Responsible Credit Use: Can Financial Education Help?
An Experimental Study Utilizing Entertainment Media

Gunhild Berg and Bilal Zia
Introduction

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Existing causal evidence points to modest impacts at best

Classroom based? Cole, et al. (2011) find limited impact

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Other Extensions? Information Disclosure (Bertrand and Morse, 2011); Business rules of thumb (Drexler, et al, 2014)
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- Yet, considerable knowledge gap on effectiveness (Hastings, et al., 2013; Miller, et al., 2013; Xu and Zia, 2012)
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education is limited:

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- Demand side – challenging to attract and retain interest
Financial Education Delivery

- Scope and reach of even most well-designed financial education is limited:
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  - Demand side – challenging to attract and retain interest

- Entertainment media offers a promising (potential) solution:
  - Broad outreach – nearly every household has access to a TV
  - Captive audience – emotional connections to storylines and actors
Power of Persuasion

- Emotional persuasion can motivate and influence economic decisions (DellaVigna and Gentzkow, 2010)

- Cognitive psychologists document influences of emotions
  - Memory (Bower, 1981)
  - Judgments and decisions (Isen, 1987)

- Persuasive communication is central to the field of advertising (Sitgler, 1987; Russo, et al., 2006; Bagwell, 2007)

- In the financial context Bertrand et al. (2010) and Agarwal and Ambrose (2007) show that persuasive advertising through direct mail solicitation can influence loan demand and contract choices.
Introduction of television linked to improved social outcomes:

- Lower domestic violence and fertility rates in India and Brazil (Jensen and Oster, 2009; La Ferrara, et al., 2008),

- Lower adolescent drug use and increased contraception adoption in Brazil (Verner and Cardoso, 2007).

- Facebook experiment on emotional contagion in social media (Kramer, et al., 2014)
Research Questions

- Can the reach and persuasive influence of mass media be exploited in finance to improve financial decisions?

- What underlying decision-making mechanism(s) can explain these results?
Focus on debt management in South Africa
- Very high ratio of debt to disposable income (76%)
- National Credit Regulator reports massive impaired credit records (>47%)
Setting

- Focus on debt management in South Africa
  - Very high ratio of debt to disposable income (76%)
  - National Credit Regulator reports massive impaired credit records (>47%)

- