

Fighting Insurgents

Tactical Operations and Strategic Moves

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This article employs game theory in order to gain insight into the tactics available for counter-insurgency (COIN) operations in an Irregular Warfare environment. Even though game theory usually has to make simplifying assumptions in order to produce any kind of comprehensible solutions, it nevertheless may offer insights into strategic options. In order to keep the article readable, the use of technical terms will be avoided as far as possible and/or relegated to footnotes. However, there is one exception. The word “strategy” will be used in the game theoretic sense throughout and must not be confused with the military meaning, in particular when opposed to “tactics”. In game theory a strategy is nothing but the decision of how to approach a situation, whether it is a tactical or a strategic one. Further, a “strategic move” would just be any ploy, mostly an unexpected one that would fundamentally change the situation and result in a preferred new equilibrium. The main purpose then is to ask about the possibility of a strategic move available to COIN forces in order to achieve a tactical victory of superior quality.

1. Specific aspects of Irregular Warfare

The conception of Irregular warfare is not exactly new. It goes back at least to the Romans some two millennia ago, the American War of Independence has been quoted as an example, and so was the Vietnam War, the latter giving rise to the need for a whole new military doctrine. More recent examples include of course Iraq and Afghanistan. Today, Irregular Warfare is seen by many as the kind of armed conflict to be expected in the 21st century. Whichever definition one looks at, its paramount characteristic is a (strong) asymmetry of the opponents’ objective functions. Three particular aspects stand out:

- In order to achieve an overall, and thus politically sustainable, victory, it no longer suffices to defeat the enemy militarily: aspects such as culture, religion or the problem of dealing with less perfect Third World-style “democracies” in general have to be taken into account as well. Irregular Warfare today is about the—almost mantra-like—“winning of the hearts and minds of the population”, which becomes all the more difficult if the population does not feel represented by its own, the host country’s government.
- Second, time is playing into the hands of the insurgents. On the one hand, as, e.g., the Vietnam War had painfully demonstrated, in a parliamentary democracy the support for conducting a war in a faraway country dwindles with every body bag arriving home. On the other hand, the footprint left by COIN forces has to be limited. The longer the war goes on, the more likely the insurgents could make it look like an occupation or, probably worse still, an insult against the host nation’s culture, further undermining the host nation’s government.¹
- Finally, as the COIN forces typically are far better equipped than the insurgents, the latter would be foolish to try to face their enemy in a classical stand-off, or, as Long (2014) put it, any attempt by COIN forces to enforce the final battle would most likely prove to be futile.

Accordingly, the projection of power would have to be different, too. In order to keep their footprint as small as possible, COIN forces would have to rely on semi-permanent fortifications. Typical examples range from the forts used by the Roman army to the Forward Operating Bases (FOBs) operated by ISAF in Afghanistan.² The operations should follow a dual purpose. On the one hand, they would have to send an unmistakable message directed at the insurgents telling them that COIN forces are not just present but that they mean business, too. At the same time they should convey a message of hope: driving back insurgents from their strongholds could work as a signal to the civilian population that an insurgency's victory is anything but a foregone conclusion and that it may well be worthwhile to support the COIN forces in spite of the terror wielded the insurgents.

Moreover, in a COIN scenario, few operations conducted by COIN forces would fall into the category "surprise"³: smaller sorties or patrols would have to happen on a continual basis in order to convey credibility, and most would thus hardly come as a surprise to the insurgents. Any major operations should not come out of the blue, either, in order to give civilians the opportunity to leave the battlefield in time. One famous example had been Operation Moshtarak: in order to induce civilians living in Marjah to leave the city, it was well advertised in advance by using radio broadcasts and dropping leaflets. As a consequence, overall civilian casualties amounted only to the lower end of two-digit figures.

