

“Monetary Ammunition” in a Counterinsurgency

SETH BODNAR AND JEREMY GWINN

In early 2006, having recently returned from his second deployment to Iraq, then-Lieutenant General David Petraeus distilled his most poignant lessons learned over three years of counterinsurgency operations into a list of 14 concise observations. Near the top of that list was the maxim, “Money is ammunition.” He states, “In fact, depending on the situation, money can be more important than real ammunition”¹

Over four years later, it is widely accepted that a modicum of economic development is critical for long-term stability, but there is no consensus on how we should actually utilize monetary “ammunition” to achieve the objectives of a counterinsurgency campaign. While billions of economic aid dollars have been spent in support of US operations in volatile regions around the world, there is little understanding of the effectiveness of this spending or how best to employ this important resource. Anecdotal evidence abounds, but it is still very difficult to say with any confidence what actually works. At best, this state of affairs wastes vast sums of money for little purpose; at worst, it can be an unintended boon to our enemies.

Attempting to develop a better understanding of this challenge, we examined US economic development efforts in the southern Philippines from 2002-2007. Using security data compiled by the Armed Forces of the Philippines (AFP), we studied the impact of projects funded by the United States Agency for International Development (USAID) in 28 conflict-affected municipalities throughout the Autonomous Region of Muslim Mindanao (ARMM). Our analysis indicates projects that required a substantial community stake and provided a visible demonstration of government

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capacity, both in the infrastructure and education categories, resulted in significant improvement in the effectiveness of counterinsurgency efforts. Notably, the positive effect appeared to stem much less from actual economic improvement and more from an increased perception among the people that their government is functioning and capable of meeting their needs.

Admittedly, the operational environment in the Philippines differs greatly from Iraq and Afghanistan, and one must always take caution in drawing lessons from one theater and directly applying them to another. The steadily increasing capability of Iraqi and Afghan partners, however, along with growing constraints on the use of US military power—particularly in Iraq, but also in Afghanistan—are combining to make the US experience in the Philippines extremely informative for military and civilian planners as the mission evolves in these theaters of operations. Additionally, as the United States begins to address the realities of its current fiscal state, and resources become increasingly scarce, the efficient application of precious economic aid will become ever more important. Thus, it is critical to glean whatever lessons we are able from the US application of so-called “monetary ammunition” in the Philippines.

Before discussing our findings in greater detail, we will provide a brief historical context for the insurgency in the southern Philippines, the nature of US involvement, and the scope of recent economic development programs there.

The Philippine Insurrection: The “Very Long War”

Armed rebellion is not new to the southern Philippines. Home to a predominantly Muslim population, the southern portion of the island of Mindanao and the Sulu island chain stretching south to Malaysia have experienced recurring violence dating to the Spanish occupation. Tensions abated somewhat after a 1996 peace agreement ended the Philippine government’s long and bitter struggle against the Moro National Liberation Front (MNLF), and the loosely governed region was given a measure of autonomy with the establishment of the ARMM in August of 1999. The provinces of the ARMM remain by far the country’s most impoverished, with high unemployment, abysmal governance, and a dearth of services. Though cease-fires have periodically been established, the AFP remains engaged in a lethal and sustained struggle with the Moro Islamic Liberation Front—a breakaway group of the MNLF. The ungoverned, dense jungles of Sulu provide safe haven for the Abu Sayyaf Group (ASG) and Jemaah Islamiya (JI), both radical Islamic organizations with ties to al Qaeda that have successfully conducted attacks within the Philippines and throughout the region.

The United States, having closed its last base in the Philippines in 1992, took a renewed interest in the region in the summer of 2001 after an American missionary couple was kidnapped by members of ASG and held hostage on the island of Basilan (just off the southwest coast of Mindanao). After the terrorist attacks of September 11, 2001, the US mission—deemed

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Operation Enduring Freedom-Philippines (OEF-P)—evolved from one focused primarily on the rescue of American citizens to a “train, advise, and assist” mission intended to help the Government of the Republic of the Philippines (GRP) bring stability to its largely ungoverned south.

Though it maintains a much smaller presence in the Philippines than in either Iraq or Afghanistan, the US military is pursuing essentially the same objective in all three countries: to pacify a volatile region in an effort to prevent the spread of terrorism. Due to the size of the US advisory force, as well as the significant restrictions placed on the participation of American forces in direct combat operations, the US approach in the Philippines has differed markedly from that of Iraq or Afghanistan.² Utilizing what has been termed the “indirect approach,” American forces in the Philippines (almost exclusively members of the US Army Special Forces) work by, with, and through their Filipino counterparts to achieve their objectives. Essentially, the United States has been conducting a counterinsurgency campaign, but one that has been conducted almost entirely through a local partner. Such an approach requires the discreet application of US power and a constant focus on building the institutions, capabilities, and legitimacy of the host nation government to secure and provide for the needs of its people.

Though in the past the indirect approach has been somewhat unique to the Philippines, evolving security, political, diplomatic, and economic conditions in Iraq and Afghanistan (as well as in the United States) have transformed the nature of the US presence in these larger theaters. Commanders have become more indirect in their approach to counterinsurgency and by necessity will become increasingly so in the years to come. Thus, lessons gleaned from the US experience in the Philippines are more relevant today than ever.

US Economic Development Programs in the Philippines

The US force in the southern Philippines is small, numbering well under 1,000, and DOD funds allocated for economic development activities in the region are minimal relative to other theaters. Also, due to frequent personnel rotations and a lack of continuity over the past eight years of US

operations, meticulous records on development spending by military forces in the southern Philippines are somewhat lacking. Therefore, a thorough analysis of the effectiveness of economic development initiatives spearheaded by US forces is not feasible.

Fortunately, while US military personnel have been working to bring stability to the southern Philippines, other US government agencies, most notably the USAID, have been pursuing that same goal. In particular, USAID's Growth with Equity in Mindanao (GEM) program represents a particularly interesting model for analysis. Specifically focused on conflict-affected areas of Mindanao, GEM has a twofold purpose. First, it is intended to accelerate economic growth while ensuring that as many people as possible benefit from that growth and the benefits are equitably distributed. Second, it is intended to help bring about and consolidate peace.³ Begun in 1995, the GEM program is currently on its third funding iteration, which is set to be completed in 2012. For our analysis, we focused on the second funding iteration (deemed GEM 2), which lasted from 2002 to 2007. This period of analysis most closely parallels the time period during which American forces have been present.

The GEM program is coordinated with local and provincial business and economic development councils, as well as producer associations and cooperatives, and is organized along five broad lines of operation: infrastructure development, workforce preparation, governance improvement, business growth, and former combatant reintegration.⁴

In our analysis, we chose to examine the effectiveness of programs within three of the five lines of operation: infrastructure development, workforce preparation, and former combatant reintegration. We chose to analyze only three for two reasons. First, the bulk of the projects executed under the auspices of the GEM program were within these three components. These projects were widely dispersed throughout the ARMM, and as such, it is possible to compare the impact of the different types of projects. Second, these sorts of projects most closely mirror those often developed and executed by military forces in a counterinsurgency or stability environment. While it was USAID personnel in the Philippines who planned and completed the particular projects analyzed in this study, similar projects have been and continue to be implemented by American forces around the globe. Thus, examining the effectiveness of these types of projects is of paramount importance for informing US military commanders conducting similar efforts.

Infrastructure Development

Infrastructure development involves two main types of projects: Barangay Infrastructure Projects (BIPs) and Regional Impact Projects

(RIPs). BIPs are described as "small-scale infrastructure projects constructed to help spark or sustain economic growth in barangays (villages) and other communities, and to demonstrate the determination of the GRP and USAID to be responsive to the needs of Mindanao's religious and cultural minorities."⁵ Projects range in cost from \$5,000 to \$50,000 and are executed in conjunction with local government units, as well as existing cooperatives and producer associations. Examples of BIPs include: post-harvest facilities, boat landings, minor road upgrades, water systems, and irrigation systems.

RIPs are larger in scope than BIPs and are intended to be high-impact, high-visibility projects, ranging in cost from \$50,000 to upwards of \$1 million. Typical examples of RIPs include: road construction and major upgrades, airport improvements, and bridge construction.

Workforce Preparation

Workforce preparation projects are focused primarily on the education system. The two types of projects analyzed under this component are the Computer Literacy and Internet Connection (CLIC) program and the Education Awareness and Support Effort (EASE).

The CLIC program provides internet-connected computers to high schools in conflict-affected areas and computer training to the students and teachers. To date, over 783 schools have benefited from this program. The EASE program supports efforts of parent-teacher associations to upgrade the quality of education in their local schools, providing matching grants to communities that present viable proposals.

The objective of former combatant reintegration (FCR) programs is to assist former combatants (typically former MNLF commanders and members of MNLF communities) with learning how to make a sustainable living. The Livelihood Enhancement and Peace (LEAP) project is the main program within this component. The intent of LEAP is to aid former combatants in the small-scale commercial production of agricultural commodities. Typically, these commodities include hybrid corn, rice, and seaweed. Participants in the program are provided with all the necessary inputs and training to begin a small business.

Economic Initiatives—Consensus and Disagreement

There is a vast body of literature championing the importance of economic initiatives in quelling an insurgency. US Army counterinsurgency doctrine, as outlined in the Army's Counterinsurgency Manual (FM 3-24), states that the aim of counterinsurgency is to "use all instruments of national power to sustain the established or emerging government."⁶ More simply

put, the goal of a counterinsurgent is to gain influence with the local populace and convince the average citizen that his or her interests and future are better served by the government than the insurgency. Economic activities are envisioned in this doctrine as a key component of winning popular support for the existing government. There is broad consensus on this point and a great deal of research supporting a link between the lack of economic growth and civil war or rebellion.⁷ Consequently, numerous US government agencies have spent vast amounts of time, effort, and money on countless economic programs in support of counterinsurgency efforts over the past decade.

Consensus breaks down, however, when the discussion moves beyond simple acknowledgement that the economic component of counterinsurgency is important. Numerous competing theories attempt to explain the correlation between poverty and conflict. There is little agreement on which types of economic activities are most effective in bringing about stability.

One prominent theory rests on the opportunity costs of supporting rebellion.⁸ In other words, as income levels rise potential rebels have more to lose by supporting the insurgency. More generally stated, decisions about whom to support are made in an economically rational manner by populations seeking to maximize their expected payoff.^{9,10} In this model, support for the insurgency rises with declining opportunities for productive activity, implying that job creation and economic growth are the keys to increasing stability.

A competing theory disputes the idea that simply increasing per capita income will decrease violence and presents an alternative explanation—higher income levels create an environment less friendly to a guerilla organization due to a greater government capability to conduct effective counterinsurgency and reduced insurgent ability to move freely and tax the population.¹¹ This would seem to imply that increased government effectiveness in combating insurgents, rather than income growth, is the key to increasing stability.

A third theory, and one we believe is most well-supported by our recent research in the Philippines, states that when the government visibly demonstrates the ability to provide essential services to its people, there is a greater likelihood that the contested population will provide information to counterinsurgents that is critical to an effective counterinsurgency campaign and withhold support from insurgents.^{12,13} This theory does not explain security improvements as a result of the redress of grievances or greater economic well-being. Rather, it suggests the civilian population is induced to denounce insurgents and provide information to security forces when the government provides for the people in a capable and competent manner.

Somewhat surprisingly, the same research team, using data from the Philippines and Iraq, found more lethal attacks against security forces in

areas with higher employment.¹⁴ These results challenge opportunity-cost theory, which predicts just the opposite. More significantly, the findings call into question counterinsurgency campaign development efforts focused on job creation. The findings do support economic development and services provisions to the extent that they provide visible demonstrations of host government capacity and incentives to assist security forces.

Determining What Works

In light of these conflicting views on the impact of various economic strategies, the intent of our study was to examine an ongoing counterinsurgency, determine the various economic initiatives employed, and analyze their impact on the effectiveness of counterinsurgent forces. The GEM program outlined earlier is similar in many ways to programs implemented by US personnel in regions of conflict around the globe, and the data available provides a ready case for testing.¹⁵

To determine what monetary ammunition is most effective in counterinsurgency, we constructed a statistical model to assess the extent to which the effectiveness of AFP lethal operations could be explained by the presence of specific GEM projects over time. First, we expanded the three broad categories of projects—infrastructure development, workforce preparation, and former combatant reintegration—into four independent variables corresponding to each category, with CLIC and EASE projects treated as two separate variables. The critical difference between these two educational programs is the level of financial stake and local government involvement required for project execution. Before funding a CLIC project, USAID requires a small financial contribution from the local community, although the resulting school computer facility is still predominantly US-funded. Under the EASE program, the local government or community group must conceive, plan, and propose the school improvement requiring funding, then raise half of the funds, which are subsequently matched by USAID.

