things – a scheme designed by John F. Kennedy to win the Presidency in 1960 and a conspiracy of US Air Force officials who desired more resources for their branch of the military. However, recently declassified national intelligence estimates, some of them examined piecemeal in previous works, but most presented here for the first time, allow us to definitively answer the question: ‘what caused the missile gap?’

The second reason that this case is useful for our purposes in this article is that it is representative of a ‘type’ of case that is common in international politics. The critical aspects of the case are: (1) one state seeks to assess the capabilities of its adversary; (2) the stakes of the assessment are very high (the period of the ‘missile gap’ was before each side had ‘secure second strike capabilities’ and before a stable deterrent relationship had evolved between the two superpowers) and (3) reliable information concerning the capabilities in question was difficult to obtain, because of limitations in intelligence-gathering abilities and because the adversary sought to use misinformation to mask his true capabilities. There are doubtless many unique features of this missile gap case, but these three critical features seem central to a range of similar cases encountered in national security affairs.

However, we must be careful before diagnosing a case as biased overestimation, as overestimation can stem from several sources. There might be rational reasons, for instance, for consciously propagating an assessment of an adversary as more powerful than he really is. The reasons for this might be to help prepare to meet such a threat in the future (what this paper will term ‘prudent overestimation’), or because overestimation will lead to personal or bureaucratic gains in either power, influence or funding (‘self-interested overestimation’). Besides biased and conscious overestimation, there exists a third possibility: ‘erroneous overestimation’. That is, decisionmakers might base their judgments on incorrect information, which leads them to incorrectly gauge the relative balance of capabilities between themselves and their adversary.
The Puzzle of Overestimation

Before proceeding directly to the framework of overestimation, and the analysis of the missile gap, it is necessary to establish the significance of this puzzle, so the first questions we must ask are: does overestimation occur in international politics? Are there cases in which the analytic framework of overestimation can shed light on some previously puzzling phenomena?

The answers to these questions are surely yes. Overestimation of the capabilities of adversaries is a persistent, though under-studied, phenomenon. Besides the examples discussed in more detail in this paper (French estimates of German capability in the early 1930s, US Naval planning prior to World War I and US estimates of Soviet ICBM levels during the ‘missile gap’), one might also include: the British ‘Naval Panics’ in the nineteenth century, US estimates of Soviet strategic weapons levels in the 1970s, British estimates of the effectiveness of German air power in World War I, and most recently, the US estimate of Iraqi capabilities in the run-up to the 2003 war. In this last case, we might debate the source of the United States’ overestimate of Iraqi capabilities (conscious choice, erroneous/misleading information or psychological bias), but that it occurred is beyond argument.

Of course, adversaries may overestimate the intentions of their adversaries as well. In fact, Levy has referred to the exaggerated estimate of an adversary’s hostility as the ‘most common form of misperception’. Jervis too has commented on the persistence of this type of misperception in politics. Part of the reason that leaders

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overestimate the hostility of their rivals is because any potentially combative or aggressive actions are likely to be attributed to the rival’s disposition rather than to situational context. Evidence from the laboratory and from the field has consistently demonstrated that individuals over-attribute behaviors to disposition, neglecting the role of context, and in particular of the influence their own behavior might have had in affecting the behavior of their opponent.\textsuperscript{11}

And yet, we are on much surer ground when we discuss capabilities rather than intentions. While the framework presented in this article could be applied to assessments of intentions, demonstrating that such an assessment was biased is a particularly vexing problem. For instance, how would we ever know for certain whether an assessment of an adversary as ‘very hostile’ was biased? The very notion of over- or under-estimation is inherently based on a comparison to an objective level. Yet, how would we know the ‘objective’ level of hostility? The only way to measure something as amorphous as hostility would be through observable behaviors, such as speeches or if the leader had initiated military (or other similarly aggressive) actions. But such actions may have many other possible causes, and conversely, the absence of overtly aggressive actions does necessarily prove the absence of hostility.

**Overestimation, War and Bankruptcy**

Just how often over-estimation occurs in international politics is a question that still requires more research, but it has certainly occurred often enough for its consequences to be noted by a diverse group of scholars. The next question is whether or not this matters; whether it is worth examining. To this, the answer must surely be yes. Just as overconfidence is a ‘pervasive’ and ‘crucial’\textsuperscript{12} cause of war, so too is overestimation. Overestimation can lead to war in several ways.

Overestimates can (and often do) lead to increases in military spending and deployment in order to correct what is perceived to be an imbalance in relative power and capabilities. This increase in military expenditures (in the form of new types of weapons, more soldiers


deployed, etc.) may be perceived as threatening by the adversary, which would then initiate its own program of military ‘catch-up’ to defend itself against what it perceives to be a threat.

Further, since it is sometimes difficult to distinguish between purely defensive military weapons or deployments and those that may be used for offense, overestimation may lead to a ‘conflict spiral’, a concept documented in numerous articles and books.\textsuperscript{13}

Overestimates of an adversary’s capabilities may also incline leaders toward launching a preventive war if they believe the balance of capabilities is changing too quickly, or if an adversary is acquiring a particularly dangerous capability (such as nuclear weapons).\textsuperscript{14} The Israeli air attack on the Iraqi Osiraq nuclear reactor in 1981 and on the Syrian nuclear reactor in 2007, the US-led invasion of Iraq in 2003, and even the recent calls in some circles in the US to preventively attack Iran in order to deny that country nuclear weapons capability all follow this logic.

War is not the only possible consequence of overestimation. Overestimation of the adversary, including an overly pessimistic view of their intentions can lead to the ‘cry wolf’ syndrome.\textsuperscript{15} As Betts has put it: ‘routinzation corrodes sensitivity’.\textsuperscript{16} Policymakers will simply cease to pay attention to analysts who constantly predict disasters that do not occur. Evidence of this abounds, and we do not need to look further than the missile gap case to find an illustration. Part of the reason that President Dwight D. Eisenhower was skeptical of the missile gap was precisely because of the false alarm raised in 1955 concerning a ‘bomber gap’.\textsuperscript{17} In this case, one strategic ‘false positive’ led the President of the United States to discount the analysis of almost all of his intelligence analysts and advisors.

\textsuperscript{13}See, for example: Levy, ‘Misperception and War’, 87; Jervis, Perception and Misperception, Ch.3.

\textsuperscript{14}Of course, overestimation of an adversary might also lead to appeasement under certain circumstances. The belief that an adversary’s capabilities are so overwhelming might incline leaders toward avoiding war at all costs. However, this outcome is only likely to be caused by biased or erroneous overestimation, not conscious overestimation.

