How do criminal organizations react to media coverage? The case of Mexico’s drug war

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Abstract

Expanding on a long tradition of literature that tries to identify the conditions under which criminal organizations publicly take credit for their violent acts of terrorism, this paper presents empirical evidence that media attention influences the use of credit-taking expressions by Mexican drug cartels. Using a data set of 1,800 banners publicly displayed by drug trafficking organizations to take credit for their crimes, we estimate reaction functions to determine the media effects on credit-taking. We avoid the mistaken common assumption that press freedom is a proxy for press coverage, and find evidence of Granger causality from media coverage to credit-taking. When media coverage increases, criminal organizations react by further increasing the number of banners publicly displayed. We attribute this effect to changes in criminal strategy: credit-taking criminals decide to become more public when they know that their message will get more attention from the press. Our estimates show that a “shock” in media coverage generates up to 1.9% additional credit-taking banners from criminals during the following weeks.

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This paper explores the conditions under which criminal groups intentionally forgo their clandestine nature and publicly acknowledge responsibility for their violent criminal acts. Specifically, we try to understand the role that media attention plays in inducing criminals to take credit for their actions.

We also aim to expand our understanding of how democratic values, like freedom of the press, may affect state goals such as governance and the rule of law. These connected pursuits will help scholars and policy makers reexamine the foundations of democratic states and grapple with the evident trade-offs between some of its most important principles.

To date, the literature has identified many factors that increase the propensity of criminals to take credit. The most explored cases are part of the terrorism the most commonly explored case (see for example Wright 2009; Abrahms and Conrad 2017; Abrahms et al. 2017; Hoffman 2010; Kearns et al. 2014; Conrad and Greene 2015; Hoffman 1997). Yet, the literature on crime in general has also been eager to understand the conditions under which criminals “go public”, particularly because of copy-cat behaviors and other criminogenic influences (Surette 2014, 2013; Surette and Gardiner-Bess 2014; Ivory and Kaestle 2013; Ferguson 2015).

Yet, to the best of our knowledge, there have not been any studies directly addressing the impact of media coverage on credit-taking. A few scholars have broached the subject, but only explicitly mentioning that this question was salient for future studies (Abrahms and Conrad 2017; Surette and Gardiner-Bess 2014).

This paper fills this gap in our understanding of media effects by arguing that there is a symbiotic, bidirectional relationship between credit-taking and media coverage. Media coverage may induce crime by normalizing criminal events and by providing ideas to potential criminals (Ferguson et al. 2008; Surette 2013); conversely, criminal events may further induce media coverage if they are strategically planned to be scandalous and provocative (Hoffman 1998; Wu 2000; Nacos 2002).

To test our hypothesis we rely on reaction functions, an ideal model to characterized bidirectional phenomena, meaning instances where reactions by one variable causes reactions by another, and the other way around. We use data collected from the activities of Mexican drug-cartels. Cartels are a fascinating case because of their unique hybrid nature. Drug cartels share the most important dimensions of terrorist organizations (Brito and Intriligator 1992; Campbell 2014; Campbell and Hansen 2014), but they conduct regular crimes (Ríos 2014; Holland and Ríos 2017; Ríos 2013; Robles et al. 2013). This makes them ideal subjects to identify the features of credit-taking among both, criminal and terrorists groups.
Our results find evidence that media coverage and credit-taking are reacting to one another as a vicious cycle, and that there exists a Granger causality that runs from media coverage to credit-taking banners. In other words, we find that the number of banners publicly displayed by criminal organizations can be predicted by past levels of media coverage, and that such a predictive relationship holds, but is not causal, from credit-taking banners to media coverage.

In particular, we estimate that positive shocks to media coverage generate up to 1.9% more credit-taking banners during the following week. Our contribution is thus to show that publicity-seeking criminals are more brazen when they know that their public expressions will be better covered by the media.

This paper is organized in six sections. The first section discusses literature analyzing trends in criminal credit-taking, and the expected role that media coverage may play in inducing criminal activities. A second section presents our theory. A third and fourth sections present our dataset and empirical specification, respectively. A fifth section explores results and discusses them, and finally, we conclude with the sixth section.

Credit-taking and media coverage

Drug trafficker banners are a well-documented phenomena that ranges from simple messages like Long live the Juarez cartel, Culiacan Sinaloa is our territory [Juarez cartel] (El Sol de Cuernavaca 2010), to cruel displays of dismembered bodies explaining that this would happen to those who dare to invade this place” (Huerta, 2010).

Media coverage of ghastly drug cartel crimes (Molzahn et al. 2012; Campbell 2014; Durán-Martínez, 2015; Atuesta 2017) has detonated a large debate over whether such public displays of criminal power should be allowed (Martin 2012). Some argue that allowing the media to cover credit-taking banners enhances the power of drug cartels by allowing them to spread fear and communicate with their enemies. The security implications for empowering drug cartels whose main activities are conducted at the US-Mexico border may be long lasting and strong for both countries.

As testament to the severity of this problem, during March of 2011 Mexico’s Ministry of Governance proposed the “Agreement on Media Coverage of Violence”. This pact was signed by 700 media outlets in Mexico who agreed to reduce coverage of crime perpetrated by drug trafficking organizations in hopes of thereby reducing drug-related homicide rates (Philip and Berruecos 2012).

The agreement was cheered by some, but many other people had serious misgivings.
Citizens worried about the implications that regulating coverage had for freedom of the press in Mexico. To wit, they argued that depriving them of information about criminal activities happening in their neighborhoods would violate principles of democratic governance, such as having an informed electorate.

This controversy is particularly fascinating for academics. Actually, academia considers testing the assumption that press coverage could influence the decisions of criminals as one of the most challenging next steps of social sciences research (Abrahms and Conrad 2017; Surette and Gardiner-Bess, 2014).

As of now, we have tried to understand many different variables that may influence the decisions of criminals, but never directly addressed media coverage. This has been done in two sister literatures: terrorism and criminology.

Studies of terrorism have identified that credit-taking is more probable when groups want to signal that they are more capable than their enemies (Dolnik, 2003), or want to communicate the toughness and power of the organization (Gambetta, 2009; Wright, 2009). Reputation building is also a strong determinant. As studies of the Taliban have shown (Abrahms et al., 2017), credit-taking happens less when citizens are targeted because indiscriminate violence may undermine the organization’s political goals (Abrahms and Conrad, 2017). Another interesting finding is that competition among criminals makes credit-taking thrive (Hoffman, 2010; Kearns et al., 2014), and promotes the design of more “shocking” crimes (Conrad and Greene, 2015). The institutional environment is also an important determinant. Democracies (Min, 2013) with stronger enforcement power (Hoffman, 1997) that restrain from endorsing criminal organizations (Benjamin, 2001) see much less credit-taking. Overall, credit-taking is understood as a tool to promote a like-minded community, recruit members, determine their agenda, and gain support from pro-terrorism audiences (Crenshaw, 1985; Bloom, 2005; Siqueira, 2005; Brown, 2017).

Aside from the terrorism literature, criminology literature has also been eager to understand the conditions under which criminals “go public”, particularly because of copy-cat behaviors and other criminogenic influences (Surette, 2013; Surette and Gardiner-Bess, 2014; Surette, 2014; Ivory and Kaestle, 2013; Ferguson, 2015).

This paper constructs upon these previous studies by being the first to directly address the impact of media coverage on credit taking.
Theory

It is our argument that the relationship between media coverage and credit-taking is bidirectional, but that we need to empirically test which direction of the impact is a stronger predictor of the other.

On one side, credit-taking influences media coverage because the media’s decision about what to publish rarely responds to a ‘normative consensus’. Instead, it normally responds to what both reporters and editors feel is ‘newsworthy’ (Hoffman 1998; Nacos 2002; Fink and Schudson 2014; Coddington 2014). As Reiner and Newburn (2007) pioneering research on the topic explained, crime reporters tend to develop a symbiotic relationship with the contacts and organizations they regularly cover. In the case of Mexico’s drug traffickers, for example, the striking images of beheaded bodies, midday killings near a kindergarten, and wicked acts such as crucifixions have resulted in newspapers and TV newscasts filled with increasingly shocking images and grim headlines.

On the other side, and more interesting, media coverage could influence credit-taking behavior because criminals purposely seek media coverage to advance their objectives by publicizing incidents that were strategically planned to draw attention and to be fear-inducing, like terrorist attacks (Martin 1985; Hoffman et al. 2013; Asal and Hoffman 2016). Terrorist time their attacks to be well-covered (Schmid and De Graaf 1982), run newspapers, radio stations, and websites (Hoffman et al. 2013), and are encouraged by freedom of the press (Schmid 1989; Eubank and Weinberg 1994; Drakos and Gofas 2006; Piazza 2008).

Criminal organizations and gangs use publicity to build a reputation of power, a critical requirement of success in an industry lacking full information and formal contract enforcements (Lantz 2016; Durán-Martínez 2015). Enhancing their reputation makes citizens more vulnerable to criminal extortion, and makes local authorities more prone to corruption. Also, it deters the emergence of rival criminal groups, diminishes desertion and disloyalty within the organization, and generates a sentiment of pride and belonging for organization members.

The reputation of criminals is enhanced by media coverage because there is a positive and significant relationship between media consumption and citizens’ perceptions of security. Media coverage of terrorist attacks, for example, has been found to amplify terrorist activities beyond their true magnitude, strongly affecting how fearful citizens are (Ghetti 2008). Overrepresentation of horrific or criminal incidents can change people’s perception, leading them to overestimate the frequency and the danger that criminals represents to them (Heath and Gilbert 1996).

\[ \text{Footnote: It is interesting to note that, just as this literature would expect, there is less of an impact on} \]

Besides enhancing reputation, media may also contribute to create more instances of criminal activity by normalizing violence and providing ideas to potential criminal copycats (Surette and Gardiner-Bess 2014; Surette 2014). Indeed, by the time the average child reaches age 18, it has been estimated that s/he would have been exposed to “some 18,000 murders and countless highly detailed incidents of robbery, arson, bombings, shooting, beatings, forgery, smuggling and torture (Sasson 1995)”. Arguably, crime becomes easier to perpetrate when, as a result of such exposure, it is not regarded as absolutely deviant conduct.

Observing crimes has also been shown to prime individuals to have more aggressive thoughts and to exhibit more hostility (Surette and Gardiner-Bess 2014; Ivory and Kaestle 2013; Ferguson 2015). Indeed, Gunter (2008) well-known work has illustrated that real crimes are copied after they have been depicted in the media. This effect may be particularly strong for predisposed individuals that might personally relate to the criminals portrayed in the media (Huesmann 1986; Surette 2013).

Finally, press coverage could also influence the ways in which groups design their attacks (Crenshaw 1985; Hoffman 1998) because terrorists understand the potential of the media to help them reach wider audiences (Weimann 2005; Martin 1985), and mediate their communications (Iqbal 2015). Indeed, terrorists’ manipulation and exploitation of the media is a critical part of their propaganda strategy (Schmid 1989; Wilson 1997). When the international press covers domestic terrorists, for example, they are less likely to launch cross-border attacks (Asal and Hoffman 2016), and when press attention increases, attacks may become up to twice as likely (Hoffman et al. 2013).

Overall, we have plenty of evidence to support our theory that there could exist a bidirectional relationship between the media and credit-taking. Criminals may respond to media coverage by claiming credit for increasingly depraved crimes, and the media may respond to this by increasing the coverage of these kinds of crimes, or vice versa.

Yet, the strength of the relationship between these two variables has yet to be empirically examined. The contribution of this paper is to fill that gap, in the next two sections we will describe our data and the empirical strategy that enabled us to do so.

Data

For this study, we centered our data collection efforts on Mexican drug cartels. There were several reasons for this choice.
First, we chose Mexico as our lab because of the unique hybrid nature of drug trafficking organizations. Drug cartels operate as terrorists and as criminal organizations, thus allowing us to contribute to literatures studying both (Campbell and Hansen 2014).

Drug-cartel organizations, like terrorist groups, perform criminal activities for operational purposes (McCaffrey and Basso 2002; Makarenko 2004; Björnehed 2004), and use terror as part of their regular activities (Brito and Intriligator 1992). More specifically, Mexican drug cartels share at least three features with terrorist organizations: (1) they use violence to vie for regional political control, (2) violence is ordered by cartel leaders rather than being spontaneously done by foot soldiers, and (3) violence is considered as an expansion strategy, leading from drug trafficking to other kinds of organized crime (Campbell 2014; Campbell and Hansen 2014). As a result, the State Department has placed Mexican drug cartels on the list of Foreign Terrorist Organizations (Campbell and Hansen 2014).

One of the most interesting similarities between terrorist organizations and Mexican drug cartels is the use of credit-taking for political purposes. Notably, as is the case for cross-country literature, we lack an analysis of the role media coverage plays in promoting this. In previous studies the propensity of drug cartels to publicly take credit for their violent actions has been attributed to competition (Durán-Martínez 2015), wanting to appear powerful (Lantz 2016), and to the search for public legitimacy (Mendoza Rockwell 2016).

Second, we chose Mexico because of its policy relevance for US national security. Addressing whether there may be a direct relationship between media coverage and criminal behavior in Mexico would greatly assist in the development of better strategies to contain criminal activities along the US-Mexico border.

Finally, and quite important for empirical issues, studying credit-taking among Mexican drug-cartels allows us to understand credit-taking with sub-national diversity, an accomplishment only sometimes achieved by quantitative credit-taking research (see Hoffman 2010).

This study was made possible because of the existence of quite unique datasets that we have conglomerated over more than a decade of studying the US-Mexico border. Our datasets allowed us to measured crime coverage and credit-taking following the best practices identified by recent publications.

First, our measure of press coverage avoids the common mistake of using press freedom as a proxy for press coverage (Hoffman et al. 2013). This means that instead of measuring media regulations as was done in the past, we follow a more recent literature that measures media attention (An and Kwak 2017).
Media coverage was measured by taking advantage of the sui generis way in which Mexican state authorities count homicides, and by leveraging the separate count kept by the media. Mexico’s Ministry of the Interior keeps a database (fed monthly by criminal investigations conducted in each of the 32 state-level prosecutors’ offices) of murders committed by drug cartels. The dataset is publicly available from December of 2006 to September of 2011. Meanwhile, in late 2007, the press started a large effort to cover every drug cartel homicide due to the high relevance of the topic.

We gained access to both the official and media counts of drug cartel homicides and compared them to create a proxy for how accurate media coverage was. The data is disaggregated for 32 states over 508 weeks. We define media coverage as a continuous variable that measures the number of homicides counted by Mexico’s government that were not covered by the press. When the difference between homicides reported by the press and those reported by the government is zero (or positive), we say the area is fully-covered. When the difference is negative, this indicates that homicides are being under-covered.

Second, our measure of credit-taking follows the most recent literature by addressing the notion that most crimes are not claimed, a popular request that’s not always considered in empirical testings (Rapoport, 1997; Hoffman, 1997; Abrahms and Conrad, 2017). Specifically, we measure not only the cases of credit-taking, but also instances in which crimes were committed without being claimed.

To measure credit-taking, we took advantage of the well-known tendency of Mexican drug traffickers to publicize their criminal actions (Molzahn et al., 2012; Martin, 2012; Campbell, 2014; Durán-Martínez, 2015; Lantz, 2016; Mendoza Rockwell, 2016). The cartels typically accomplish this by using publicly displayed banners known as narco-banners. These are messages that traffickers leave in the open to clarify why they operate there, to intimidate other potential victims, to identify themselves or their victims, and to communicate with citizens around the area (Martin, 2012; Atuesta, 2017). Narco-banners range from short statements like “you cannot be on good terms with both God and the Devil”, to messages directed at “the brave, noble, and loyal people” wishing them a “Merry Christmas, ho, ho, ho”, or letting them know that “this is for the good of all” (Molzahn et al., 2012).

We compiled a list of about 1,800 credit-taking banners displayed across all 32 Mexican states during 2007-2010. Our dataset identified the state and week in which the banner was displayed, along with (if available) the complete message used and the criminal organization that signed it. This database constitutes an invaluable source of informa-

\[^2\]a detailed description as to how these classifications are made by Mexico’s government see (Molzahn et al., 2012)
tion. As shown in figure 1, the use of narco-banners has increased both in number and regularity, with some weeks having up to 35 banners displayed across the country.

(Figure 1 about here)

Empirical testing

To test the bidirectional nature of the relationship between media coverage and criminal credit-taking, we follow literature that has been developed to empirically test cycles (Jaeger and Paserman, 2008), and rely on Granger (1969) causality tests. Specifically, we developed a model based on empirical reaction functions for media coverage and credit-taking in the form of the following panel vector auto-regression (VAR):

\[ A_j = BXe_jt \]  

where the \( A_j \) s and \( B \) are matrices of coefficients, \( X \) is a vector of exogenous variables that may shift the reaction function up or down, and \( e_jt \) is the vector error term. The dependent variable of media coverage is lagged media coverage, and the dependent variable of criminal behavior is lagged coverage. The time variation, given the structure of the data, is weekly for almost 3 years. The geographic variation of the data is by state.

Our Granger test amounts to testing the joint significance of the coefficients on lagged values of the impulse variable in a regression of the response variable on lagged values of both response and impulse variables. If the signs of the impulse variable are significant, we would have found evidence that the response is “Granger-causing” it. The impulse variable will be reacting to the response variable if, conditional on lagged values of the response variable, lagged values of the impulse variable have predictive power for the current value of the response variable. Overall, the model we propose is useful to analyze a phenomenon without imposing prior assumptions. We allow the data to speak for itself.

We complement our Granger test with nonparametric impulse-reaction functions and forecast error in variance decomposition analysis for coverage and criminal behavior. Our impulse-reaction functions describe how the criminogenic styles react to media coverage, while holding all other shocks at zero, and vice versa. To do so, and following Love and Zicchino (2006), we transform the system in a recursive vector autoregressor using a Choleski decomposition of variance-covariance matrix of residuals. To isolate
the shocks, it is necessary to decompose the residuals of the model to make them orthogonal, thus assuming that coverage responds criminogenic style in t, while criminogenic style responds to coverage with a lag.

Results

Table 1 presents the results of our general model for two reaction functions. Each function was estimated from a panel with five lags. The first column represents the impact of credit taking (and media coverage itself) on media coverage, and the second represents the impact of media coverage (and credit taking itself) on credit taking.

The results support our hypothesis that the relationship between credit taking and media coverage is bidirectional, yet it also shows that the directionality of the effect is much stronger from media coverage to credit-taking than the other way around. Column 1 shows that media coverage is impacted by credit-taking in statistically significant ways during week three. Column 2 is clear in showing that criminals take more credit when the media has covered similar crimes before. Credit-taking reacts in a statistically significant and regular way on weeks one, three and four. Granger test supports this result, showing that media coverage helps to predict credit-taking (5% significance level), while credit-taking behavior fails to predict media coverage (20% level).

(Table 1 about here)

Figure 2 presents the impulse-reaction functions with 95 percent confidence bands for credit-taking style and quality of media coverage. For the impulse reaction functions, we generated the 5 percent error band with a Monte-Carlo simulation of 1000 repetitions. The impulse-reaction functions graphs describe how credit-taking reacts to media coverage, while holding all other shocks at zero, and the other way around. Both the shocks and the impacts are presented as standard deviations.

The down-left corner of figure 2 shows that when there is a shock in press coverage, the number of credit-taking banners reacts by increasing during week one. Criminal organizations have more incentives to take credit in the weeks following high media coverage. The fact that this effect is statistically significant means that the positive effect revealed by the data reflects a pattern, rather than just chance. During the second week the positive effect loses statistical significance and it peaks again during the third week becoming statistically significant again.
In terms of magnitude the effect we can measure it with the forecast error variance decomposition. This measure is useful to know how important is each shock in explaining each variable in our equation. In this case, as much as 1.9% of the error in the forecast of credit-taking behavior is explained by changes in the media coverage.

The up-right corner shows that when there is a shock in credit-taking, media coverage increases slightly during the second and third week, decreases during the fourth week and peaks again during week fifth. Unlike with credit-taking, the effect on coverage is larger in magnitude but it is only statistically significant for the third week. This pattern is intuitive, and it reflects the news cycle. It is rare for one incident to be in the news for more than a week, but specialized opinion or monthly reviews can pick up the story again once it has been in the cooler for a while, and this could explain the inverted U-shape of the coverage function. Moreover, as much as 0.2% of the error in the forecast of media coverage is explained by changes in credit-taking behavior.