As a dependent variable measuring the effectiveness of lethal counterinsurgency operations, we used a figure representing enemy killed in action (KIA) as a percentage of total combatant KIA. Increases in this figure show an increasing ability of government forces to kill insurgents while minimizing their own losses. The use of such a casualty-based metric as a measure of effectiveness in counterinsurgency is undoubtedly controversial but not without justification. Ideally, population survey data could be used more directly to measure the ability of economic development projects to win over the people, but unfortunately the best survey data for this area only

goes down to the provincial level, not individual municipalities, and is not collected every year.¹⁶

In the absence of sufficiently granular survey data, we are left with an array of casualty figures collected by the AFP Joint Operations Center from units conducting counterinsurgency and internal security missions in the ARMM. The use of raw casualty numbers as a measure of effectiveness is inherently flawed for a number of reasons, most notably the likelihood of an enemy surge where government efforts are having the greatest effect, as well as the possibility of security forces avoiding areas—and hence casualties—where the enemy has the most influence. Using the aforementioned enemy-to-total-casualty ratio, however, avoids the greatest sources of bias. A statistically significant link can be identified between the KIA percentage and several categories of GEM projects. One plausible explanation is that projects are serving as an inducement for the population to provide information to security forces and withholding support from insurgents. This view is supported by counterinsurgency scholar David Kilcullen, who states, “If a unit’s kill ratio is improving, this may indicate greater confidence, better dominance over an area, better intelligence, and possibly a closer relationship with local populations.”¹⁷

We must note that our use of this metric is by necessity rather than choice, however. Far from endorsing a focus on lethal operations or an attrition approach to counterinsurgency, we believe counterinsurgency is ultimately a struggle for influence over a population. In this case, lacking sufficient opinion survey data, influence can be indirectly measured by a casualty percentage. In this admittedly imperfect manner, a casualty-based measure is an effective indicator of the winning of the population.

Findings

Regression analysis using the variables described above while controlling for demographics and time indicates some expected and surprising results, with each having a high-level of statistical significance. As might be expected, the presence of infrastructure and workforce preparation projects in a particular municipality explains a higher level of counterinsurgency effectiveness, with the greatest impact of infrastructure projects observed two years after completion. More interesting, perhaps, is the fact that while infrastructure and workforce preparation projects are correlated with improved counterinsurgency effectiveness, the projects within these categories requiring greater community buy-in (EASE projects, in particular) were associated with significantly larger improvements in efficacy.

The increase in the effectiveness of lethal operations explained by infrastructure and workforce preparation projects, especially those requiring

a large community stake, has several possible interpretations. All GEM projects seek to provide infrastructure and services primarily through local government units, and as such project in a tangible and visible manner the image of a government that is providing for the needs of its people. The fact that GEM is a US-funded program is no secret; however, local governments must still work in order to bring the benefits to their municipalities and barangays, and government units that do so more effectively better demonstrate their capability to the people. When the local population witnesses a functioning and effective government working for them, they may become less likely to support insurgent groups and more likely to provide information to government forces. This increased willingness to provide information can be interpreted as progress toward the ultimate goal of winning influence, or simply the human tendency to side with a perceived winner. The measurable effect of this increased willingness to assist security forces is a rise in the enemy casualty percentage, less important by itself, but perhaps a general indicator of counterinsurgency success.

The delayed impact of infrastructure projects indicates that some passage of time may be required for the population to recognize the positive aspects of such projects; therefore, individuals do not give credit—and possibly important information—to government or security force personnel immediately after an infrastructure project is completed. The fact that the economic benefits of new infrastructure often take a period of time to develop supports such an explanation.

