Assessing the effectiveness of Adwords campaigns on website performance: the case of a tourist SME

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Assessing the effectiveness of AdWords campaigns

MOTIVATION

1. Marketing online
   a. Search engine Optimization (SEO)
   b. Search engine Marketing (SEM)

2. Tourism sector is basically an SME industry with low budgets.

3. Google Analytics: useful tool to monitor the performance of websites.
   a. The quantity and quality of the traffic arriving via search engines
   b. The effectiveness of Adwords campaigns.

QUESTIONS:

a. Do the AdWords campaigns increase the volume and quality of the search traffic?
b. How do paid and unpaid AdWords perform during campaign periods?
Objective:
To analyze the visibility and performance of a website and to test the effectiveness of online marketing using the data provided by Google Analytics.

Methodology:
Statistical framework based on Structural Time Series models that enable us to monitor the changes over time in the performance of a website and to test how great an impact campaigns have on website search traffic.

The methodology will be applied to a case study: a tourism SME

Results:
- Online campaigns affect traffic volume positively but their effect on its quality is ambiguous.
- Analyzing separately paid and unpaid traffic during campaigns, we find that:
  a. the increase in traffic volume is not always due to the paid keywords, and
  b. the lowest quality visits come from paid traffic.
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CASE STUDY

Aktiba: regional-level cooperative organization that is open to all businesses in the Basque Country that offer services related to active and adventure tourism (trekking, surfing, horse riding, cycling, …)

Sample: 7 February 2008 to October 16, 2011

<table>
<thead>
<tr>
<th>Table 1: Campaign description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening date</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>Friday, May 23</td>
</tr>
<tr>
<td>Thursday, May 21</td>
</tr>
<tr>
<td>Wednesday, August 25</td>
</tr>
<tr>
<td>Monday, April 11</td>
</tr>
</tbody>
</table>
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CASE STUDY

Key performance indicators (KPI):

- **Volume of traffic** – Number of visits
- **Quality of traffic** – Pages per visit, average time on site, bounce rate, return rate.
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**METHODOLOGY**

**a. Descriptive analysis**

**Table 2: Overview of traffic sources. Key Performance Indicators**

<table>
<thead>
<tr>
<th>TRAFFIC</th>
<th>Visits (per day)</th>
<th>Pages per visit</th>
<th>Time on site</th>
<th>Bounce rate</th>
<th>Return rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMPAIGN PERIOD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALL TRAFFIC</td>
<td>167</td>
<td>3.5</td>
<td>00:02:35</td>
<td>56.0%</td>
<td>14.6%</td>
</tr>
<tr>
<td>SEARCH TRAFFIC</td>
<td>121</td>
<td>3.6</td>
<td>00:02:32</td>
<td>55.3%</td>
<td>14.0%</td>
</tr>
<tr>
<td>Unpaid</td>
<td>59</td>
<td>3.9</td>
<td>00:03:00</td>
<td>53.3%</td>
<td>19.9%</td>
</tr>
<tr>
<td>Paid</td>
<td>62</td>
<td>3.4</td>
<td>00:02:09</td>
<td>57.3%</td>
<td>8.9%</td>
</tr>
<tr>
<td>OUT OF CAMPAIGN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALL TRAFFIC</td>
<td>70</td>
<td>4.1</td>
<td>00:03:25</td>
<td>51.0%</td>
<td>20.8%</td>
</tr>
<tr>
<td>SEARCH TRAFFIC</td>
<td>37</td>
<td>4.0</td>
<td>00:03:06</td>
<td>50.5%</td>
<td>21.1%</td>
</tr>
</tbody>
</table>

b. Time series analysis

[graph]
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\[ Y_t = F(\text{campaigns, trend, monthly cycle, Easter, Holidays, days of the week}) \]

**Structural time series modelling**

\[
Y_t = \mu_t + \sum_{i=1}^{4} \beta_i C_i t + \sum_{i=1, i\not=8}^{12} \gamma_i M_{it} + \beta_E \text{East}_t + \beta_H \text{Holiday}_t + \sum_{i=1, i\not=4}^{7} \alpha_i D_{it} + \varepsilon_t
\]

where: the trend component is specified stochastically:

\[
\begin{align*}
\mu_t &= \mu_{t-1} + \beta_{t-1} + \eta_t \\
\beta_t &= \beta_{t-1} + \zeta_t
\end{align*}
\]

\[ Y_t = \text{Key performance indicators} \]

**Two steps:**

1. Effect of campaigns on search traffic
2. Performance of paid and unpaid traffic during campaigns
Adwords campaigns increase the no. of visits but their effect on quality is not strong.
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MAIN RESULTS

STEP 2. Paid and unpaid traffic

During campaign periods, search traffic comes from two sources:
- Paid and Unpaid keywords

We think that Adwords campaigns may have a two-fold effect on search traffic:
- Direct effect, because they are a new source of visits.
- Indirect effect, because they may influence the unpaid traffic.

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>Visits (logs.)</th>
<th>Pages per visit</th>
<th>Time on site</th>
<th>Bounce rate</th>
<th>Return rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNPAID TRAFFIC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1 a,b</td>
<td>-0.0985 (0.1240)</td>
<td>0.7810** (0.3743)</td>
<td>0.4086 (0.3307)</td>
<td>-0.0548* (0.0298)</td>
<td>0.0434*** (0.0160)</td>
</tr>
<tr>
<td>C2 b</td>
<td>0.0423 (0.1295)</td>
<td>-0.2335 (0.3922)</td>
<td>-0.0617 (0.3510)</td>
<td>-0.0220 (0.0310)</td>
<td>0.0262 (0.0163)</td>
</tr>
<tr>
<td>C3 b</td>
<td>-0.0083 (0.1246)</td>
<td>-0.2264 (0.3769)</td>
<td>-0.1560 (0.3390)</td>
<td>0.0228 (0.0298)</td>
<td>-0.0059 (0.0160)</td>
</tr>
<tr>
<td>C4 b</td>
<td>-0.0637 (0.1215)</td>
<td>-0.0993 (0.3973)</td>
<td>0.0153 (0.3802)</td>
<td>-0.0073 (0.0310)</td>
<td>-0.0027 (0.0185)</td>
</tr>
</tbody>
</table>
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MAIN RESULTS

![Graph showing the effectiveness of AdWords campaigns over time.](image)
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### MAIN RESULTS

#### Pages per visit

![Graph showing Pages per visit over time](image)

#### Time on site

![Graph showing Time on site over time](image)

#### Bounce rate

![Graph showing Bounce rate over time](image)

#### Return rate

![Graph showing Return rate over time](image)
CONCLUSIONS AND EXTENSIONS.

This analysis may help webmasters to design successful online advertising strategies to enhance the competitiveness of their firms.

To apply this modelling strategy to other tourism SME in order to validate the usefulness of the methodology.

In this paper we apply the methodology to monitor the effectiveness of online Marketing in terms of volume and quality of the search traffic.

But it could be applied as well to measure the impact of the AdWords campaigns in the volume of online sales.