2. Two types of COIN operations

To simplify matters, COIN operations are assumed to be of two types only. Whatever the exact purpose of an operation, in an ideal world it should follow a pre-planned schedule. It would not suffice to rely on close air support to be delivered by fixed-wing aircraft alone. Insurgents would be at an advantage once it comes to "danger close" fighting because fixed-wing aircraft could no longer deliver close air support relied upon without endangering the lives of the very troops they are supposed to protect. They would thus have every incentive to attack at close quarters thus making COIN forces' casualties more likely. Attack helicopters should therefore be assigned in advance and made to wait on station. In reality, though, as, e.g. the experience from the Afghanistan war has shown, such helicopters may not always be available in sufficient numbers, and quite often they could only take to the air once troops in contact has been declared. The resulting delay implies that the troops on the ground would be without air support when it is mostly needed. A COIN operation would thus either have attack helicopters assigned in advance, or, due to the lack of resources, it would not.

Once an operation has been launched, the insurgents would have to decide whether to hold the ground and to ambush-style fight the COIN forces, or to withdraw. At the moment they have to make up their mind, though, they would not know whether attack helicopters are waiting just over the horizon. The COIN commander would of course know about the availability of attack helicopters. If they are available, he would launch the operation because this is what the scenario is all about. If they are not, he would have to decide whether to go on anyway or to refrain from launching the operation. He would not know, though, how the insurgents are going to react.

Technically speaking, the situation can be compared to a game with asymmetric information,⁴ and it would be very much in line with the Clausewitzian conjecture⁵ that whoever knows about the decision taken by his opponent, or the options he has to be content with, would be expected to enjoy some kind of advantage. The insurgents would be happy to learn about the kind of air support available to the COIN force in advance, but all they can do is to make an educated guess from their past experiences. Likewise the COIN commander would be eager to know the insurgents' tactics.

3. Scenario evaluation: costs and benefits

Depending on both the decisions made by the COIN commander and the insurgents as well as the availability of attack helicopters, there would be four different scenarios, denoted by Roman numerals:

I (COIN operation with attack helicopters; insurgents hold the ground): Because attack helicopters tip the scales, COIN forces will achieve a tactical victory. However, there are casualties on both sides.

II (insurgents withdraw): As the insurgents withdraw, the objective of the mission is achieved irrespective of the availability of attack helicopters because no “danger close” situation could occur. Casualties are low or even non-existent, resulting in a resounding tactical victory by COIN.

III (COIN operation without attack helicopters; insurgents hold the ground): Without attack helicopters being on the scene there would be no chance to provide air support in time for “danger close” situations, COIN forces suffer heavy casualties and eventually have to retreat. The insurgents hold the ground, resulting in a resounding insurgents’ tactical victory.

IV (no COIN operation): The status quo prevails.

In order to evaluate the different outcomes, the respective objective functions have to be taken into account. COIN forces are assumed to follow the doctrine employed by ISAF in Afghanistan and wisely abandon the traditional war metric of counting enemy casualties which so disastrously contributed to the misapprehension of the military situation during the Vietnam War. They would attempt to concentrate on achieving their tactical military objective with a minimum number of their own casualties. Thus, they should prefer II over I, I over IV, and IV over III.

In contrast, killing enemy fighters would certainly stand high on the insurgents’ agenda. Still, it does not necessarily imply that their fighters are eager to sacrifice their own lives for their cause no matter what. Using the Afghanistan War as an example and quoting a RAF Chinook pilot, “[the Taliban] are happy to take us on when we’re by ourselves but they’re not so brave when the extra muscle turns up”.⁶ One has to remember that rural farmers, colloquially called the “\$10 Taliban” by ISAF soldiers, provided a significant number of part-time Taliban fighters.⁷ Hence, in particular when taking into account the lethality of close air support provided by attack helicopters that had been demonstrated by the Apache in the Afghanistan theatre, it is reasonable to assume insurgents would prefer III over IV, IV over II, and II over I.⁸

4. Solutions

It is obvious that, once attack helicopters have become available to be assigned, COIN forces would launch the operation, since they rate both I and II over IV. However, as the insurgents do not know about the availability of the helicopters, they would have to consider whether they would on average be better off by holding the ground or by withdrawing. If they reckon the probability that attack helicopters have been assigned as comparatively high they would withdraw; otherwise they would hold. Returning to the first case, i.e. a high probability of attack helicopters being available, COIN forces could also go ahead even if they were not available on the day because the insurgents would not know and therefore arrive at the same decision, i.e. would withdraw.

