Iran's Path Dependent Military Doctrine

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Abstract

The key element of Iran's military doctrine is its emphasis on ballistic missiles. This results from a path dependency created by historical contingencies and critical events, including the Iranian revolution, the Iran–Iraq War, and Chinese support. Iran's continued focus on missiles is a less-optimal approach to its own security needs or those of its regional allies. At the same time, significant institutional obstacles caused by path dependency challenge Iran's ability to adjust its military doctrine. Iran's missile path dependency also creates wider implications for Middle East security while offering opportunities for US cost-imposing strategies against Iran.

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Iran has the largest missile force in the Middle East, and this force is growing in size and sophistication. In May 2014 Iran's supreme leader, Ayatollah Ali Khamenei, stated that any expectation Iran would limit ballistic missile development was "stupid and idiotic," and that the "main duty of all military officials" was the mass production of missiles.[1] Khamenei's statement and Iran's multi-decade effort to build its missile industry and arsenal demonstrate the importance of ballistic missiles in Iran's military doctrine. The country's military doctrine defies simple categorization into offensive, defensive, or deterrent models.[2] It is designed to deter adversaries and retaliate if deterrence fails. While Iran also uses insurgency and terrorism to build influence, destabilize its enemies, and exploit seams in the regional security architecture, its missiles are—by design—Iran's most advanced military force. They are a key aspect of Iran's doctrine, providing significant deterrent value and a retaliatory threat, while indirectly supporting Iran's unconventional forces. The emphasis on ballistic missiles was based on assumptions regarding

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the nature of the threats Tehran faced and ultimately was incorporated into military doctrine.

The principal source of doctrine is experience and, as such, relies on an accurate interpretation of history.[3] Historical examples demonstrate that states often do not adapt their military doctrines to new circumstances, in part because of institutional inertia, which limits future options and increases the risks of military defeat. Path dependency theory, a concept within historical institutionalism, explains this process, providing an analytical tool for evaluating the appropriateness of a state's military doctrine and strategy and its ability to adapt to emerging threats and opportunities. In the case of Iran, continued emphasis on expanding its ballistic missile arsenal is the result of a path dependency that incentivizes continued missile development but impedes changes to military doctrine. This article identifies the historical events that influenced Iran's path dependency and military doctrine—the contingencies and critical junctures that perpetuated its choices—and considers the implications of path dependency on regional security in the Middle East. Iran's path dependency offers the United States and its partners an opportunity to design cost-imposing strategies that constrain Iran. Recent developments, including the Joint Comprehensive Plan of Action (JCPOA) and the threat from the Islamic State of Iraq and the Levant (ISIL), have superseded the context under which Iran originally formulated its current military doctrine. These developments provide a rationale, though not an assurance, that Iran will adjust its military doctrine to deemphasize the threat from the United States and instead create a more-balanced military appropriate to defend itself and its allies from regional competitors and terrorist groups.

Path Dependency and Iranian Military Doctrine

Path dependency theory was originally employed to explain how inefficient standards or technologies become dominant, whereas other theories predicted that market efficiency would prevail.[4] While scholars continue to refine the theory, it is increasingly applied to analyze a wide variety of social, technological, and economic processes and, more recently, international relations and politics, including those concerning Iran.[5] Applied to politics, Margaret Levi describes path dependency as, "once a country or region has started down a track, the costs of reversal

are very high. There will be other choice points, but institutional arrangements obstruct an easy reversal of the initial choice."[6]

Other researchers offer two definitions of path dependency. The first definition simply states that "history matters"[7] when considering the outcome of a process and that "past conditions exhibit a persistent influence on a dynamic process."[8] The more demanding definition, applied by scholars and used in this article, identifies contingent events—sometimes viewed as inconsequential at the time—as ultimately influencing the process through institutional patterns or event chains.[9] The contingent events may be relatively small and seem insignificant at the time but, ultimately, can have large and enduring consequences, challenging political science theories that attribute "large outcomes to large causes."[10] A path-dependent process limits options, because, once a path has been set, changes are difficult, in part because the cost of changing paths rises over time.[11] Path-dependency researchers also identify the importance of critical junctures in the formation of path dependency, occurring after contingent events, creating "enduring institutions," and reducing the range of possible outcomes.[12]

Academics have articulated several ways path dependent processes occur. For example, political scientist Scott Page identifies four possible causes for path dependence: increasing returns, self-reinforcement, positive feedbacks, and lock-in.[13] Most germane to this study, researchers argue that with every step in a direction, positive feedback and self-reinforcement makes it difficult to reverse paths.[14] The outcome of the process is then reproduced, even though the original circumstances no longer exist. In the case of Iran's military doctrine, the predicating circumstance for Iran to develop a missile force was to retaliate proportionately to missile attacks from the Saddam Hussein regime in Iraq, a cause that no longer exists. However, Iran has found other rationalizations. Security expert Shahram Chubin alludes to this in his explanation that Iran's justification for missiles has expanded to include deterrence and retaliation against Israel and, as necessary, to defend fellow Muslims.[15]

Path dependency offers additional insights when applied in concert with existing international relations theories that have provided a useful framework for evaluating Iran's foreign policy and military strategy. Of interest to this article, the various trends of realism accurately capture Iran's desire for self-help and, at important times, the regime's penchant for placing its national interest above its own moral concerns—best

exemplified by Ayatollah Ruhollah Khomeini's ruling that the tenants of Islam could be suspended in the interest of the state.[16] However, realist academics acknowledge that states' judgments are prone to miscalculation and biases, at times in favor of "existing doctrines and policies."[17] Path dependency can be used to describe how this may occur despite what may be expected under standard, rational choice models in international relations.[18]

