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Mobile Advertising: An Economic Perspective

by Michael DeCesaris and Samid Hussain

Introduction

Advertising plays an important role in informing consumers, reducing search costs, and helping firms promote their products. Economic analysis shows that, all else being equal, advertising can lead to lower prices if there are significant economies of scale in production and when significant search costs are involved. In contrast, advertising can lead to higher prices if advertising generates brand loyalty. The economics of advertising is based on a “two-sided market” in which intermediaries operate platforms that connect advertisers and consumers. There is a bait to attract eyeballs, and intermediaries sell access to those eyeballs to advertisers. In addition, network effects are significant because of the importance of “liquidity,” that is, the higher the volume of buyers and sellers, the higher are the prospects for advertising. In the economic characterization of advertising as a shifter of demand curves, it is well understood that firms will continue to advertise using the most profitable avenue as long as the marginal sales resulting from advertising add significantly to profits. Hence, profit-maximizing firms are more likely to pursue advertising strategies that deliver relevant information to target audiences in the most cost-effective fashion.

In this article, we examine how the proliferation of mobile communication has created new economic opportunities for mobile advertising and forms of mobile advertising that hold significant promise. We also discuss some of the challenges and bottlenecks facing mobile advertising.

Rise of Mobile Advertising

Mobile advertising represents another example of advertising being developed to take advantage of new forms of technology – just like radio, television, and Internet advertising before it. The ubiquity of mobile

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1 The authors are Principals at Cornerstone Research, an economic and litigation consulting firm. The views expressed in this paper are solely those of the authors and do not represent those of Cornerstone Research or any client.


communication creates new economic opportunities for advertisers.6 According to many industry analysts, mobile advertising—advertising delivered to mobile phones and other portable devices such as the iPad—offers tremendous promise.7 Some of the examples of mobile advertising include mobile messaging-based advertising (e.g., short text and/or multimedia messages sent to mobile users), advertising within the mobile Internet (e.g., display or text ads), mobile applications (e.g., banners or splash pages), and mobile video (e.g., video ads in pre-roll).

Mobile messaging-based advertising has been the traditional, and still dominant, form of mobile advertising, due in part to the wide reach of second-generation (2G) mobile phones. Examples include messages embedded in user-requested news alerts, responses to mobile search or directory inquiries, or messages in connection with interactive services such as polls or contests. The landscape is quickly changing with the widespread rollout of third-generation (3G) wireless networks and phones (smartphones now comprise 30% of U.S. mobile phones according to Nielsen Mobile),8 spurred in part by the success of the iPhone and Android platforms. The resulting critical mass of usage for the mobile Internet and applications have set the stage for more advanced forms of mobile advertising to challenge and soon overtake mobile messaging: advertising within the mobile Internet, mobile applications, and mobile video. Figure 1 shows the current breakdown of U.S. mobile advertising spending by channel.

![Figure 1: U.S. Mobile Advertising Spending by Channel](image)


**Market size and growth potential**

The U.S. advertising marketplace is dynamic and competitive, with many options available to advertisers. All forms of advertising, including television (broadcast and cable), online, print (newspaper and magazine), and radio compete with one another to varying degrees for advertisers’ dollars. Despite its tremendous promise, mobile advertising in the U.S. is still small at about $800 million, which represents less than 1 percent of U.S. advertising spending.9 However, mobile advertising

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6 Mersavo, et al., supra note 2.
9 Smaato, Inc., supra note 7, at 3; Industry Trends, supra note 7; Universal McCann Magna Global, Estimated Annual U.S. Advertising Expenditures, (obtained from Television Bureau of Advertising).
is growing much more rapidly than other media, including online advertising, while more traditional media like television and print are generally flat or declining. Although researchers agree the size of the U.S. mobile advertising market will more than double within the next two years, they use different metrics to count mobile advertising. Some count only mobile Web and exclude messaging-based advertising, some treat ad-supported mobile media as a separate category, and others exclude mobile search.

One of the reasons for mobile advertising’s projected success is its reach: there are more mobile devices in use in the U.S. than personal computers, and this disparity will likely grow. However, much of this huge potential market is currently untapped, given that approximately 160 million mobile users in the U.S. have not yet experienced mobile advertising. Moreover, the experience thus far with mobile has shown higher consumer receptivity and responsiveness than traditional Internet advertising. According to the Interactive Advertising Bureau, click-through rates for traditional Internet are less than 1 percent, while click-through rates for mobile Internet are between 2 and 5 percent. According to research by M:Metrics, response rates to messaging-based advertisements are as high as 12 percent.

Competitive landscape

Mobile advertising has garnered increasing press attention in the past year and competition has intensified, largely as a result of Google’s acquisition of the mobile advertising network AdMob in November 2009 and Apple’s subsequent acquisition of rival Quattro Wireless in January 2010 and launch of its own iAd platform. As shown in Table 1, Google presently has a large and growing lead in mobile advertising revenues, with new entrant Apple as a distant second. Of course, these shares overstate market concentration since mobile advertising competes with online and other advertising platforms.