\textsuperscript{15}Or it might lead states to mobilize their own forces in anticipation of what they expect to be a military threat. This both disrupts their own society and can contribute to precipitating a crisis that would not have occurred otherwise. For an example of this in which Israel mobilized its armed forces 19 times in one year, see Malcolm Gladwell, ‘Connecting the Dots: The Paradoxes of Intelligence Reform’, The New Yorker, 10 Mar. 2003, 83.

\textsuperscript{16}Richard K. Betts, ‘Analysis, War and Decision: Why Intelligence Failures are Inevitable’, World Politics 31/1 (1978), 75.

\textsuperscript{17}Peter J. Roman, Eisenhower and the Missile Gap (Ithaca, NY: Cornell UP 1995), 37.
Overestimation: Types and Causes

Before proceeding to the case study of biased overestimation, we must note that not all such assessments are the results of biased cognition and judgments. In fact, there are at least two broad categories of overestimation that are explainable without reference to psychological biases. An individual may consciously overestimate the capabilities of an opponent because of prudence or self-interest or mistakenly overestimate the opponent’s capabilities because the assessment is based on erroneous information.

These ‘red herrings’ should not be mistaken for biased overestimation; they are of a different category entirely. However, a basic understanding of them is useful because (a) they may have the same consequences as biased overestimation, (b) a complete understanding of these two types of overestimation reduces the likelihood of ‘false positives’ in identifying biased overestimation and (c) in some cases it is possible that there might be an interaction between the different types of overestimation, with one type (such as prudent overestimation) exacerbating the effects of another type (biased overestimation).

One important question is how to distinguish empirically between the three types of overestimation outlined above. There is, unfortunately, no ironclad way to ‘prove’ that an individual has exhibited biased overestimation. However, we might be able to rule out all of the plausible alternative explanations. In many cases, for instance, we can determine whether an individual was making an assessment based on incorrect information (‘erroneous overestimation’), or determine if there were any reasonable incentives that an individual might have for consciously inflating estimates (‘self-interested overestimation’). In the case of prudent overestimation, we will see that individuals who consciously exaggerate adversary’s capabilities for reasons of prudence do so unabashedly, and do not hesitate to declare their motivations.

18 A possible candidate for a third type of ‘unbiased overestimation’ is overestimation for political purposes. For example, Jervis argues that in Britain during the interwar period, ‘appeasers’ and ‘anti-appeasers’ both had political reasons to accept the Royal Air Force’s exaggerated estimates of German bombing strength. ‘Anti-appeasers’ touted the estimates as reason to build up Britain’s Air Force, while ‘appeasers’ argued that the costs of war were so high that conciliation should be attempted at any cost. However, I believe that overestimation for political purposes generally falls into the ‘prudent’ overestimation category since the purpose of the overestimation of both the appeasers and anti-appeasers was to steer Britain’s national policy in what each group conceived of as ‘the right direction’. See Robert Jervis, ‘Deterrence and Perception’, International Security 7/3 (1982–3), 15–17.
It is also important to note that just because there might be incentives to mislead, this does not rule out biased overestimation. Only the opposite is true: it would be difficult to convincingly argue for self-interested overestimation without plausible incentives for misleadingly inflating estimates.

**Conscious Overestimation**

Conscious overestimation can be said to have occurred when an individual deliberately adjusts an estimate upward. What they have adjusted it upward from is immaterial, since the concept only requires that they have adjusted their assessment upward from what they believe its true value to be. We can conceptualize conscious overestimation as a ‘type’ of overestimation that has two possible causes, prudence and self-interest.

The Latin aphorism ‘Si vis pacem, para bellum’,\(^{19}\) nicely encapsulates ‘prudent’ overestimation. In this logic, overestimation of the adversary is a conscious decision taken by leaders or bureaucrats who have decided that it is better to be over-prepared than under-prepared. Writing at the very beginning of the Cold War, George Lincoln (of the US Military Academy) wrote:

> The only sound policy is to estimate our own requirements to meet the worst situation likely to occur.

and later in the same article:

> Estimates must sometimes be made on the basis of little or no experience . . . It is reasonable that requirements, estimated by the service or agency concerned, will usually be adequate. But this operation is not comparable to preparing for an athletic contest or even estimating for the launching of a large business enterprise. The price of underestimation may be high. It may be national extinction.\(^{20}\)

Prudent\(^{21}\) overestimation is based on the conscious judgment that preparing for the worst is the most responsible course of action, even if

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\(^{19}\) ‘If you seek peace, prepare for war.’


\(^{21}\) It should be noted that ‘prudent’ overestimation refers only to overestimations that are a result of a conscious decision to overestimate. An assessment that was grounded in biased overestimation might turn out to be prudent, but it is qualitatively different,
doing so exacts a significant cost. Lincoln’s last sentence perfectly captures the logic behind prudent overestimation, which is that the sphere of military planning and assessment is unique from almost every other activity. A person who underestimates in other areas of life might start a business that fails, or fail to finish college, but a nation that underestimates is faced with a much greater threat: the extinction, enslavement or defeat of that state. In this view, the costs of miscalculation for states are so high that leaders may feel that they have to prepare and spend excessively in order to be prepared for even relatively unlikely threats (if the magnitude of the threat is sufficiently high).

The example of the US Navy at the beginning of World War I provides an excellent example of prudent overestimation. At the outbreak of war in 1914, naval officers were, for the most part, left on their own to plan for various scenarios that might unfold. Recall that at the beginning of the war, the US Navy (and the rest of the world) would not have known whether the US would (a) retain its neutrality b) join the war on the Allied side or even (c) be forced to deal with a more powerful Germany that had already defeated the Allied powers. Each of these scenarios, and their many permutations, would have required different types and levels of capabilities. Confronted by uncertainty, political scientist Warner Schilling reports that ‘their responsibility led Naval officers to base their plans on the “worst . . . ”’. In 1918, when they were asked to estimate the Navy’s postwar building needs, the Navy’s planning committee described that it could not assume that it had a ‘due degree of security’ unless it was prepared to fight the German, Austrian and Japanese navies simultaneously.

In fact, there is evidence that the United States has ‘prepared for the worst’ on several other occasions. In his first year as President, Harry S. Truman asserted to the US Congress that ‘the surest guarantee that no nation will dare again to attack us, is to remain strong in the only kind of strength an aggressor understands – military power’. Similar thinking lay at the heart of President George W. Bush’s 2002 National Security Strategy, which argues for building and maintaining sufficient military capabilities not just to deter potential adversaries, but to defeat

since the individual in question (by definition) was not aware that he was systematically adjusting his estimates upwards.