Path dependency also provides a useful tool to analyze military doctrine because of its focus on institutions: the formal and informal rules that structure decision making and compel or resist change. Institutions play an important role in the formation of military doctrine, because a nation's identity and experience shape both institutions and doctrine.[19] According to political scientist Paul Pierson national defense policy requires institutions to form, because such policy is a public good and a focus of politics.[20] Yet paradoxically, while necessary to create doctrine, researchers have also found institutions are subject to positive feedback and induce self-reinforcement, making them prone to path dependence.[21]

Military doctrine is a critical component of grand strategy,[22] designed to help states organize and plan for future conflict based on its experiences.[23] Analyzing military doctrine presents several challenges, including a lack of a universal definition. Few states, including Iran, formally publish their military doctrine, and even if openly declared, the most critical aspects may be ambiguous or obscured or may not "approximate comprehensive statements on doctrine."[24] Properly evaluated, military doctrine can provide insights into a state's thinking about the use of military power to accomplish national goals and offer a lens to evaluate that state's "view of reality" through its unique cultural grammar.[25] Doctrine exists at multiple levels of conflict—from providing guidance on tactical employment of weapons to strategic-level doctrine.[26] This article focuses on the strategic level of doctrine, described as the "expression of thought about the nature of the strategic questions confronting militaries," and the "most visible expression of a military belief system."[27]

Some aspects of the strategic level of doctrine may be analogous with the US understanding and use of the term *strategy*, creating the possibility of confusion. Iranian officials consistently use the term *doctrine* to describe military principles and orientation, which informs that term's use within this article. Iranian officers may be more inclined toward applying the term *doctrine* because of their familiarity with its use in religious studies. Other states outside the West base their use of the strategic level of

doctrine on the military's role and relationship within the government, which also likely informs Iran's definition.[28] Adding to the challenge of designing an appropriate and efficient military doctrine, a nation's doctrine may appear appropriate in a stable security environment, increasing a state's confidence in its doctrine and masking the need to continuously evaluate it. Military doctrine should mature and adapt to the strategic environment. Instead, because it draws heavily from history and experiences, doctrine often stagnates, creating by its inertia a potential threat to the survival of the state.[29] As Maj Gen J. F. C. Fuller, British Army, wrote, "Once a doctrine and its articles become dogma, woe to the army which lies enthralled under its spell."[30]

Thus, a principal task of military doctrine is to correctly identify the threats to the state and the appropriate military tools to address those threats. Like other aspects of doctrine, the willingness or ability to identify the enemy can become resistant to change, reflecting animosities and biases built up and self-reinforced over time. This can in turn also prejudice a state's investments in military tools. Doctrine may also "stress one type of force or weaponry over another for geographical, technological, economic, or political reasons."[31] However, if a state's military investments do not meet its security needs or are not adapted as the strategic environment shifts, the military doctrine may increase a nation's vulnerability to attack and defeat.[32] Political scientist Deborah Avant notes that oftentimes a state's security goals require a military to be prepared for a number of contingencies and security threats, and if the threats are of a similar nature, a state merely must ensure it has the appropriate means to meet the threat.[33] However, presaging Iran's emerging security dilemma, if there are multiple threats and the nature of the threats fundamentally differ from each other, its military doctrine must correctly identify the distinctions and train, equip, and field the force needed to address each threat.

These criticisms suggest that a nation's ability to successfully defend itself or prosecute a war is dependent upon its ability to design, implement, and adapt its doctrine as security needs change. During periods of instability or oscillations in the security environment, leaders must arbitrate among competing instincts of consistency and adaptation of its military doctrine. To do so in a timely manner, leaders require foresight to discern whether change is needed, self-awareness of rigidity within their own military thinking, and political will and capital to enforce difficult

decisions upon what may be a hostile military bureaucracy. Even more difficult is the task of analyzing a nation's military doctrine as an outsider to the governing system, especially in a system like Iran, which is influenced so deeply by dissimulation.[34]

Understanding Iran's Military Doctrine

The preamble to Iran's constitution identifies the religious nature of its military's mission, stating that the military will fulfill, "the ideological mission of jihad in God's way."[35] The constitution formalizes Islam as the basis for doctrine, stating, "In the formation and equipping of the country's defence forces, due attention must be paid to faith and ideology as the basic criteria." The constitution also quotes the Qur'an, in Surat al-Anfal, "Prepare against them whatever force you are able to muster, and horses ready for battle, striking fear into Gods [*sic*] enemy and your enemy, and others beyond them unknown to you but known to God."[36] While inferring a theological basis for a defensive or deterrent military doctrine, the verse may also provide the regime with justifications to expand its military capabilities. Iranian army regulations from the early 1990s recognize the importance of Islam as a guide for military doctrine, stating that, "In organizing and equipping the Armed Forces, the basic precept is Islamic ideology."[37]

Even though Iran does not openly publish its military doctrine, its order of battle, military actions, foundational documents, and military culture provide insights into its military doctrine. The major attributes of Iran's hybrid military doctrine include identifying the United States as the nation's primary security threat, commitment to Iran's religious and revolutionary identity, and emphasis on developing ballistic missiles. The degree to which these are mutually supporting and linked to Iran's grand strategy will dictate how well its doctrine supports its goals, including the survival of the nation's model of governance and the expansion of its influence.[38]

While conforming to the state foundational principles, Tehran's doctrine provides some tactical flexibility. In a 2014 speech, Supreme Leader Khamenei evoked this idea, "Tactics can be changed, methods can be changed, but principles should remain strong and solid. This is the secret to the solidity of the Revolution and the progress of the country."[39] While tactically flexible, some academics point to an ingrained "ideological rigidity" within the ruling elite that may impede needed reforms.[40]

Regime officials consistently claim Iran's military doctrine is defensive. For example, Iranian president Hassan Rouhani stated Iran's military doctrine is "based on defense" and that Iran does not "design any weapon for aggression."[41] In 2012 the Iranian air defense commander declared, "Iran's military doctrine, which is based on the noble Islamic teachings and Iran's constitution, is purely defensive."[42] Similarly, in 2014 the chief of staff of the Iranian Armed Forces, Maj Gen Hassan Firouzabadi, declared Iran's defensive doctrine was based on deterrence.[43] These statements reflect Iran's desire to be viewed as a responsible and nonthreatening regional military power but do not provide a comprehensive description of the country's military doctrine.[44] Iran's use and support of terrorism and the nation's growing ballistic missile capabilities are incongruent with regime officials' benign descriptions.