If the insurgents consider the chances of attack helicopters being on station as more remote, though, a very different and more complex picture emerges if the helicopters are not available on the day the operation was originally planned for. Either the COIN commander still goes ahead, but without close air support, or he cancels the operation. The results are illustrated by Table 1. The numbers refer to the four scenarios described in section 2, with the

number in the bottom left corner of each cell indicating the pay-off for the COIN forces and the number in the top right corner referring to the pay-off for the insurgents.

Table 1

	Insurgents	
	hold	withdraw
COIN forces		
operation going ahead without attack helicopters	I or III III	II II
no operation without attack helicopters	I IV	IV IV

It is important to visualize that because of the asymmetric information, the scenarios in each of the two left-hand cells relate to two different perspectives, implying the two sides have to expect different scenarios in two of the four cells. In the top left cell, the COIN commander, knowing that the operation would have been launched without attack helicopters, would, assuming that the insurgents decide to hold, know for certain that the outcome will be that of scenario III. The insurgents on the other hand are unaware of the composition of the COIN forces and would thus not be able to predict whether the outcome will be scenario I or scenario III. In the bottom left cell, without any operation, the status quo, i.e. scenario IV, obviously prevails, irrespective of whether the insurgents would have tried to hold the ground. However, as the insurgents can only commit to hold the ground once an operation has actually been launched, that operation would command proper air support – in the bottom row these are the only type of operations going on – and the insurgents would be brought face to face with attack helicopters resulting in scenario I.

In order to learn about an equilibrium, every cell is compared with its respective neighbour. Assume first that COIN forces would never launch any kind of operation unless attack helicopters have been assigned. Then the only kind of operation ever to take place would involve attack helicopters. As they rate IV over I, the insurgents, learning from their experiences, would withdraw. Then, however, COIN forces could well launch an operation even without attack helicopters, since they would not meet any resistance: they prefer II over IV. In turn, though, the insurgents would soon learn that no attack helicopters are coming and would, as they rate the average of scenarios I and III higher than scenario II, decide to hold the ground no matter what. Finally, in case the insurgents always provide resistance, COIN forces would be well advised to step back from launching an operation unless “danger close” air support can be guaranteed because they rate IV over III – which is the very same scenario the analysis began with.

The only solution for both sides, provided no attack helicopters are available, is to sometimes choose one tactic, and sometimes the other.⁹ The purpose of such “mixed strategies” is to avoid putting oneself at risk of being outwitted by the enemy.¹⁰ Hence, whenever either side embarks on such a mixed strategy, the other side would not be able to gain any advantage from changing its strategy and, by argumentum e contrario, would thus be indifferent between all of its options, including playing the mixed strategy. Unfortunately, from the COIN forces perspective this implies that sometimes – in the top left scenario – they would have to face considerable casualties just the way ISAF did in Afghanistan where it effectively went for such a mixed strategy because troops were regularly sent on foot patrols with no chance for Apache to arrive in time in case a “danger close” situation came up.

5. A strategic move

Assume that COIN forces decided to put a halt to all operations that cannot be supported by attack helicopters. The insurgents would update their beliefs accordingly. In particular, they should learn, as argued above, that from now on every single COIN operation would always be accompanied by attack helicopters and would wisely back off from offering any resistance. If one stayed within the limits of the game, i.e. in particular simultaneous decision making, COIN forces should resort to going ahead as discussed in the previous section. If they did not, they would effectively volunteer to become a first mover. At first sight, it seems to be nonsensical. At best, not switching back to mounting unsupported operations the way they did in the mixed-strategy equilibrium looks like a wasted opportunity. At worst, it looks as running contrary to the intuitive idea originally suggested by Clausewitz and subsequently adopted by the Network-Centric-Warfare doctrine¹¹: as there would not be any kind of uncertainty left regarding the nature of the air support that COIN operations can count on, this could be exploited by the insurgents just the same way any other strategy than the mixed-strategy equilibrium one can be outwitted. A closer look, though, reveals otherwise.