23 Quoted in ibid.
any and all potential security challenges and dissuade future rising powers from even attempting to challenge the US militarily.\textsuperscript{25}

The second cause of conscious overestimation is self-interest. This can be illustrated through the examination of French estimates of German capabilities in the years prior to World War II. During the 1930s, General Maurice Gamelin (advisor to Prime Minister Edouard Daladier) became convinced that France needed to re-arm to be prepared for a confrontation with Germany. As May reports, ‘For Gamelin . . . the principal use of intelligence was to support the case for rearmament.’\textsuperscript{26} And there was much intelligence, or uncertainty, that could be exploited toward those ends.

In March 1937, for example, Gamelin passed along a report to Daladier compiled by the Deuxième Bureau, the French intelligence agency, estimating that the German Army had – in the space of a year – increased in size from 24 to 36 divisions (each division consisted of between 10,000 and 20,000 soldiers). What he knew and did not report, however, was that some of the new divisions were ‘shells’, and were thus not at anywhere near full strength.\textsuperscript{27} In fact, the French estimates of German strength were overestimated in several important types of capabilities. For instance, a joint Anglo-French liaison committee prepared an estimate stating that Germany had 5,800 tanks in April 1940. Lieutenant Colonel Maurice-Henri Gauché, head of the Deuxième Bureau, told Gamelin that the ‘true’ number was 7,000 tanks, but could be as high as 10,000. The actual number – less than half of the joint Anglo-French estimate and as little as 25 percent of the French intelligence agency’s estimate – was 2,400 tanks.

Or consider that the Deuxième Bureau’s estimates of the number of German divisions in early 1940 totaled 96 when they gave their estimate to British intelligence agencies, but 107 when the estimate was prepared for French policymakers.\textsuperscript{28} In his exhaustive study of French and German decisionmaking, May concludes that French estimates of troops did not usually affect strategic planning, but rather were ‘mainly used in debates about budgets’.\textsuperscript{29}


\textsuperscript{27}May, \textit{Strange Victory}, 144.

\textsuperscript{28}Ibid., 352–3.

\textsuperscript{29}Ibid., 354.
A more recent example occurred during the years following World War II, in the United States. During 1955–57, the Air Force capitalized on poor intelligence collection abilities (the U-2 reconnaissance jet was only developed at the end of this period) and ambiguous information to intentionally ‘pad’ their estimates of Soviet bomber production. A later investigation by the Church Committee concluded that the alleged ‘bomber gap’ had arisen from service rivalries over budgetary resources. The Air Force exaggerated their estimates of Soviet long-range bomber production in order to procure a greater share of the defense budget, which had shrunk following the end of the Korean War.

**Erroneous Overestimation**

The second type of overestimation is erroneous overestimation. This occurs when individuals overestimate the capabilities of their adversaries because they received incorrect or misleading information. Note that no psychological bias need be present for this type of overestimation to occur. A fully rational individual might overestimate his adversary if given information that is incorrect. Additionally, there may or may not be other factors, such as self-interest, involved. For instance, an individual may receive information that suggests an opponent has \( x + 1000 \) nuclear weapons, when in fact they only have \( x \) nuclear weapons. The individual is likely to overestimate their capabilities regardless of whether he stands to gain from that assessment or not.

Often, this erroneous information is the result of a ‘misinformation’ (or ‘disinformation’) campaign designed specifically to mislead an adversary. In 1959, for instance, Garthoff claims that US intelligence agencies successfully planted an agent in the Soviet GRU (the intelligence directorate of the Soviet Armed Forces) and used him to feed Soviet leaders false information about US chemical warfare (CW) programs. The goal of the US in this operation was to give Soviet leaders an exaggerated picture of how advanced US CW programs were so that they would divert scarce resources into their own CW program. A similar misinformation program was developed for biological weapons. Soviet leaders, misled by the false information, overestimated US capabilities and redirected funds to the development of chemical

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and biological weapons. Unfortunately, in this case the plan back-fired, and the Soviet chemical and biological weapons programs both made unexpectedly quick technological advances, changing the balance in their favor!

**Biased Overestimation**

The third type of overestimation is biased overestimation. Biased overestimation occurs when individuals’ estimates of the capabilities of their adversary are (without their awareness) systematically adjusted upwards as a result of cognitive bias. It is analogous to the concepts of overconfidence and unrealistic optimism in that it is a systematic bias in decisionmaking. The direction of the overestimation bias, however, runs in the exact opposite direction of overconfidence and unrealistic optimism.

Up until quite recently, social and cognitive psychologists were so focused on ‘positive illusions’ (about one’s self) that we would have little theoretical or empirical basis for discussing overestimation of another person or entity (as opposed to overestimation of oneself). However, recent work in psychology has demonstrated that individuals, under certain conditions, exhibit systematic underconfidence, not overconfidence. Though underconfidence is not the exact same phenomenon as biased overestimation (more on the difference between the two later), it is useful to summarize these findings and discuss their significance for biased overestimation.

**Systematic Underconfidence**

There are currently two competing explanations for systematic underconfidence. While this phenomenon is related to biased overestimation, they are conceptually distinct. Underconfidence, as described below,

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33 Ibid., 53.

34 Literature on these biases is usually focused on either ‘positive illusions’ (which comprises unrealistically positive views of the self, unrealistic optimism and the illusion of control) and ‘overconfidence’, which results from some combination of the three positive illusions, and leads individuals to be systematically overconfident of their prospects for success in a given venture. The literature on overconfidence and positive illusions is voluminous. For an overview, see: Shelley E. Taylor and Jonathon D. Brown, ‘Positive Illusions and Well-Being Revisited: Separating Fact from Fiction’, *Psychological Bulletin* 116/1 (1994), 21–7; Max H. Bazerman, *Judgment in Managerial Decision Making*, 6th ed. (Hoboken, NJ: Wiley 2006), Ch.4; Scott Plous, *The Psychology of Judgment and Decision Making* (New York: McGraw-Hill, 1993), Ch.9.
involves one’s comparison of relative abilities. The ‘bias’ results not from overestimating somebody else’s ability, but from underestimating one’s own ability relative to a peer group. In contrast, biased overestimation refers specifically, and only, to one’s assessment of the capability or intentions of an adversary and does not involve relative comparisons. Nevertheless, it may be instructive to review these recent studies, if only to demonstrate that biases do not always result in overconfidence and positive illusions, despite the heavy focus on those two concepts in the psychological literature.