Iran consistently identifies the United States as its main adversary, though recognizing that the Iranian military would likely fare poorly in a conventional conflict with the United States.[45] In response, Iran has developed asymmetric-warfare concepts to deliberately avoid US strengths and negate US military advantages, including swarming small-boat attacks in the Strait of Hormuz and salvo ballistic missile launches to overwhelm missile defenses.[46] These tactics provide Iran an asymmetry of both costs and technology to use against the United States. Because of its focus on the United States, Iran has not invested in conventional military capabilities highly susceptible to US military superiority, such as fighter aircraft or bombers. While efficient in planning for a war against the United States, these foci have resulted in an imbalanced conventional military that cannot consistently project force across the spectrum of military operations.

Iran's order of battle provides tangible evidence of the rapid expansion and the dominant role ballistic missiles play within its military doctrine. By some estimates Iran's ballistic missile arsenal has grown to well over 1,000 ballistic missiles, providing Tehran with its greatest force-projection capability and its most credible deterrent.[47] According to the 2012 US Department of Defense *Annual Report on Military Power of Iran*, in the last 20 years "Iran has placed significant emphasis on developing and fielding missiles to counter perceived threats."[48] In February 2015 the director of the Defense Intelligence Agency testified that "Iran's overall defense strategy relies on a substantial inventory of theater ballistic missiles."[49] Demonstrating this, Iran's fifth five-year development plan for the years

2010–2015 calls for the "quantitative and qualitative development" of the missile force.[50] Its sixth five-year development plan identified as a goal increasing missile technologies to enhance Iran's "deterrent power."[51]

Self-sufficiency is another significant aspect of Iran's military doctrine. Its growing missile arsenal symbolizes resistance to US efforts and is a part of Iran's "self-sufficiency jihad" to develop a domestic military industry and wean itself from reliance on foreign military technology.[52] Iran applies the religious term *jihad* to provide the effort with religious authority and context. Self-sufficiency incentivizes further investment in Iran's domestic aerospace industry, relevant missile technologies, and other equipment and personnel.

Its ballistic missile industry has steadily expanded over the past 25 years and currently includes several different industrial groups under the Ministry of Armed Forces Logistics and its subordinate Aerospace Industries Organization. The US Department of the Treasury designations and United Nations Security Council Resolutions give some indications of the size of Iran's missile industry, which includes the Shahid Bagheri Industrial Group, Shahid Hemmat Industrial Group, Fajr Industrial Group, Shahid Sattari Industries, Ya Mahdi Industrial Group, Parchin Chemical Industries, and Ammunition and Metallurgies Industries Group.[53] These industrial and missile industry groups likely employ engineering students from various Iranian universities linked to the Iranian government. According to Israeli defense analyst Uzi Rubin, Iran possesses a cadre of technical experts drawn from over 250,000 students in technology and science programs.[54]

In comparison to missiles, Iran's other major weapons systems have experienced less quantitative and qualitative growth, reflecting the country's military modernization and investment decisions within its doctrine. In 2004 Anthony Cordesman, an expert in Middle East militaries, wrote that Iran's inventory of combat aircraft, tanks and armored personnel carriers, and small boats are all technologically obsolete in comparison to other regional states.[55] There is scant evidence to suggest this has fundamentally improved in recent years.

Iran's leaders often have made pragmatic decisions in the face of existential pressures that appear in contradiction to its religious and revolutionary narratives consistent with the rational-actor model. This is in step with Iran's use of *maslahat*, or expediency, to calculate the cost-benefit of its response to critical issues.[56] While used at times in Iran's

foreign policy decision making, Iran's military culture does not espouse or incentivize such pragmatism. Instead, Iranian military doctrine includes a complex mix of revolutionary and religious beliefs, as well as US training provided to Shah Mohammad Reza Pahlavi's military prior to the Islamic Revolution.[57] While US influence has receded with time, Iran's leaders are reinforcing the religious and revolutionary character of its military culture through its training and selection of senior military officers. This is demonstrated by Iran's continued celebration and "nurturing a culture of resistance, jihad, and martyrdom to strengthen its staying power and intimidate its enemies."[58]

Colin Kahl, professor of security studies, recognizes that a military's organizational culture shapes behavior through education, training, and doctrine that "creates a certain degree of path dependency."[59] This is evident in Iran's military culture through its belief that religious faith provides an advantage over its adversaries and a way to overcome superior technology.[60] A senior Iranian air force officer described faith as an additional war-fighting principle, "For us there are 10 principles, which are linked to faith, a war veteran's spirit, and martyrdom-seeking spirit."[61] According to political scientist Saeid Golkar, such ideological indoctrination makes up 30 percent of the Army of the Guardians of the Islamic Revolution's (IRGC) training.[62] To receive promotion in the IRGC an officer must demonstrate technical prowess, education, and loyalty to the supreme leader as well as strict adherence to Shia Islam, self-reinforcing the revolutionary and religious ideals within its military culture.[63]

Contingencies and Critical Junctures

Neither preordained nor an accident of history, Iran's current military doctrine is instead the result of an iterative selection process consistent with path dependency. Under this process, early contingent events—such as the Iranian revolution—and specific critical junctures strengthened institutions and organizations that provided self-reinforcing momentum to an emphasis on ballistic missiles. Consistent with path dependency, Iran's emphasis on missiles was largely unpredictable from its initial conditions but provided the impetus for later developments. The critical junctures identified here include the ballistic missile attacks against urban targets during the Iran–Iraq War, known as the War of the Cities, and China's support to Iran's military during the early 1990s, when Tehran began to build a missile industry.

