The Deadweight Loss of Christmas

By Joel Waldfogel
Where does the Deadweight come from?

For any amount of cash $c > 0$ and gift $y \geq 0$ such that $p^\top y = c$:

$$V(p, I + c) \geq \max_{x \geq 0} u(x + y)$$
subject to $p^\top x \leq I$
How do we estimate the Deadweight?

Here!

$$V(p, I + c) \geq \max_{x \geq 0} u(x + y)$$
subject to
$$p^T x \leq I$$
The underlying model

• A giver has a perceived recipient utility function $U(g)$

• Giver decides to spend $g_0$ and needs to choose:
  • A cash gift which he perceives will generate $U(g_0)$ utils
  • A noncash which has an expected utility of:
    \[
    \int_0^\infty f(g_0, g) U(g) \, dg
    \]

• Where $f(g_0, g)$ is the density of the recipients valuation of a gift of $g_0$
Interpretations of $f(g_0, g)$

- Recipient is completely informed and giver has exact knowledge:
Interpretations of $f(g_0, g)$

- “I know you better than you know yourself”:
Interpretations of $f(g_0, g)$

• “I love my mom but.....” :
Data Collection

• Students were asked to evaluate a cash amount paid for the gift and:

• Survey I: 86 Students:
  • “How much would you pay for this gift?” → Maximum you would pay for the gift

• Survey II: 58 Students:
  • “..amount of cash such that you are indifferent?” → Minimum you would sell the gift for

• 2 versions in order to account for the endowment effect
The Aggregate Results:

- Data includes cash gifts at 100% yield.
- Data includes exchanged gifts
- Gap accounts for added value of getting a gift Vs. buying for oneself
- Deadweight loss between 10% - 33% of the cash value
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<table>
<thead>
<tr>
<th>Variable</th>
<th>Survey 1</th>
<th>Survey 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount paid ($)</td>
<td>438.2</td>
<td>508.9</td>
</tr>
<tr>
<td>Value ($)&lt;sup&gt;a&lt;/sup&gt;</td>
<td>313.4</td>
<td>462.1</td>
</tr>
<tr>
<td>Percentage ratio of average value to average price paid&lt;sup&gt;b&lt;/sup&gt;</td>
<td>71.5</td>
<td>90.8</td>
</tr>
<tr>
<td>Average percentage yield&lt;sup&gt;c&lt;/sup&gt;</td>
<td>66.1</td>
<td>87.1</td>
</tr>
<tr>
<td></td>
<td>(3.3)</td>
<td>(3.2)</td>
</tr>
<tr>
<td>Number of recipients</td>
<td>86</td>
<td>58</td>
</tr>
</tbody>
</table>
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- Data includes cash gifts at 100% yield.
- Data includes exchanged gifts
- Gap accounts for added value of getting a gift Vs. buying for oneself
- Deadweight loss between 10% - 33% of the cash value
Are bad “gifters” more likely to give cash?

- Givers are divided into 6 groups:
  Parents, Aunts/Uncles, Siblings, grandparents, friends, significant other
Is a more expensive gift better?

• Gits are divided into 4 price categories:
  - inexpensive or expensive tend to result in higher yields
  - Could be a confounding variable for yield
  - More thought put into small/big gifts

<table>
<thead>
<tr>
<th>Price range</th>
<th>Percentage average yield</th>
<th>Standard error (percent)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0–$25</td>
<td>85.8</td>
<td>5.6</td>
<td>102</td>
</tr>
<tr>
<td>$26–$50</td>
<td>74.4</td>
<td>3.4</td>
<td>82</td>
</tr>
<tr>
<td>$51–$100</td>
<td>89.8</td>
<td>4.2</td>
<td>47</td>
</tr>
<tr>
<td>Over $100</td>
<td>88.5</td>
<td>4.2</td>
<td>47</td>
</tr>
<tr>
<td>Overall:</td>
<td>83.9</td>
<td>2.8</td>
<td>246</td>
</tr>
</tbody>
</table>

Note: Overall figures are based only on observations with valid information about giver.
Regression Model

• First 4 models:
  \[ \log(\text{value}) = \text{cons} + \log(\text{actual price}) \]

• Last model predicts probability of giving cash

Core Insights:

• Cash gifts increase yield dramatically

• Negative correlation of yield and cash probability

• Age difference alone does not explain away low yield
Conclusions & Observations:

• The *Carte Blanche* assumption is true on avg.

• Age difference as measured here is biased

• Added utility on the gift giving end

• “Actual” gifting loss is greater

• Gift cards trends can change this trend