The first explanation for underconfidence involves social comparison in judgments of comparative ability. When individuals compare themselves with peers, they exhibit an egocentric focus on their own ability and fail to adequately account for the skills of the comparison group. In areas in which an individual’s absolute level of skill is high, this produces the ‘above-average effect’. As an example, an individual attending a Mensa meeting will tend to neglect the fact that the other people in the room are part of the same meeting. However, Kruger has pointed out that in situations in which an individual’s absolute skill level is low (such as juggling), a reliable ‘below-average’ affect is produced: individuals fail to take into account how bad everybody else is likely to be at a given task. As a result, their assessments of their skills relative to their reference group are systematically biased in the direction of underconfidence.

As a second possible explanation, Moore and Small have used ‘differential information theory’ to explain ‘worse than average (WTA)’ effects. People naturally have more and better information about themselves and their abilities than they do about others. In the absence of quality information about others, Moore and Small argue that it is only natural to rely heavily on group bases rates and average outcomes.

In order to demonstrate this, imagine having taken a one-question test in which you know that you answered correctly. In the absence of information about how others answered (you cannot be certain of their answers, after all), a sensible guess would be that roughly 50 percent of

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your peer group answered the question correctly. The end result of this is that you are likely to believe that you are better than others because your estimates of others’ performance will regress toward the ‘ignorance prior’ (a baseline expectation of performance based on a normal distribution). Moore and Small found that these effects were exacerbated when individuals had accurate information about their own performances, but ameliorated when they obtained accurate information about the performances of others.

More recently, Johnson and Tierney have examined underconfidence in international politics. As they point out, the study of underconfidence can yield great benefits across fields. For psychologists, understanding what conditions are necessary for underconfidence to occur will help to elucidate the sources of variation in overconfidence. For political scientists, it can help to clarify important theoretical issues, such as why (and when) states are unlikely to ‘balance’ against a threatening state. Johnson and Tierney conceptualize the bias of underconfidence as the direct opposite of overconfidence, such as when the prospect of war evokes ‘exaggerated fear rather than exaggerated confidence’.

From Underconfidence to Overestimation

While the above research can help to shed light, and provide some empirical basis, for biased overestimation, it cannot fully explain it. This is because the two terms – underconfidence and overestimation – denote subtly different phenomena. Recall that Moore and Cain’s experiments specifically examined individuals’ assessments of their chances of success (relative to others) in a market-entry scenario as well as their assessment of how they would fare in a multiple choice test relative to a peer group. Johnson and Tierney examined a similar phenomenon in another context, specifically Britain and French assessments of their chances of prevailing over Germany in 1938. Underconfidence, as a general phenomenon, refers to one’s self-assessment in comparison to a target group. In the studies mentioned

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40Johnson and Tierney, “‘We Shall be Smashed’: The Munich Crisis, Underconfidence and War’, 3–4.

41Ibid., 7.

42Moore and Cain, ‘Overconfidence and Underconfidence: When and Why People Underestimate (and Overestimate) the Competition’, 198, 204–5.
above, underconfidence refers specifically to the biased downgrading of one’s own capabilities relative to a target (group or individual): in essence, what is being measured is the perception of a relative balance of abilities.43

Biased overestimation refers specifically to something else: the overestimation of a target’s capabilities or intentions, relative to an objectively true level, not relative to one’s own capabilities. In the context of international politics, it refers to the overestimation of an adversary’s capabilities. While social comparison is crucial to the understanding of underconfidence, it is not a significant aspect of biased overestimation as a general phenomenon. To foreshadow the case examined later in the article, the overestimation that occurred was solely a function of US assessments of Soviet capabilities (ICBM stockpiles, in particular); they were not in any way dependent on US capabilities.

This is not to deny that underconfidence and overestimation are related; they are. Overestimation may lead to underconfidence (in fact, this is implicit in Moore’s theory) by impacting an individual’s relative assessment of capabilities. Assuming that leaders have much better information about their own capabilities than that of their adversary (a reasonable assumption in world politics), overestimating an adversary’s capabilities necessarily alters the relative balance of capabilities, a situation that might lead to underconfidence in one’s ability to prevail in a war.44

Empirical Support for Biased Overestimation

In order to isolate the phenomenon of biased overestimation, we would want an experimental design in which we could compare subjects’ estimates of somebody else’s ‘capabilities’ with the true level. Luckily, there exists such an experiment that contains such information.

In 1968, two Swedish researchers ran a laboratory experiment in which 30 pairs of students were given varying quantities of ‘guns’ and ‘butter’. Participants could either use the ‘butter’ to peacefully increase

43Which (in the context of international politics) affects one’s estimates of the chance of prevailing in conflict.

44In fact, this is Johnson and Tierney’s explanation of why British leaders appeased Hitler at Munich: an incorrect understanding of the relative balance of capabilities led British leaders to underestimate their ability to coerce Germany. However, in that case, underconfidence resulted not from biased over-estimation, but from erroneous overestimation (British and French leaders simply had incorrect information about German capabilities). See Johnson and Tierney, “‘We Shall be Smashed’: The Munich Crisis, Underconfidence and War”, 17.
their own welfare, or their ‘guns’ to wage war against other participants. The researchers were particularly interested in how information affected armament levels. In other words, when would people prefer guns to butter? Additionally, every 20th ‘turn’, players were asked to estimate their opponent’s levels of guns and butter.

In one of the iterations of the game, they encountered a puzzle: an overwhelming majority of the players were over-estimating the capabilities of their opponents.\(^{45}\) In fact, as the absolute number of armaments increased, the tendency to overestimate increased as well. All told, there were 46 overestimations compared to only 6 under-estimations (of the rival player).\(^{46}\)

Another interesting finding of this experiment was that only the ‘superior’ player (defined as the player with more guns than their opponent) made overestimations. The reverse (an inferior player overestimating the capabilities of their already superior opponent) never occurred.\(^{47}\) Unfortunately, because the primary focus of this experiment was on explicating the causes of arms races, there has not yet been another experiment (to this author’s knowledge) that has attempted to replicate the finding of biased overestimation.

Of course, all that we observed in Friberg and Jonsson’s experiment was that overestimation occurred; the critical question is what type of overestimation was it: biased, conscious or erroneous? First, we can dismiss erroneous overestimation as an explanation. Each player in the game had ‘partial information’ about the other actors, not incorrect information. After each turn, each player made a decision about how to allocate their new resources, to guns or to butter. Additionally, there was a specific probability (varied under different experimental conditions) that each player would be told their rival’s resource allocation decision (whether they had chosen ‘guns’ or ‘butter’ in that turn).\(^ {48}\)

The next question is whether overestimation was a conscious decision on the parts of the players. We can safely assume that this is extremely unlikely to be the case. There was just no reasonable incentive that one could imagine for players to inflate their estimates of their rivals’ armament levels. Their estimates of arms levels after every 20th turn had zero effect on either their cash reward or their chances of winning the game. Thus, neither prudence nor self-interest is a


\(^{46}\) Ibid., Table 4.