Contingent Events: Revolution and War

In path dependency theory, contingent events, "set into motion institutional patterns or event chains that have deterministic properties," according to sociologist James Mahoney.[64] Several contingent events, including the Islamic Revolution and the Iran–Iraq War, have had a persistent influence on the regime's current military doctrine and emphasis on ballistic missiles. The 1979 Islamic Revolution unexpectedly transformed the prevailing political, social, and military orders. After the revolution, the new government had no defined defense policy other than a rejection of the shah's arms purchases.[65] Middle East anthropologist William O. Beeman states that the new Islamic government's concerns "transcended matters of military and power," as it was often far more interested in its ideology and "religious sensibility."[66]

Consistent with his earlier criticism of the shah, Khomeini halted additional purchases of military technology to reduce foreign influence. The first postrevolutionary defense minister, ADM Ahmad Madani, confirmed the new policy in early March 1979: "One of the biggest treasons perpetrated by . . . the former regime was the purchase of technology, and this policy was carried out in the worst possible manner . . . to make us dependent on the foreigners and foreign advisers."[67] The new Iranian government also cut military spending and refused to accept delivery of some weapons already purchased by the shah. At the same time, due in part to Khomeini's anti-Israeli and anti-US policies, the regime also placed restrictions on the nascent ballistic missile development, previously done in cooperation with Israel.[68]

The revolutionaries specifically treated air force officers with suspicion, due to these officers' close identification with the shah and the United States.[69] Several hundreds of lower-ranking military officers were retired or imprisoned after the revolution.[70] The discovery of a plot to overthrow the regime in July 1980, months before the start of the Iran–Iraq War, likely bolstered the clerics' distrust of the air force. Known as the Nojeh coup, officers loyal to the shah—many from the air force—planned to bomb Ayatollah Khomeini's residence and spark an uprising.[71] The coup failed and the plotters, including some of Iran's best-trained pilots, were executed.[72] Given the purges of the military ranks, there were likely few officers willing to advocate for retaining some aspects of the shah's military doctrine when the regime was incentivizing religious ideals and revolutionary fervor while punishing those who clung to the past.

Iraq's invasion was also a contingent event in the path dependent process. Iran's new government and its military were ill prepared for Saddam Hussein's invasion of Iran in September 1980. The chaos of the postrevolutionary period, including the purge of some of Iran's most experienced officers, led the regime to increasingly rely on the hastily organized IRGC. While the invasion was a shocking setback to the nascent government, it took Iraqi missile attacks against urban populations to change Iran's approach to the war and, eventually, Iranian military doctrine.

Critical Juncture: The War of the Cities

The War of the Cities was a critical junction in the process leading to Iran's current path-dependent military doctrine. Tehran's inability to respond proportionately to the Iraqi missile attacks early in the war or to deter Iraq from continuing the attacks was not only a further indictment of the shah's military doctrine but also left an indelible psychological mark on the Iranian government, people, and the IRGC—motivating a deep need to acquire ballistic missiles. This event is a critical juncture as Iran's subsequent emphasis on missiles hindered the development of other military technology, reducing its options for change.

At the beginning of the war, Iraq held a decisive advantage in missiles, using Russian rockets to attack military targets and cities near the fighting.[73] Iran attempted to respond to Iraqi missile strikes by using its US-supplied F-4 aircraft, but the attacks did little damage to Iraq, and due to sanctions, Iran could not replace the aircraft it lost to Iraqi air defenses.[74] This may have justified the regime's suspicion of the Western-trained and -equipped air force and the shah's focus on airpower. The failures motivated the regime to acquire missiles and implement a crash effort to build an indigenous missile industry, though it took Iran until 1985 to acquire and respond in kind to Iraqi missile attacks.[75]

Given the sole authority over the missile program, the IRGC made its initial purchase of surface-to-surface missile systems (SCUD) from Libya and Syria—also acquiring technology and equipment from China to produce artillery rockets.[76] Iran was able to use its missiles to attack the Iraqi capital due to Baghdad's proximity to the Iranian border.[77] That same year, the Iraqis fired 39 missiles at Esfahān but were unable to strike Tehran until 1988—the year that saw the greatest number of missile strikes by each side. Between February and April 1988, Iraq launched approximately 160 extended-range SCUDs at Tehran and attacked other

Iranian urban centers, while Iran fired 70 missiles at Iraqi cities, mostly Baghdad.[78] The IRGC progressively acquired missiles with longer ranges and heavier payloads but was never able to match the frequency of Iraqi missile attacks because Iran lacked access to military hardware and funding.[79]

The War of the Cities did not result in large casualties, with some estimates claiming Iraqi missiles killed 2,000 Iranians. However, the attacks hurt the population's morale.[80] Rubin links this feeling of frustration and helplessness to Iran's current missile program, now viewed as a "hallowed legacy of fortitude and perseverance in the face of a mortal enemy."[81] As a result, Iran's leaders promote and incentivize missile procurement and production. For example, then-Iranian president Akbar Hashemi Rafsanjani stated in 1988 that missiles were "the most important and most essential weapons in the world."[82]

Due to the War of the Cities, Iran's leaders have learned the importance of developing a domestic missile-production capability to deter adversaries and, if deterrence fails, to defend the population and support its morale by retaining appropriate retaliatory capability. Control over the missile program also gave the IRGC a significant advantage in money and prestige over the regular military. In addition, the IRGC controlled the purchase or smuggling of sensitive technologies and the cadre of scientists and engineers associated with the missile program.[83] Thus, the IRGC became the supplier, customer, and commanders of Iran's ballistic missile force. Because of its complete monopoly on missiles, the IRGC is naturally the leading advocate for further development of the missile force.