First, one has to remember that whether or not the insurgents can use information should, *ceteris paribus*, not matter to the COIN forces due to the asymmetry of the objective functions.¹² Rather, their only concern should be whether they would be better off by whatever new equilibrium emerges. In case no attack helicopters are available, nothing would actually change. Previously the COIN forces' expected pay-off had been equal to that of scenario IV because all strategies would yield respective identical expected pay-offs to either player in any mixed-strategy equilibrium.¹³ The expected pay-off from the top line in the matrix would thus have to be equal to the guaranteed pay-off from the bottom line. The new first-mover strategy would directly lead to the pay-off from the bottom line, i.e. it is identical to that from scenario IV. Turning to the case of attack helicopters being available, though, there would be an improvement. Previously every COIN operation, whether supported or not, had come under attack from time to time – it was an equilibrium in mixed strategies—as the insurgents could not tell the difference in advance. With the first-mover strategy, the only operations going on would be supported by attack helicopters. They would no longer meet any resistance because insurgents would by now have decided never to offer resistance anymore. Not only would the tactical objective be accomplished, but there wouldn't be any casualties either.

6. Concluding remarks

It has long been argued elsewhere¹⁴ that unless COIN forces can be guaranteed proper air support, they should not try to embark on tactical operations. A game-theoretic analysis lends support to this thesis by showing that doing otherwise would only tempt insurgents to offer resistance in situations where they were better advised not to. The resulting COIN net gain from improvised operations, i.e. without proper air support, would, when compared to not running any such operation, on average be zero. However, properly supported COIN operations would inadvertently be compromised. Insurgent casualties would go up—one has to remember, though, that this is not a primary COIN objective anyway—but so would COIN force casualties, and this is what should be of concern to both COIN commanders as well as their political masters alike.

Returning to the “winning the hearts and minds” rationale, a reduced number of tactical operations could of course be considered unacceptable from an overall political perspective as it might, e.g., be interpreted as putting COIN forces' resolve into question. Then, however, the only alternative is to increase the number of attack helicopters and crew. Putting COIN forces into harm's way without such support should never be an option, and does not make any military sense either. □

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Notes

1. As Mujahid Rahman, a Taliban fighter, once remarked: "Americans have the watches; we have the time".
2. One has to remember, though, that the main purpose of Roman "castra" was to deny insurgents access into Roman-held territory rather than make forays into enemy country. Further, very much in contrast to today's kinds of COIN operations, Rome did not just not care about the footprint they left in their host country, they even tried to assimilate the indigenous population by offering Roman citizenship on a large scale while at the same time leaving local customs and religions as they were.
3. Historically, "Surprise" has always been regarded as a fundamental of military operations and constitutes, with a reference to Clausewitz (1832), one of the nine "Principles of War" still providing the basis for today's US military doctrine; see, e.g., Joint Chiefs of Staff (2013).
4. While game theory does not seem to feature that prominently on the list of most-favoured tools of military planners and tacticians due to its supposed inability to model the kind of complexity to be found on the battlefield, it nevertheless has gained access into military textbooks and curricula alike; see, e.g., Wagner et al. (1999).
5. Traditionally, battlefield situations have been viewed as zero-sum games, i.e. the sum of the (two) opponents' pay-offs is equal to zero for every outcome of the game. For all practical purposes, though, it suffices to assume that games can be transformed into zero-sum games by a strictly monotone transformation of the pay-offs. In conjunction with Clausewitz' metaphor of "Der Nebel des Krieges", or "fog of war", zero-sum games implicitly form the basis of the "Network Centric Warfare" doctrine prevalent in today's military thinking, presumably leading to a second-mover advantage, i.e. being able to learn about any move made by the opponents would be preferable over having to move first, i.e. without having access to any such information; see Friedman (1999).
6. Duncan (2011), p. 302.
7. See, e.g., Tootal (2009).
8. One should note that as both COIN forces as well as the insurgents prefer II over I, the game can, in contrast to the Clausewitzian doctrine, not be zero-sum any longer.
9. In terms of operations analysis there would thus be no saddle point. See e.g. Wagner et al. (1999).
10. To fully explain the game-theoretic concept of such strategies would go beyond the scope of this article. For both an intuitive as well as not too technical illustration though see Dixit/Skeath (1999).
11. See, e.g., Friedman (2009).
12. Cf. Footnote viii.
13. Note, that there is no need to actually compute the mixed-strategy equilibrium as this property holds irrespective of how the mixed strategy looks like. Again, see Dixit/Skeath (1999).
14. See, e.g., Schwartz (2011).



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