\(^{47}\) Ibid., 243.

\(^{48}\) Ibid., 233.
reasonable explanation for the significant levels of overestimation in the game.

If the players’ overestimations were not the result of a conscious strategy, and not the result of incorrect information, then the only plausible explanation is that some psychological process was at work (Friberg and Jonsson posited that it was increasing levels of tension) that caused the estimates of the players to be biased systematically in the direction of overestimation.

Biased Overestimation and the ‘Missile Gap’

In 1957, the Soviet Union launched the world’s first intercontinental ballistic missile (ICBM), and then shortly thereafter, Sputnik I, the world’s first satellite. These very public shows of technological expertise stunned leaders, military experts and the public, all of whom began to speak about a ‘missile gap’. A National Intelligence Estimate produced in 1958 predicted that the Soviet Union would possess as many as 800 ICBMs by 1961 (compared to just 70 for the US). Yet, by 1961, the Central Intelligence Agency (CIA) informed President Kennedy that the number of missiles actually on launchers was likely as few as 10 to 25, with no increase likely in the future. In fact, only 4 SS-6 (first generation Soviet ICBMs) were ever deployed.

Estimating Soviet Capabilities, 1957–60

The Soviet launches of the first ICBM and of Sputnik had a dramatic effect on the United States. There was public outcry – including talk of

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49 It should be noted that any given estimate (that is free of bias) has an equal chance of being either a slight over- or under-estimate; after all, intelligence collection is not perfect. Therefore, if we were to examine only one estimate or one assessment it would be difficult to confidently diagnose a case as ‘biased’ assessment, even if it did not seem to be a case of either conscious or erroneous overestimation. However, though this article has examined only one case – the missile gap – that one case contains many observations. Each estimate, of which there are eight, is a data point. Additionally, in many of the estimates (as seen in Table 1) different services each appended their own separate estimate, all of which are additional observations. The overestimation that can be seen in each and every observation allows us to state with a high degree of confidence that this was not the product of random ‘noise’ in the estimation process.

‘another Pearl Harbor’ – and in a poll conducted shortly afterwards, 68 percent of those surveyed believed that the USSR was ‘moving ahead of the United States in the development of missiles’.\(^{51}\) This sense of inferiority – and vulnerability – was reinforced when the report of the proceedings of the Security Resources Panel (popularly known as the Gaither Committee) was leaked and it spoke of ‘an increasing threat which may become critical in 1959 or 1960’ and predicted a ‘wide disparity in US and Soviet weapons programs’.\(^{52}\) This was a constant theme throughout the controversy: a perception of inferiority in advanced weapons technology which would lead to a ‘window of vulnerability’ (a period in which the Soviet Union would have a significant strategic advantage over the United States).

In December 1957 (two months after the launch of *Sputnik I*), a Special National Intelligence Estimate (SNIE 11-10-57) was distributed within the Eisenhower administration which estimated that the Soviet Union would have 10 ICBMs operational by mid-1958 to mid-1959, with a prediction that it could have 100 ICBMS one year after that and 500 two years after the first batch was produced. Furthermore, the estimate stated that ‘ICBM development has an extremely high priority in the USSR, if indeed is not presently on a “crash” basis.’\(^{53}\) Largely in response to the launch of Sputnik, President Eisenhower ordered a revised NIE into production. This new NIE forecast the Soviet missile stockpile at 100 in 1959, 500 in 1960 and 1,000 by 1961.\(^{54}\)

By July 1958, the public controversy over the ‘missile gap’ was growing. It was then that a newspaper article ‘based on US intelligence estimates’ and attributed to reporter Joseph Alsop was published, predicting the relative ICBM strength of the Soviet Union and US as 100 to zero in 1959, 500 to 40 in 1960, and 1,000 to 70 in 1961.\(^{55}\)

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In August 1958, a new NIE was released (SNIE 11-5-58) which built upon the previous estimate’s assumptions. This new NIE stated:

We estimate that the USSR has the technical and industrial capability to produce ICBMs...at a rate sufficient to have an operational capability with 100 ICBMs about one year after its first operational capability date (i.e., some time in 1960), and with 500 ICBMs two or at most three years after first operational capability date (i.e. some time in 1961, or at the latest in 1962).\(^{56}\)

This paragraph, however, included a footnote which stated that the above numbers were ‘selected arbitrarily’ in order to provide some measure of the Soviet capacity to produce and deploy ICBMs.\(^{57}\) Note that this NIE, like the previous one, emphasizes the capacity of the Soviet Union to produce missiles. In the absence of good intelligence concerning intentions, analysts had based their estimates primarily on potential production capabilities and the limited behaviors they were able to observe. The NIE estimates are based on what the Soviet Union could do – what was technically possible – not what was likely or probable. In other words, its focus was on a worst-case scenario for the United States, one in which the Soviet Union would use all available resources to construct as many ICBMs as possible.

In January 1960, a new Secretary of Defense, Thomas S. Gates, testified before a congressional committee and revealed that the NIE would be henceforth based on a ‘new method’ of evaluating capabilities. Previously, he explained, the intelligence figures dealt with ‘theoretical Soviet capability’ – what they were capable of producing. This method had produced the divergent estimates that had been floating around for the previous two years. Going forward, however, the intelligence estimates would be based on what the Soviet Union would probably do.\(^{58}\)

One would assume that this change in assessment method would make the estimates less prone toward worst-case estimates and biased overestimation. After all, focusing on what the adversary could produce and what the US actually had produced was bound to exacerbate any imbalances in relative capabilities. By instead focusing on what the Soviet Union was likely to do, the tendency toward biased overestimation could in theory have been mitigated.

However, though the new estimate (NIE 11-8-59) concluded that the Soviet Union’s ICBM program was likely not a ‘crash program’, it

\(^{57}\) Ibid., 4.
stated that the program was still considered to be a high priority by Soviet leadership. Thus, the shift from an assumption of a ‘crash program’ is balanced by the still present assumption that the ICBM program was considered a high priority by Soviet leadership. In theory, there might have been subtle differences between these two assumptions, but in practice they produced similar results: biased overestimation. This NIE estimated somewhere between 140 and 200 ICBMs ‘on launchers’ and 175–270 in their stockpiles by mid-1961.