Critical Juncture: Chinese Support

Chinese support to Iran's missile development program in the early 1990s is the second critical juncture that furthered path dependence within Iranian military doctrine. During this time, Iran's nascent domestic missile projects were vulnerable to disruption because its aerospace industry was heavily dependent on external support, including missile technology, technical training, and assistance. Without the technological and political commitment of the Chinese, Iran would have been unable to make sufficient progress toward Tehran's missile arsenal to justify emphasis within its doctrine.

Iran's military and economy were severely weakened after the Iran–Iraq War ended, and it faced continued economic and military sanctions. In

response to Western sanctions, Iran turned to Russia, China, and North Korea to modernize its military. Its military purchases in the early 1990s could have been an opportunity for Iran to make different choices regarding Tehran's perceived need to focus on missiles. Even though Iran was able to upgrade some nonmissile forces, it continued to work toward building a stronger missile force. Saddam Hussein's rapid defeat in Kuwait at the hands of the US-led coalition added to Iran's conviction that it needed a strong missile force to deter what it viewed as an aggressive and unchecked US military.[84]

Despite US sanctions, China, Russia, and North Korea were willing to supply arms to Iran. These nations were also initially willing to work with Iran on missile projects despite the goals of the US-sponsored Missile Technology Control Regime (MTCR) to halt the spread of ballistic missiles. The United States was able to convince the Russian government to cut arms sales to Iran in the mid-1990s, though Moscow likely sold Iran some missile technology.[85]

The Russian decision to cut arms sales, along with Libya's decision during the Iran–Iraq War to end missile sales to Iran, likely discouraged Iran but also reinforced that Tehran needed a stable partner willing to continue providing it technical support in the face of US pressure. China filled this role during this crucial period through its ally, North Korea. During this time, China sold Iran antiship cruise missiles and several missile systems, while North Korea sold Iran SCUD missiles. The Chinese commitment to Iran's missile program was influential because of Beijing's status as a growing world power. While important, North Korea's support to Iran was less influential because such support was politically untenable without Beijing's blessing or at least passive approval and served as a conduit for Chinese support.[86]

Throughout the 1990s, several US officials publicly accused China of supporting Iran's missile program, including selling machine tools and guidance equipment to Iran.[87] Writing in 1990, Sinologist Dennis van Vranken Hickey assessed that the US response to China's missile sales was "mild and not surprisingly appears to have had little effect."[88] China denied the US accusation that it supported Iran's missile program and promised the United States Beijing would abide by the MTCR. In late 1991 and early 1992, the United States sent multiple delegations to China to convince Beijing to end its ties to Iran's missile program and adhere to the MTCR.[89]

In perhaps the key moment, in February 1992 China promised US Secretary of State James Baker to abide by the MTCR. However, in the face of mounting pressure from the United States in light of evidence of China's continued cooperation with Iran, China clarified that its promise did not include the MTCR annex, which identified dual-use missile components. Gordon Oehler, the former director of the Central Intelligence Agency's Nonproliferation Center, stated that after 1992 China stopped transferring complete missiles and instead transferred missile-production technologies and components.[90] When faced with building evidence of Chinese support to Iran, according to international affairs specialist John Garver, Beijing found other ways to support Iran's missile program even when it eventually ended direct support:

> Repeated Chinese pledges to Washington regarding nonassistance to Iran in the missile area did not, in fact mean the end of such assistance. By circumventing in various ways U.S. pressure, Beijing demonstrated to Tehran its reliability as a weapons partner; it demonstrated that China was willing and able to help Iran meet major objectives even when those objectives made unhappy the arrogant U.S. superpower.[91]

China's most significant contribution to Iran's missile program was providing scientific expertise and cooperation, including assistance with plans, sensitive components, and support in building missile production and testing facilities. According to Sinologist Bates Gill, "The transfer of expertise and production technology generally attracts less attention than the transfer of complete systems, but may have greater long-term significance for the military balance in the region."[92] Chinese assistance reportedly included technical assistance to Iran for developing Tehran's capacity to conduct research and development for solid fuel propellant manufacturing, such as large propellant mixers and casting chambers.[93] Iran's aerospace industry benefitted through interactions with the Chinese missile experts. China reportedly provided guidance and propulsion systems applied to Iran's Shahab-3 medium-range ballistic missile program.[94] The Fatah-110 short-range ballistic missile appears to be an improved, guided version of the Zelzal rocket, itself originally from China.[95] Missile defense specialist Steven Hildreth reports that China purportedly provided Iran with the CSS-8 and M-11 short-range ballistic missiles.[96]

Chinese support to Iran's missile program fit well into Tehran's desire for rapid progress on its domestic missile production, while maintaining its political independence and receiving technical know-how. Without China

as a missile benefactor at a time when deterrence against the United States was of growing importance, Iran's leaders may have been forced to choose a different approach to the country's military doctrine, including favoring a different technology.

Implications of Continued Path Dependency

A critique of Iran's military doctrine must acknowledge the nation's remarkable record since the end of its war with Iraq. Tehran advanced its nuclear program, increasing its deterrence while avoiding a large-scale and potentially damaging military conflict. Perhaps most importantly for Iran, the country has maintained its ideology and system of government while avoiding the wave of popular revolution that swept through the Middle East, sparked in part by its own 2009 election-related unrest. However, as true for military doctrine as it is for financial disclaimers, past performance may not be indicative of future results. The dynamic security environment in the Middle East should compel Iran to create a balanced and flexible military force, doctrine, and strategy that can support a range of policy options across a spectrum of military operations against a wider set of security threats. Under continued influence of path dependency, Iran's missile arsenal will make qualitative and quantitative improvements, increasing its combat capability. However, ballistic missiles are not a panacea for all of Iran's security challenges. Iran's military doctrine is becoming incompatible with the security environment and Tehran's policy goals, because of the regime's continued doctrinal focus on the United States in spite of the increased threat from sectarian-based terrorism and militancy.[97] This focus on ballistic missiles has created a capabilities shortfall and a strategy deficit; missiles alone cannot defend Iran or its allies from the growing threats of ISIL and sectarianism—threats that are much less responsive to the logic of deterrence empowered by Iran's missile arsenal.