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google (including AdMob)</td>
<td>48.6%</td>
<td>59.0%</td>
</tr>
<tr>
<td>Apple (including Quattro Wireless)</td>
<td>5.4%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Millennial Media</td>
<td>5.4%</td>
<td>6.8%</td>
</tr>
<tr>
<td>Yahoo!</td>
<td>7.0%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Microsoft</td>
<td>6.3%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Other</td>
<td>27.3%</td>
<td>15.9%</td>
</tr>
</tbody>
</table>

Source: IDC, reported in “Google Gains Market Share in U.S. Mobile Ads,” Bloomberg Businessweek, December 3, 2010

10 Id.
11 Kharif, supra note 7; Industry Trends, supra note 7.
13 Press Release, Computer Industry Almanac, Inc. PCs In-Use Reached nearly 1.2B in 2008, USA Accounts for Over 22% of PCs In-Use, (Jan. 14, 2009), available at http://www.c-i-a.com/pr0109.htm (“2006 was the last year that PCs per capita remained higher than cell phones. USA and Canada are the only countries that have more PCs in-use than cell phone subscribers.”). In comparison, there are twice as many mobile phones as televisions worldwide and four times the number of computers. See Lisa Petersen & Rob Groot, Location-Based Advertising: The Key to Unlocking the Most Value in the Mobile Advertising and Location-Based Services Markets, Peterson Mobility Solutions White Paper, at 14 (Dec. 2009).
14 Smaato, Inc., supra note 7, at 3
16 Mobile Advertising, supra note 12, at 9.
The involvement of these cutting-edge technology companies confirms the tremendous promise mobile advertising holds, and will spur increased demand and faster development and deployment in the near term for rich media mobile advertising and location-based advertising.

**Comparative Advantages of Mobile Advertising**

Mobile advertising shares many of the comparative advantages over other media for certain advertisers in some areas that have led to the dramatic rise of online advertising over the past decade. While one reason for the shift in expenditures towards new media, such as online and mobile is simply advertising dollars following consumers’ eyeballs, another important reason why they have grown so quickly and been more resilient than other categories in the recent economic downturn is that it is viewed as providing better targeting and being more measurable and accountable than traditional media. For example, because of its greater ability to target than the traditional media, online advertising has provided small and medium-sized businesses with a more cost-effective, national advertising platform. However, local advertisers have not yet fully participated and benefited in online advertising and, while local advertisers utilize television, newspaper, radio, and the Internet, among other platforms, there is still a large portion of the local advertising market that has not been tapped by online or mobile advertising.

While mobile advertising shares many of the features of online advertising such as dynamic interactivity, mobile advertising has greater potential for both demographic and location based targeting than online or any other media. Targeting is possible today based on handset model (which can proxy for demographics), wireless carrier, user preferences (for example through user profile registration), time of day, and, importantly, location.

Location-based advertising (LBA) combines mobile location-based services (LBS) with advertising and offers the potential for mobile advertising to realize its full potential. Mobile LBS relies on a variety of mobile device positioning technologies, including cell ID, GPS, WiFi, and hybrids, such as assisted GPS. A mobile device’s location is used to filter content and information geographically. Mobile LBS have gained significant momentum with the increasing penetration of GPS-enable mobile phones and a shift from subscription-based LBS towards “free” LBS based on ad funding. According to Nielsen mobile, GPS-enabled phones have penetrated 60 percent of the U.S. market and LBS is the “largest revenue-generating category of all wireless downloadable applications on the carrier decks, accounting for 74 percent.” Google and Apple have been a driving factor in the widespread adoption of location-based services by making mobile search, maps, and directions available at no charge in an advertising-supported model. According to an industry report:

Powerhouse companies (Google, Apple, and Nokia) are seeking to repeat the success of the internet mapping Web sites, which are entirely ad-based, and have been adopted by the masses. They are also giving other LBS providers no choice but to follow suit or

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17 For example, in paid search, which is the largest category of online advertising with 47% of revenues, advertisers generally only pay when potential customers click through on their ads. See PricewaterhouseCoopers LLP, IAB Internet Advertising Revenue Report, An Industry Survey Conducted by PwC and Sponsored by the Interactive Advertising Bureau (IAB), 2010 First Half-Year Results, 2010, at 13, available at http://www.iab.net/media/file/IA B_report_1H_2010_Final.pdf. After an ad is clicked, advertisers can further track the behavior of these consumers on their site and determine who ultimately made a purchase, allowing them to dynamically fine tune and optimize ad campaigns.