Interestingly, this NIE highlights the inter-agency debate over future Soviet capabilities (see Table 1). For instance, while there was some general disagreement over the ‘140–200’ estimate for Soviet capabilities in 1961 – the Army and Navy put more faith in the lower number while the Department of State, US Air Force (USAF) and Joint Chiefs of Staff tended toward the higher number – the disagreement increased as the estimate projected into the future.\(^5^9\)

In August 1960, a new NIE (NIE 11-8-60) estimate was released which reflected increased uncertainty regarding Soviet ICBM stockpiles. The previous estimate (NIE 11-8-59) had predicted 35 ICBMS on launchers by mid-1960. If that had been correct, there should have been some evidence of these launching sites.\(^6^0\) Yet, the new NIE conceded that no evidence had been found of ICBM-related troop training activities or of any operational launching site.\(^6^1\) Yet because of the uncertainty (in part generated by limited intelligence-gathering capabilities), this potentially dissonant information was for the most part disregarded. After all, absence of evidence is not evidence of absence: there was no way to definitively show that ICBM launching sites did not exist. Since the potentially disconfirming evidence was merely suggestive and not conclusive, it was disregarded and the overestimation continued.

This NIE also posited three possible Soviet programs, ‘A’, ‘B’ and ‘C’. Again, this NIE listed each military and bureaucratic branch and their best estimate of future Soviet capabilities, and again the USAF was by far the highest estimate (nearly twice as high as the next highest estimate and more than three times as high as the lowest estimate).\(^6^2\)

Even though the focus of these last two intelligence estimates was taken from estimates of what the Soviet Union could do, and put on the ostensibly more reliable ‘what they would probably do’, this did not produce a more accurate assessment than previous methods. Part of the reason for this is that what the Soviet Union would ‘probably’ do was

\(^{59}\) NIE 11-8-59: Soviet Capabilities for Strategic Attack Through Mid-1964’, 3.
\(^{60}\) Ibid., 4.
\(^{62}\) Ibid., 3.
## Table 1. National Intelligence Estimates of Soviet ICBM Forces during the ‘Missile Gap’

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<td><strong>NIE 11-8-61</strong></td>
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#### Notes:

1. ‘10’ denotes first operational capacity.
2. Estimate covers both years.
3. These estimates are of Soviet stockpiles. Numbers in parentheses are estimates of missiles deployed on launchers.
4. Starting with NIE 11-8-60, estimates were of ICBM launchers not the missiles themselves. The number of launchers was considered to be a better measure of the overall ICBM program, since it included the missiles as well as the guidance facilities, maintenance, etc. necessary to use them.
5. Director of Central Intelligence believed ‘A’ to be illustrative of Soviet missile deployment. USAF believed ‘B’ to most closely approximate Soviet program. Department of State, Defense Department and Joint Chiefs believed that the program is likely to be somewhere in between ‘A’ and ‘B’. The Assistant Chief of Staff for Intelligence (Army) and Assistant Chief of Staff of Naval Operations for Intelligence (Navy) believed ‘C’ to most closely approximate the Soviet program.
based upon an assessment of their strategic goals, just as previous estimates had been. For example, since it was a core assumption of intelligence analysts that the Soviet Union desired the means to launch attack the United States (either in retaliation, a first-strike or just for deterrent purposes; analysts could not agree), it then followed that since ICBMs would accomplish that goal, their construction would be a high priority for the Soviet military.\(^63\)

**Intelligence Collection Problems**

Part of the disagreement in these estimates stemmed from differing interpretations of ambiguous data. One major source of information on Soviet capabilities came from observing tests using radar or U-2 spy planes. Starting in September 1957, the number of ICBM tests sharply dropped, and after May 1958, US intelligence services had not been able to observe *any* tests. This further contributed to an uncertainty regarding the capabilities of the Soviet Union and provided the basis for a significant disagreement: the CIA theorized that the absence of tests meant that the Soviets had encountered technical problems while the Air Force argued that the absence of observable tests indicated that the Soviets had finished the testing phase and had begun deployment.\(^64\) In this internal disagreement we can see that in a situation in which both the CIA and the Air Force possessed the exact same information, each interpreted ambiguous new data (that there had been no recent observable tests) differently, with the Air Force analysts being more prone to worst-case thinking.

However, it is worthwhile to note that not every representative of the USAF was prone to interpreting information in the same way, as conventional accounts of the missile gap often argue. In a January 1958 National Security Council meeting, President Eisenhower questioned his advisors about this development. General Nathan F. Twining, Chairman of the Joint Chiefs of Staff (and a General in the USAF) offered no opinion of his own at that meeting, but did report to Eisenhower the opinion of Supreme Allied Commander Europe General Lauris N. Norstad, who had previously held the positions of combat pilot, Deputy Chief of Staff for Operations, Vice-Chief of Staff, and Chief of Staff, all in the USAF. Norstad sided with the CIA in arguing that the lack of tests indicated that the Soviets had encountered a technical problem.\(^65\)

\(^{63}\)Ibid., 2.


\(^{65}\)‘Memorandum of Discussion at the 351st Meeting of the National Security Council’, in Edward C. Keefer and David W. Mabon (eds.), *Foreign Relations of the United
But ambiguous intelligence was not the only problem that faced US analysts. There were also significant logistical problems in gathering intelligence. Much of the intelligence on Soviet missile capabilities was gained from photo reconnaissance conducted from U-2 spy planes. However, the U-2s could not ‘see’ missiles, only launchers, which would typically be constructed about 18 months prior to missile deployment. Herein lay a significant problem: if the US could only estimate Soviet missile deployment by counting missile launchers, and it took 18 months to construct these sites, then the US had no empirically based method of estimating Soviet capabilities farther into the future than 18 months.

In the absence of reliable data to estimate that far into the future – and because it was necessary to do so all the same – estimates for two years or more into the future relied to a large extent on gauging the intent of the Soviet Union; namely, what were its priority defense programs? Were these programs meant for offensive strikes or purely for deterrence (these two purposes would necessitate different building programs)? How much of their resources were being devoted to building and deploying their first-generation ICBMs?