Additional Missile Development

The most tangible and immediate result of Iran's path dependency is further missile development, including greater range and accuracy of its missile arsenal. Iran is "pushing ahead in guidance, warhead design, range-payload and numbers, creating a missile force that can be turned to any number of destabilizing purposes."[98] The nation's sunk costs in

the aerospace industry may also encourage continued dependency on and improvement of its missile programs beyond what may appear appropriate for its defense, including building intercontinental ballistic missiles (ICBM). Despite statements by senior military officers that Iran has no need for missiles with a range of more than 2,000 kilometers, according to several estimates, Iran may be close to testing an ICBM, a unique capability for a state without a nuclear weapon.[99] For the foreseeable future, Iran's missile arsenal will remain Tehran's most capable force projection weapon system—what Cordesman refers to as replacing, "weapons of mass destruction with weapons of mass effectiveness."[100] In a test of path dependency, more accurate missiles would, as Iranian international relations specialist Kamran Taremi notes, "obviate the need for maintaining a large number of missiles to ensure a hit."[101]

In response to the growing Iranian missile arsenal, regional states are purchasing and fielding ballistic missile-defense systems. According to the Stockholm International Peace Research Institute, the Gulf States' recent defense imports were mostly missile-defense equipment, representing 7 percent of the total global defense imports.[102] Though it is a significant aspect of US policy in the Middle East, academics have warned that US ballistic missile defense may be insufficient to defend the Middle East from an expanding Iranian missile arsenal.[103] Positive feedback between Iran's missile development and regional ballistic missile defense may occur as each side increases its capabilities to create or maintain a military advantage. Given that the costs of missiles are currently less than the cost of missile-defense options, Iran may simply respond by building more missiles in hopes of taking advantage of the cost asymmetry. Regional states would likely respond with additional missile defenses. Their interests and those of the United States would continue to be vulnerable to Iran's missiles under this scenario, though with US support, the regional states are unlikely to be defeated in most scenarios where Iran would risk launching ballistic missiles.

Iran's missiles, even if mated with a nuclear weapon, will not address all the country's security challenges. As political scientist Stephen Cimbala notes, despite some thinking that a nuclear weapon can make up for a weak military, conventional military capabilities are more important, not less, when a country becomes a nuclear power.[104] Without new investments to modernize Iran's other military services, Tehran's dependence on missiles may create an unstable deterrence, as missiles cannot

be returned to base once launched and a weak conventional military may encourage an adversary to attempt a decapitation or disarming strike. Additionally, states targeted by a future Iranian missile attack may be unable to discern whether Iran is attacking with weapons of mass destruction or conventional missiles, increasing the chances of a catastrophic miscalculation, such as a nuclear counterlaunch on warning in response to a conventional missile attack by Iran.

Iran's continued investment in missile systems—including potentially an ICBM, more accurate ballistic missiles, and other technological advances—increases the threat to regional critical infrastructure, US military bases, and perhaps US territory. However, unless an adversary launches an attack to destroy the regime rather than a more limited aim, severe retaliatory missile strikes by Iran would be counterproductive in most conflict scenarios to Tehran's overall goal—the survival of the current regime. Because Iran lacks escalation dominance against the United States, Tehran's retaliatory choices would need to be precisely calibrated proportionately to prevent further escalation by signaling a willingness to continue the conflict at the current level or deescalate. While an underreaction may invite additional attacks, a disproportionately greater missile response would risk a deeper conflict that would play to the conventional military strengths of the United States and its allies. This is the type of conflict Iran has sought to avoid. Iran may seek to use its missiles to respond disproportionally and pressure an adversary to terminate the conflict, though it is unclear if Tehran would be able to effectively employ salvos of missiles to overcome missile defenses.[105]

Further maturation and development of Iran's missile force holds the possibility of evolving in tandem with Iran's doctrine. For example, continued advancement in the accuracy of Iran's missiles could encourage the regime to incorporate more offensive, or even preemptive, elements of strategy and doctrine. Any attempt at undertaking offensive warfare would certainly require Iran's religious leaders' approval, as traditionally within Shia Islam only the Hidden Imam has the authority to declare offensive warfare.[106]

Influence on Iran's Counterinsurgency Campaigns

Iran's path dependency negatively affects its counterinsurgency campaigns, both at home and abroad. Tehran has generally avoided large-scale internal unrest, destabilizing insurgencies, and the civil wars recently

experienced in other Middle Eastern countries, though it is not immune from these events. Since its inception, the Islamic Republic has fought various insurgencies, including Kurdish and Baluch insurgents and leftist and terrorist groups. However, the regime has prevented insurgents from holding territory or severely testing its authority. While unlikely to threaten the survival of the regime, continued insurgency contests Iran's status as a regional power, contradicts its narrative of pan-Islamic leadership, and distracts from its larger foreign policy goals. By failing to address minority grievances, the regime is perpetuating low-level conflict that may grow as a result of sectarian conflicts in Iraq, Syria, and Afghanistan.

Iran's reticence to consider local autonomy or rights guaranteed in its constitution may partially stem from a false confidence in its military prowess, including its missiles, to defeat insurgents. The regime used ballistic missiles on several occasions in the late 1990s against rebels in Iraq and, reportedly, more recently in Pakistan.[107] However, Iran's military has been unable to defeat the various insurgent and terrorist groups, demonstrating the limit of its emphasis on ballistic missiles against these threats. A continued doctrinal focus on missiles limits modernization of ground and aviation forces and improvements to Iran's counterinsurgency strategy.