20 *Id.* at 5.
risk losing their customer base. There is great potential for significant revenues from advertising and marketing through the mobile channel, so many LBS companies are taking their chances on it, in the hopes that there will be sizeable payoffs in the future.\textsuperscript{21}

The expectation that payoffs are going to be high is confirmed by extant research, which has shown higher response rates associated with mobile advertising and that mobile users have a greater propensity to purchase than other consumers.\textsuperscript{22} Regarding LBA, many mobile LBS companies have reported ad response rates to be five to ten times higher than on the Internet.\textsuperscript{23}

\textbf{Common Revenue Models for Mobile Advertising}

Many of the revenue generation models for mobile advertising are similar to those for the Internet: cost-per-thousand (CPM) model, pay-per-click (PPC) model, and cost-per-action (CPA) model. In the CPM model, advertising rates are based on the number of impressions. Because mobile advertising offers better geographic and demographic targeting, mobile advertising CPMs can be 2 to 4 times higher than those for standard Internet advertising.\textsuperscript{24} The prices in the PPC model are based on user actions, such as clicking on an advertisement or a search term. In the CPA, advertiser’s fees depend upon the user performing a desired action, such as making a purchase. Other forms of revenue generation mechanisms include monthly fees for certain content and pricing based on the number of text messages sent to targeted customers. Location-based advertising can even include special promotional offers for consumers that visit brick-and-mortar stores.

While data on the prevalence of different pricing models for mobile advertising are difficult to come by, data on the pricing of online advertising may be instructive about trends. According to the Interactive Advertising Bureau, performance-based pricing has been steadily gaining share over the past several years relative to CPM or impression-based pricing and now accounts for about 61 percent of revenues versus 35 percent for impression-based and 4 percent for hybrid models.\textsuperscript{25}

\textbf{Challenges and Bottlenecks for Mobile Advertising}

Alongside its tremendous promise, there are challenges that will need to be overcome for mobile advertising to reach its potential. One technical challenge is fragmentation: there are a multitude of wireless carriers, networks, mobile devices, and business models, which can make scale and consistency of execution more difficult.\textsuperscript{26} This has led to the growing importance of mobile advertising platforms and networks, which can help abstract from such complexities.

One hot-button area will involve privacy concerns, the role of wireless carriers, and how much user information they will make available to advertisers. Releasing demographic information raises potential privacy concerns, as does releasing GPS location. While all parties agree that better information on demographics and location is necessary, finding solutions that everyone is comfortable with will be a challenge. This is related to another open question: the willingness of consumers to accept mobile advertising, which is still somewhat untested. Consumer tolerance will be lower for advertising that is deemed clutter or is not seen as

\begin{itemize}
\item\textsuperscript{21} Id. at 6-7.
\item\textsuperscript{22} Id. at 22; Interactive Advertising Bureau, \textit{supra} note 15, at 5.
\item\textsuperscript{23} Petersen & Groot, \textit{supra} note 13, at 18.
\item\textsuperscript{24} Petersen & Groot, \textit{supra} note 13, at 17.
\item\textsuperscript{25} PricewaterhouseCoopers LLP, \textit{supra} note 17, at 18.
\item\textsuperscript{26} Interactive Advertising Bureau, \textit{supra} note 15, at 16.
\end{itemize}
relevant. One way to avoid alienating users will be to deliver information that the consumer will value and benefit from at the right time and place, while avoiding inundating them with useless information. This is easier to achieve when more contextual information is available to advertisers. This tradeoff may increase consumers’ comfort level with targeting, including targeting based on location.

This question also raises the possibility of another tradeoff: using advertising to directly subsidize mobile services. Academic research on mobile advertising and determinants of consumer acceptance is scarce.\textsuperscript{27} Most of the research has been conducted outside the U.S. and the key findings are that consumer acceptance is significantly correlated with monetary incentives (e.g., discounts, special offers), perceived relevance, and perceived usefulness.\textsuperscript{28} Research by Nielsen Mobile has shown that 32\% of users would accept advertising if it helps lower their monthly bill and that 13\% would accept advertising if it increases the content and services available to them.\textsuperscript{29} The willingness to accept advertising in conjunction with mobile search appears to be even higher: according to research by IDC, over half of consumers are willing to accept advertising in exchange for the ability to perform mobile search.\textsuperscript{30}

\textbf{Conclusions}

The advertising marketplace is dynamic and competitive, with new platforms for advertising continuously being created as a result of developments in technology. Increasingly, mobile advertising is an efficient way to deliver highly relevant content to consumers. The economics of mobile advertising – the ability of advertisers to better target advertising, in particular geographically and high response rates – make mobile advertising tremendously attractive for both national and local advertisers. With targeting strategies that better address consumers’ privacy concerns, mobile advertising has the potential to become one of the most important media for advertising.

\textsuperscript{27} Mersavo, et al., \textit{supra} note 2.


\textsuperscript{30} Mobile Search, \textit{supra} note 18, at 6.