Projects aimed at improving education for the youth of a community, in the workforce preparation category, showed a more immediate positive impact on the counterinsurgents's effectiveness. At first, this seems counterintuitive, as one would expect the payoff from improved education not to be felt for a generation or more. The battle for influence, however, is fought in the realm of perception rather than reality, and the key to effectiveness is convincing the average person that his or her future is better served by the government than by the insurgency. Although projects aimed at improving education will not see real benefits for some time, when an individual is deciding which group (government or the insurgent) most positively impacts his or her future prospects—and thus which group he or she will support—the individual often makes that decision based largely upon which group will provide better opportunities for his or her offspring, the most tangible representation of that future. Thus, government actions to improve educational opportunities—though they may not provide an immediate improvement in a community's productive capacity and quality of life—go a long way toward convincing people that their interests and futures are best served by the government. It follows that they would then be more likely to provide information that will increase the counterinsurgents's effectiveness

in the near term. Such an explanation is supported by a significant body of literature postulating that individuals employ a dynastic utility function when making decisions by not only considering their own well-being but also that of future generations.¹⁸

Within the workforce preparation category, we found that EASE projects had a greater impact than CLIC projects. We attribute this distinction to the differing stakes required of community members before the execution of each project. While all GEM projects require some degree of community stake in the project, the required stake is larger in EASE projects, as community organizations must present a detailed, viable plan and provide half of the funding before the project can move forward. It would seem that these projects would be the ones that are most strongly desired, possibly explaining their greater impact. The buy-in requirements may force the community group to plan, organize, and raise revenue in order to earn a matching grant for their school. This planning often occurs in coordination with the local government unit, thus increasing the legitimacy of the government and leading to increased effectiveness of the counterinsurgents.

LEAP participation, in the Former Combatant Reintegration category, surprisingly is negatively correlated to counterinsurgency effectiveness in our analysis. Before we lead the reader to believe that FCR programs actually help the insurgency, we should point out that there exists considerable potential for selection bias in this particular measure, by the program's very nature. Still, the significantly large reduction in counterinsurgency effectiveness our analysis attaches to LEAP projects provides support, however inconclusive, to the previously discussed theory that high employment does nothing to hinder, and may actually help, an insurgency in the short-term.

This idea goes hand-in-hand with our conclusion: economic development efforts in counterinsurgency are only effective to the extent that they build and visibly demonstrate host-government capacity. Higher employment, even among ostensibly reformed insurgents, is no help if it does not show the people that the government is functioning and providing for their needs. In the worst case, if other local conditions remain favorable to the insurgency, more jobs may simply lead to a better-resourced enemy. This is where the distinction and occasional tradeoff between short- and long-term objectives in counterinsurgency become critical. While jobs may not necessarily support immediate security efforts, high employment is absolutely critical to long-term economic growth, which is indisputably linked to long-term stability.

Conclusions

We are left, then, to ask: How should commanders best utilize their monetary ammunition in theaters in which host nation partners's capabilities, and, consequently, restrictions on the application of US power, are increasing? From our study of the impact of the GEM program, we submit four recommendations for those seeking to bring stability to such an environment through economic initiatives:

- In all economic endeavors, seek to foster the legitimacy of the host nation government and security forces in the eyes of the populace. Put a host nation face on every project, and if at all possible, ensure that local government units have responsibility for the success of the project.

- Buy-in is essential. Require that the local community, ideally in conjunction with the local government, submit viable project proposals and provide a portion of the funding prior to project execution.

- Balance the need for long-term economic development against the short-term focus on security improvement. In counterinsurgency, perception is often more important than reality, and it is vital for the local population to believe that the projects being implemented will actually improve their lives. While employment and some infrastructure projects may not provide an immediate payoff, they are essential for long-term economic development. These two aims must be balanced appropriately. Projects aimed at improving educational opportunities may be the ideal type of project for achieving this balance, improving the capacity of future generations while generating positive sentiment among the current generation.

- Improve data collection and develop better measures of effectiveness. Attempts to analyze economic development efforts are severely hampered by a lack of quality historical data. This lack of record keeping makes it impossible to empirically assess the impact of various types of projects across multiple unit rotations. Additionally, we currently lack information required to measure the effectiveness of a counterinsurgency campaign, most notably detailed population attitudinal survey data executed consistently over multiple time periods. Detailed mapping of the human terrain is necessary to truly assess the impact of any counterinsurgency campaign.