Lacking modern conventional military tools, the regime is leaning on its Quds Force, militant coreligionists, and allies—such as Iraqi Shia groups and Lebanon-based Hizballah—to fight against ISIL and other groups. Such tactics and operations may eventually defeat ISIL, but in doing so Tehran is exacerbating sectarian tensions by alienating Sunnis, further reducing the legitimacy of the Syrian and Iraqi states, and increasing the threat of terrorism inside Iran's borders. The Iranian regime is attempting to cynically rationalize its actions by invoking conspiracy theories, including the idea that the United States created ISIL, while denying the fact that Syrian president Bashar al-Assad's regime used chemical weapons against fellow Muslims.[108] Such rationalization may inspire or convince some people of its logic, raising the risk to US and Western forces in the region, but it will not reconcile the growing dissonance within Iranian military doctrine.

Iran's leaders may be sensing the vulnerability of their border and the need to modernize their ground forces. In May, the IRGC ground forces commander, Brig Gen Ahmad Reza Pourdastan, stated the ground forces "should be strengthened so that we can buy tanks, develop our systems and overhaul our helicopters, because the battle is between ground

troops."[109] Even if Iran increases funding to the ground forces, including modernization of its major systems, the force's strategy and doctrine must be updated to address these challenges.

Will Iran Significantly Change Its Military Doctrine?

According to theorists, a path-dependent process does not exclude adjustments to a system or minor alterations; rather, it posits that major change is difficult to achieve and may require a significant external stimuli.[110] In the military context, an exogenous shock may be a battlefield defeat threatening the survival of the state. Exhibiting the link to path dependency, changes in doctrine may be viewed negatively by a military because it rejects the existing paradigm, may be both expensive and risky, and may run counter to military plans for conflict.

While this article has argued that a path dependency exists in Iran's military doctrine, as exemplified by its consistent emphasis on ballistic missiles, this does not mean Iran is incapable of any change. Indeed, Tehran has made some adjustments to its doctrine since the end of Iran's war with Iraq, though these changes have not altered the doctrine's most significant aspects, including emphasis on building a ballistic missile arsenal and identifying the United States as the country's main enemy.[111] Despite this, Iranian leaders have shown a propensity for ingenuity and audacity, traits that have served them well since the Islamic Revolution and may demonstrate the flexibility to change doctrine prior to a defeat or significant setback.

Iranian leaders could justify changes to military doctrine because, while the threat of conflict with the United States remains possible and the likelihood of military conflict with regional states is growing, conflict with Sunni extremists is a near certainty. The nature of ISIL's threat to Iran and its allies requires different weapons and strategies than what Tehran has planned for through its doctrine, including reexamining its strident anti-American orientation—a foundational policy of the Islamic Republic. Once considered impermissible by the Iranian regime elite, high-level bilateral dialogue between the states holds the potential to reduce animosity between Iran and the United States, or at a minimum provide moderates within the regime the opportunity to deemphasize this aspect of Iran's foreign policy.[112] The shared interest in defeating ISIL in Iraq could also demonstrate to Tehran the benefits of passive regional coexistence. Ali Shamkhani, Iran's secretary of the Supreme National

Security Council, alluded to such a possible way forward in December 2014, stating, Iran and the United States can "behave in a way that they do not use their energy against each other."[113]

Beyond the threat posed by sectarian-fueled conflicts, Iran may also view security vulnerabilities, including cyber attacks against its nuclear facilities, the presence of unmanned aerial vehicles in its airspace, and regional conflicts as exogenous shocks requiring changes to military doctrine. The regime appears to have made some progress addressing these issues, though it is unclear whether Iran's efforts are marginal advances in nonpriority areas or represent a true doctrinal shift. Iran retains several options for adapting its military doctrine to address the emerging threats, including refocusing domestic military industry away from ballistic missiles and toward systems more useful in fighting militants and terrorists.

While path-dependency theorists state that exogenous shocks are necessary to overthrow the inertia of path-dependent systems, other academics suggest an internal change is also needed. For example, political scientist Joseph Nye opined, "Although a crisis is usually necessary for a transformational policy to succeed, it is never sufficient."[114] According to this thinking, even a subtle and pragmatic change envisioned by Shamkhani may require a new Iranian leader. Supreme Leader Khamenei may be unwilling to risk political instability if the regime's carefully crafted and rigorously defended anti-American political narrative is set aside. Others within Iran's clerical elite who are more inclined toward such a change may be waiting until Khamenei's death and the subsequent leadership transition before advocating such a change of the regime's foundational policy. Early indications after the nuclear agreement are that the supreme leader is not considering fundamental changes to Iranian policy.[115] A change to Iran's missile emphasis may signal what its leaders are unwilling to state publically.

Iran's military may also face increasing interservice rivalry as its military services fight for money, resources, and attention. Such rivalries often lead to an inefficient or confused defense policy and may impede doctrinal reforms.[116] While the US military has experienced several periods of intense interservice rivalry, Iran's bifurcated military structure appears to foster even greater competition—one that could work to stifle change to military doctrine.[117] This may be especially true because change from the current doctrine may negatively affect the IRGC's—the most-favored service—most-favored system: ballistic missiles.

Iran may be considering purchasing some advanced conventional weapons systems after the lifting of arms sanctions in less than five years' time. For example, Iran's defense minister stated that Iran will purchase Sukhoi-30 fighters from Russia.[118] While such a purchase of advanced weapons systems outside of missiles would demonstrate Iran acknowledges the need to upgrade its military, the acquisition may not represent a true change in doctrine but a marginal adjustment to placate elements of the military. The true measure of a doctrinal change would be whether a purchase significantly alters the military balance against its adversaries and changes Tehran's approach to warfare.