Furthermore, U-2 flights over the Soviet Union were somewhat risky by the late 1950s. The older SA-1 surface-to-air missiles that the Soviet Union had previously employed had been replaced by a new model, the SA-2. The SA-1 had proved to be wildly inaccurate when fired at high altitudes (the U-2 generally flew at 70,000+ feet), but there was some uncertainty regarding the SA-2’s maximum range. As a result, by 1960 U-2 flights had to be personally approved by Eisenhower. And, in fact, only 24 flights flew deep into Soviet territory between 1956 and 1960. And the entire U-2 surveillance program came to an abrupt halt on 1 May 1960, when a U-2 plane was shot down over Sverdlovsk and its pilot, Francis Gary Powers, was captured. This was a severe blow to US intelligence gathering capabilities: former Director of Central Intelligence Richard Helms later claimed that 90 percent of US ‘hard data’ on Soviet forces was gleaned from U-2 photography.
The loss of U-2 flights as a source of intelligence posed a serious problem for the United States. Satellite reconnaissance was in the process of being developed, but would not produce usable data for a significant period of time. In January and December 1961, two SAMOS (Satellite and Missile Observations System) modules were successfully launched by the USAF. A parallel program run by the CIA, known as the ‘Discoverer Biosatellite Program’, also provided some images from a satellite launched in August 1960. In fact, the name ‘Discoverer’ was part of the program’s ‘cover’ as a scientific mission; its real name was ‘Corona’. However, the pictures were generally ‘dark and of very poor quality’, and as such tended to only confirm the suspicions of the individual analysts, rather than providing new or disconfirming information. Furthermore, while satellite photos eventually gave US intelligence analysts much better raw data to analyze, even they would not have been able to solve the problem of how to estimate Soviet production more than 18 months into the future.

One last problem is that intelligence estimates tended to focus on how many ICBMs the Soviets could produce ‘if it mobilized all available resources’. These estimates were compared to US missile production – what the United States was actually producing. It comes as no surprise that these asymmetric comparisons exaggerated or produced a tendency toward negative illusions on the part of US decisionmakers.

The End of the Missile Gap

In February 1961, as the Kennedy administration began to settle into the White House, it was forced to deny that there existed a report that found that there was no missile gap. In fact, though there was no official report, the story was not inaccurate. President Kennedy had given his new Secretary of Defense, Robert S. McNamara, the assignment of looking into the issue of the ‘missile gap’, on which he had so heavily campaigned. After several days meeting with various intelligence officials from different branches of the military, McNamara concluded that the ‘gap’ did not exist. Soon thereafter, he held an informal press conference in which he flatly denied the existence of a

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71 Ibid., 109.
gap. However, though McNamara was correct in the end, it is not clear that his statement was based on conclusive intelligence. Rather it was similar to President Eisenhower’s staunch belief that the missile gap did not exist. Both beliefs were eventually proven to be correct, but were unprovable at the time and based more on intuition and judgment than evidence. However, the evidence was soon made available by satellite imagery, and factored into the next NIE, 11-8/1-61.

It was this NIE, released in September 1961, that finally put the ‘missile gap’ myth to rest. This NIE, based on ‘new information’, estimated Soviet ICBM strength at between 10–25 missiles on launchers, and predicted that this force level would not increase markedly during the months ahead. It further attributed this low level of ICBM deployment to the probable Soviet decision to wait for a second-generation ICBM to be developed (the first-generation ICBMs were notoriously cumbersome).

Alternative Explanations

Declassified intelligence reports and historical records outlined in the case above have conclusively demonstrated that the United States greatly overestimated Soviet ICBM levels. The questions relevant to this article are: why? What caused this overestimation? As detailed in the second section, alternative explanations might fall into two possible categories, conscious or erroneous overestimation. If neither explanation fits the case, then we can plausibly conclude that this is a case of biased overestimation.

Conscious Overestimation

Some revisionist histories have hinted that the missile gap was a purely political phenomenon, or in the framework of this article, conscious overestimation. In a review essay, Bernard Norling wrote that ‘When

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76By one count, President Eisenhower publicly denied the existence of the gap more than 50 times. He denied its existence even in his farewell State of the Union address, saying: ‘The “bomber gap” of several years ago was always a fiction, and the “missile gap” shows every sign of being the same.’ ‘Text of Eisenhower’s Final State of the Union Listing Gains in 8 Years’, *New York Times*, 13 Jan. 1961, 14. For more on Eisenhower’s beliefs concerning the missile gap, see Roman, *Eisenhower and the Missile Gap*, 37.
the Democrats needed a campaign issue in 1960, the “missile gap” was invented. A related argument is that Eisenhower knew the missile gap did not exist, but for some reason refused to back up his protestations with the necessary intelligence to convince skeptics. Giglio and Rabe are illustrative of this school of thought:

As a candidate, Kennedy had alleged...that Eisenhower had permitted a ‘missile gap’ to develop. With the photographic evidence obtained by the U-2 spy planes, Eisenhower knew the facts...The United States...exercised an enormous strategic advantage over the Soviets.

Even Willard C. Matthias, who served in the CIA’s Office of National Estimates for over 20 years (including the period of the missile gap) states that the gap was ‘a journalistic invention based upon false information leaked by certain sources in the Pentagon in order to gain increased appropriations for military hardware’.

Yet, all available evidence contradicts this hypothesis. It is true that the missile gap never really existed, but it is just as true that numerous intelligence reports concluded that it did exist. The available intelligence was ambiguous at best, contradictory at worst, and the stakes of the issue were very high. In this atmosphere, numerous intelligence agencies, Congressmen and even President Kennedy came to believe in the ‘missile gap’.

Two points in particular have generally been the cause of conspiracy theories related to the missile gap. The first is that the Air Force consistently overestimated Soviet deployment of ICBM missiles. This is fodder for conspiracy because it is the Air Force that stood to gain the most from increases in US deployment of more ICBMs to match the Soviet capability. As a result, some (including Matthias) have argued that this case illustrates self-interested overestimation on the part of the

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79 In fact, the missile gap as a ‘political fiction’ that Eisenhower knew to be untrue seems to have become conventional wisdom. Illustrating this is a recent biography of Kennedy that simply states this thesis without citation or substantiation. See Robert Dallek, An Unfinished Life: John F. Kennedy, 1917–1963 (Boston: Little, Brown 2003), 289.


Air Force, which was vying for more funds and a faster ICBM buildup. Yet, as was evident in the case study, virtually every agency involved (including the Department of State, the CIA and the Army, none of whom stood to gain anything from a deliberate exaggeration of the Soviet ICBM force) also overestimated Soviet capabilities by a large margin.

It is conceivable that the Air Force deliberately inflated its estimates, but the fact that all other agencies overestimated as well suggests that bias was more pervasive than one agency’s possible self-interest. Even if we discount entirely the USAF estimates from Table 1, the CIA and other military services still overestimated Soviet ICBM levels by many hundreds of missiles. The conventional wisdom has laid the blame for the missile gap at the feet of the USAF. While we cannot rule out self-interest as a possible motivation for their estimates, we can certainly do so for the other services.