While our analysis of the USAID GEM program provides some insight for those attempting to use economic initiatives in other counterinsurgency campaigns, it is merely an examination of one particular program in one country, during a specific time period and with less-than-ideal data. What is working in the Philippines may not work in Afghanistan, Iraq, or Sub-Saharan Africa, and local circumstances must always be taken into account when designing a counterinsurgency campaign. Despite the *sui generis* nature of counterinsurgency, however, some

lessons can be learned and adapted elsewhere, and need to be if we hope to be successful. While data collection and analysis will always be a major challenge in these endeavors, it is absolutely necessary if we hope to employ monetary ammunition more appropriately in troubled regions.

NOTES

1. David Petraeus, "Learning Counterinsurgency: Observations from Soldiering in Iraq," *Military Review*, 86 (January-February 2006), 45-55.
2. David Maxwell, "Operation Enduring Freedom-Philippines: What Would Sun-Tzu Say?," *Military Review*, 84 (May-June 2004), 20-3.
3. USAID: Philippines, "Growth with Equity in Mindanao (GEM) Program," 31 January 2010, http://philippines.usaid.gov/eg_gem3.html.
4. Ibid.
5. Ibid.
6. *The U.S. Army/Marine Corps Counterinsurgency Field Manual: U.S. Army Field Manual No. 3-24: Marine Corps Warfighting Publication No. 3-33.5* (Chicago, Ill.: Univ. of Chicago Press, 2007), 23.
7. Paul Collier and Anke Hoefler, "Greed and Grievance in Civil War," *Oxford Economic Papers*, 56 (October 2004), 563-95.
8. Ibid.
9. Grossman, H. "A General Equilibrium Model of Insurrections," *American Economic Review*, 1991.
10. David Keen, "The Economic Functions of Violence in Civil Wars," *Adelphi Papers*, 38 (320:1998).
11. James D. Fearon. "Economic Development, Insurgency, and Civil War," *Institutions and Economic Performance*, ed. Elhanan Helpman (Cambridge: Harvard University Press, 2010), 295-296.
12. Eli Berman, Jacob N. Shapiro, and Joseph H. Felter, "Can Hearts and Minds Be Bought? The Economics of Counterinsurgency in Iraq," *NBER Working Paper*, 14606 (December 2008), 7, <http://www.nber.org/papers/w14606> (accessed March 10, 2010).
13. Stathis N. Kalyvas, *The Logic of Violence in Civil War* (New York: Cambridge University Press, 2006).
14. Eli Berman, Joseph H. Felter, and Jacob N. Shapiro, "Do Working Men Rebel? Insurgency and Unemployment in Iraq and the Philippines." *NBER Working Paper*, 15547 (November 2009), <http://www.nber.org/papers/w15547> (accessed March 10, 2010).
15. All data used in the study covers the period from 2002 to 2007 in the Autonomous Region of Muslim Mindanao and includes municipalities experiencing conflict-related casualties in at least four of the eight years. Additionally, observations in provincial capitals were discarded due to the fundamental demographic and security differences existing between these areas and the rural countryside. While 2002 and 2003 data was included, observations in these years do not appear in the regression analysis in order to consider time lags. As a result, this analysis covers 28 municipalities in the provinces of Maguindanao, Lanao del Sur, Basilan, and Sulu during four years, producing 112 individual observations. We collected all GEM project data during a March 2010 visit to the Philippines solely from in-country USAID staff and contract workers. Security-related data has been compiled from reports of operational incidents collected by the Armed Forces of the Philippines's Joint Operations Center by units conducting counterinsurgency and internal security missions during the period in question.
16. These surveys were conducted by the Social Weather Stations on request from the US government as recently as May 2008 and, while quite detailed, are unsuitable for micro-level empirical analysis of the type described here.
17. David J. Kilcullen, *Counterinsurgency* (New York: Oxford University Press, 2010), 66.
18. Gary Becker and Robert Barro, "A Reformulation of the Economic Theory of Fertility," *The Quarterly Journal of Economics*, 103 (February 1988), 1-25.