Cost-Imposing Opportunities

Path-dependency analysis can assist policy makers by identifying Iranian proclivities that lead it toward inefficient or suboptimal strategies, which is critical to applying cost-imposing strategies.[119] Iran's inertia allows the United States, in close partnership with regional states, to use its relative economic strength and military advantage to design a regional security architecture using cost-imposing strategies that exacerbate the imbalance within Iran's military and contains its destabilizing behavior. Cost-imposing strategies can be used to steer Iran toward unproductive resource allocations strategically disadvantageous to its overall interests.[120] In the current context, continued ballistic missile development is a less-efficient and less-effective means for Iran to address its security needs and those of its allies. As military historian Bradford Lee describes, cost-imposing strategies take advantage of an adversary's "strongly vested interests or inflamed emotions," which Iran displays toward its ballistic missile capability. Lee further describes how cost-imposing strategies are most effective against powers that have "expansive political ambitions" greater than their economic strength and possess few allies, a description that fits Iran well.[121]

To apply a cost-imposing strategy, the United States and its allies must use diplomatic and military tools to exploit and reinforce Iran's preference for missiles. This includes taking advantage of Iranian leaders' practice of linking missile advances with resistance to the United States. In December 2015 Iranian president Rouhani, a purported political moderate, ordered an expansion of the ballistic missile program in response to new US sanctions designed to punish Iran for continued missile tests.[122] The hardliners within Iran's military, underrepresented

in Rouhani's administration but with responsibility for the defense of the Islamic Republic, likely view missiles as an avenue to retain the anti-American orientation of the state and military doctrine.

Additional US sanctions, such as those recently announced by the US Department of the Treasury, can increase Iran's costs to access material and military technologies, though the sanctions' greater impact may be on encouraging Iran to develop more missiles instead of spending on a more-efficient and more-effective military modernization program.[123] While the JCPOA calls for the removal of arms sanctions within the next decade, the United States and its allies must redouble sanctions-enforcement actions, signaling a willingness to suspend the lifting of sanctions if violations are detected. If not, Iran will procure arms before it fully meets its commitments, undermining the agreement and increasing the possibility of regional conflict.

Ballistic missile defense is a necessary tool in a cost-imposing strategy, challenging the credibility of Iran's missile-based deterrence and retaliatory capabilities. Ballistic missile defenses compel Iran to continue to make investments to maintain a credible deterrence, contributing to an unbalanced military capability. The current ballistic missile defenses fielded in the Middle East are susceptible to being overwhelmed by Iranian missiles and rockets, and the cost asymmetry currently favors Iran. In response, the United States and regional states should speed the creation of a regional ballistic missile-defense architecture, integrating sensors, and command-and-control networks with national missile defenses.[124] Researchers have noted accuracy improvements in Iran's missiles would make missile defense a costly but "attractive option."[125] Technological advances, specifically directed-energy missile defenses, according to the US Missile Defense Agency, can "shift the calculus of our potential adversaries" once brought into the ballistic missile architecture.[126] Directed-energy missile defenses holds the possibility of significantly reducing the efficacy of missile attacks at a greatly reduced cost, shifting the cost-asymmetry against Iran.[127] Experts point out that directed-energy weapons still require large investments, but the technologies have "steadily and quietly matured."[128] As part of a cost-imposing strategy, US investments in directed-energy weapons should expand.

The United States should also employ diplomacy against Iran as part of a cost-imposing strategy, in spite of the regime's continued animus toward the United States. Though dialogue with Iran may appear slow,

inconclusive, and possibly tactically counterproductive, the United States should continue to engage Iranian elites and the Iranian public. Persistent diplomacy can empower Iranian officials willing to consider a new security paradigm and erode the persuasiveness of the regime's anti-American message. The United States should use diplomacy to demonstrate to the Iranian public that Tehran's continued missile investments are a waste of funds and do not make their country safer. Diplomatic interaction also may provide the first subtle indications that Tehran is willing to deemphasize the anti-American orientation of its military doctrine, allowing the United States to reciprocate such signals and adjust its own policy with less political risk.

Applying a cost-imposing strategy based on insights gained from a path-dependency perspective that exploits Iran's preference for ballistic missiles is not without risk and will likely require years of patient execution to succeed. This approach will support US attempts at rapprochement, demonstrating to Iranian leaders that the cost of competition is too high to continue unabated.

Conclusion

Iran is on the horns of a dilemma—facing a choice of adapting its military doctrine and strategies to confront an emerging threat or maintaining its current focus against what it views as its enduring menace. Modernizing its air, naval, and ground forces would increase Iran's ability to fight across the spectrum of military operations against regional competitors and ISIL, though these investments would likely be vulnerable to US and regional militaries. Alternatively, Iran could maintain its focus on the United States and further advance its missile arsenal, gaining additional prestige while building toward a missile that could hold US territory at risk, though this would be of limited utility against insurgents and terrorist groups.

Iran's growing missile capabilities are increasingly capable of attacks against infrastructure, military targets, and populations, but without modernization of its other military services, Iran's conventional military will remain a weak joint war-fighting force. If Iran decides to modernize its air, naval, and ground forces—even if they remain no match for US forces—Tehran will be better equipped to defend its allies abroad, project force, and intimidate regional states in concert with its existing missile arsenal. Iranian leaders would also have more military options

and confidence to pursue their objectives, increasing the possibility, duration, and destruction of conflict in the Middle East. If reconciliation between the United States and Iran is not yet politically possible, US policies should ensure Iran's military does not develop into a more-balanced force. In deciding how to proceed, Iran's leaders will seek to maximize the utility of its doctrine, strategies, and policies, though as with other states, Tehran's ability to adjust is constrained by its history and institutional inertia. Insights gained from path dependency theory can contextualize Iran's policy options, identify how and when Iran makes significant shifts, and inform a cost-imposing strategy that restricts Iranian actions. **SSQ**

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Relations and dialogue with the United States have long been debated within Iran—though officially Iranian officials have been reticent to reconsider relations absent a complete change in US policies. For example, in 1998 Khamenei stated, "By constantly repeating the phrase 'negotiations with America' and 'relations with America,' they want to break the taboo of this issue." Later in the same speech, Khamenei opined that, "Establishing relations and a dialogue with America has no benefits for the Iranian nation."

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