Overall, our results support a world in which criminals tend to take more credit for their criminal actions when the media has covered them previously. Even if there is evidence that media coverage and credit-taking are reacting to one another as a vicious cycle, Granger causality runs from media coverage to credit-taking. In other words, we find that the number of banners publicly displayed by criminal organizations can be predicted by past levels of media coverage, and that such a predictive relationship holds, but is not causal, from credit-taking banners to media coverage. This is an insightful result that speaks directly to the power of media on shaping behaviours at many levels of society.

**Conclusion**

This paper contributes to the general criminology literature and to the literature concerning terrorism specifically by providing insight into the relationship between media coverage and credit-taking.

To accomplish this, a test was conducted using Mexico as our area of study, and Mexican drug-trafficking organizations and the press as our objects of study. We leverage a unique dataset that contains weekly-frequency data on the intensity of drug-cartel media coverage, and on the quantity of public banners displayed by drug cartels. Banners are commonly used in Mexico’s drug trafficking organizations to take-credit for their crimes and to intimidate potential criminal rivals (Molzahn et al., 2012; Campbell, 2014; Durán-Martínez, 2015; Atuesta, 2017). We gathered information about 1,800 banners over a period of 508 weeks. Our goal was to explicitly measure media coverage, not media freedom, following recent literature that has been emphatic on the need
to differentiate both variables (given that free media does not necessarily grants media attention) \citep{Hoffman2013,An2017}.

We developed a model based on empirical reaction functions for media coverage and criminal behavior in the form of a panel VAR. Results show that credit-taking reacts to media coverage in a unidirectional way, which means that the relationship is not a vicious cycle, as some have supposed. By showing a strong Granger causality from media coverage to credit-taking, this paper has disentangled the supposedly symbiotic relationship between media coverage and criminal behavior. However, further research is needed to test for causal relationships beyond Granger causality.

Overall, this work presented evidence that publicity-seeking criminals will act more brazenly and increase the atrociousness of their crimes when they believe that doing so will rope the media into helping spread their message. Understanding how the dissemination of information is affecting the behavior of criminal groups is critical to social sciences and democratic governance. To the former, because this research will guide policy makers in their efforts to decrease the ferocity and frequency of crime. To the latter, because the evident unidirectional relationship between the media and credit-taking crimes leads us to more carefully consider the trade-offs between long cherished democratic principles.

**References**


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Rapoport, D. C. (1997). To claim or not to claim; that is the question–always! Terrorism and Political Violence 9(1), 11–17.


# Tables

Table 1: Media coverage and credit-taking

<table>
<thead>
<tr>
<th>Variable</th>
<th>Media coverage</th>
<th>Credit-taking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media coverage (t-1)</td>
<td>0.0153</td>
<td>-0.0033***</td>
</tr>
<tr>
<td>Media coverage (t-2)</td>
<td>0.0191</td>
<td>-0.0012</td>
</tr>
<tr>
<td>Media coverage (t-3)</td>
<td>0.0406</td>
<td>-0.0022**</td>
</tr>
<tr>
<td>Media coverage (t-4)</td>
<td>0.0072</td>
<td>-0.0018*</td>
</tr>
<tr>
<td>Media coverage (t-5)</td>
<td>0.0709</td>
<td>-0.0012</td>
</tr>
<tr>
<td>Credit-taking (t-1)</td>
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<td>0.1599***</td>
</tr>
<tr>
<td>Credit-taking (t-2)</td>
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<td>0.1310***</td>
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<tr>
<td>Credit-taking (t-3)</td>
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<td>0.0609***</td>
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<td>Credit-taking (t-4)</td>
<td>0.5442</td>
<td>0.0498**</td>
</tr>
<tr>
<td>Credit-taking (t-5)</td>
<td>-0.2387</td>
<td>0.0462**</td>
</tr>
</tbody>
</table>

Granger test (Prob>chi2)   0.204  0.037**

Note: * p < 0.1; ** p < 0.05; *** p < 0.01.
Figures

Figure 1: Number of narco-banners, weekly
Figure 2: Impulse reaction functions, Media coverage and Credit-taking