The other critique is exemplified by Norling’s comment above: that the missile gap was ‘invented’ for the 1960 Democratic campaign for the Presidency. However, though Kennedy did exploit the issue during his campaign, that fact is not at all incompatible with the contention that he believed that the missile gap actually existed. Conclusive evidence that the gap did not exist was not available until 1961, well after the campaign for the presidency had ended. As for the other aspect of this conspiracy theory – that it was invented in 1960 – this could not be farther from the truth. We have very good evidence (in the form of recently declassified National Intelligence Estimates) that dates the overestimation of Soviet capabilities to early in 1957, soon after the Soviet Union surprised the US with its first ICBM test launching.

Erroneous Overestimation

Recall that erroneous overestimation occurs when actors overestimate the capabilities of their adversaries because they have based their judgments on incorrect information. For the most part, however, this does not describe the events in the missile gap case. Those officials in the military and intelligence bureaucracy did not have (that we know of) any information that was wrong, or incorrect. What they did have was ambiguous information. They had bits and pieces of information

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that they were required to fit together into a comprehensive assessment of Soviet ICBM capabilities.

The only individual in this case whose behavior might conceivably be explained by erroneous overestimation is president candidate John F. Kennedy. As is well documented, he fervently believed in the existence of the missile gap.\(^{84}\) However, his judgment was based on information that was made available to him from other sources, such as the Gaither Report, or through Joseph Alsop, the reporter. Thus, his belief in the missile gap was based solely on information given to him by others. And before he came into office, there was no information that disproved the existence of the gap, or contradicted that information except for Eisenhower’s frequent public denials, which Kennedy probably misattributed to partisan politics. An additional possible source of information might have been the classified intelligence briefings Kennedy would have received during the presidential campaign. However, as mentioned, there would not yet have been definitive evidence to disprove the existence of the gap, and he would thus have been likely to have interpreted the ambiguous intelligence information in a manner consistent with his previously held beliefs.\(^{85}\)

In a sense, this illustrates the tremendous influence wielded by those in the intelligence community and demonstrates exactly why factors that affect their judgment require close study. Even though the cause of Kennedy’s overestimation of Soviet capabilities was incorrect information, and not psychological bias, the end result was the same. After all, the overestimation began with the intelligence analysts responsible for producing the NIEs (and as a result of biased overestimation), not with the President, who was merely the recipient of biased and misleading estimates of Soviet capabilities. Furthermore, this case illustrates the impact that judgments made by intelligence analysts in interpreting ambiguous information can have on national policy; though there was never ‘hard evidence’ of a missile gap, the issue came to dominate the national security agenda, and may well have influenced the course of a presidential campaign.\(^{86}\)

We must also rule out that ‘erroneous overestimation’ was responsible for the overestimations of the CIA, Navy and the Army. One might argue, for instance, that the USAF – which stood to gain

\(^{84}\) Preble, ‘Who Ever Believed in the Missile Gap?’, 802.


from a high estimate of Soviet ICBMs – might have given the other individuals involved in the estimating process deliberately erroneous or misleading information. However, the primary responsibility for the U-2 flights (which provided virtually all of the intelligence on ICBM sites at the time) rested with the CIA. And though the CIA might have gotten to see the raw intelligence first, all agencies had equal access to the reconnaissance photos and were able to draw their own conclusions from it.\textsuperscript{87}

**Biased Overestimation**

If the overestimation of Soviet ICBM capabilities during the ‘missile gap’ period was neither conscious, nor the result of incorrect information, then it seems clear that the only possible explanation for it is as the product of bias.

Sherman Kent, author of the infamous National Intelligence Estimate of September 1962 that predicted that the Soviets would not place missiles in Cuba, described the process as follows: ‘By definition, estimating is an excursion out beyond established fact into the unknown – a venture in which the estimator gets such aid and comfort as he can from analogy, extrapolation, logic and judgment.’\textsuperscript{88}

Though Kent is describing the process of producing National Intelligence Estimates, his description applies equally as well to producing estimates in any circumstance. Biased overestimation is inherently the product of cognitive processes that take place during the analysis and interpretation of information that affect which analogies we choose, or how we come to judgments. It would be much more difficult for this to occur if perfect information was available.\textsuperscript{89}

In fact, the situation described in the case study earlier is exactly the type of situation (in which there is only ambiguous or partial, but not incorrect, information) when we would expect a cognitive bias to exert its most pronounced effects. Numerous experiments have confirmed that it is precisely when individuals are confronted with ambiguous or contradictory information that psychological biases are most likely to occur.\textsuperscript{90} Unfortunately, these types of situations (ambiguous,
contradictory or partial information concerning an adversary's capabilities) are quite common in international politics. This bodes ill for the accuracy of intelligence estimates, and suggests that further study should be undertaken on exactly what other conditions might make biased overestimation more or less likely to occur.

Conclusion

The purpose of this article has been to clearly explicate a previously unexamined phenomenon in international politics: biased overestimation. The assessment of an adversary's capabilities has always been an important research topic, but scholars have for the most part focused on overestimation resulting from incorrect information or the conscious manipulation of intelligence for self-interested purposes.

However, as demonstrated in the 'missile gap' case study, overestimation can occur when (a) there is no incentive for people to overestimate (b) the individuals making the assessment are not consciously or prudently overestimating and (c) their assessments are based on correct (if ambiguous) information. On this basis, this paper has argued for the concept of 'biased overestimation', in which cognitive bias results in the systematic overestimation of a target's capabilities.

However, while this article has demonstrated the plausibility of biased overestimation, more research is certainly required. Though we can have some confidence that the bias exists, we as yet understand very little about when and why it occurs. What conditions (e.g. fear, anxiety, group pressures, etc.) make the phenomenon more or less likely? Why does it occur? What is the relationship (and there is almost certainly a relationship) between overestimation and underconfidence?

One possible avenue of research would be to recreate the 1968 experiment mentioned in the introduction and specifically manipulate the variables in question to determine whether they have an impact on individual assessments of adversary's capabilities. Another avenue would be to utilize a sophisticated comparative case-study method to examine cases in which the dependent variable (whether overestimation occurred) is varied along with the independent variables.

Assessing the capabilities of adversaries is a critical aspect of international relations, both its theory and practice. What capabilities adversaries are believed to possess can mean the difference between war and peace. It is therefore vital that we focus our collective efforts on understanding why and when these assessments are likely to be

incorrect. Hopefully, the framework presented in this article has started us down that path.

Acknowledgements

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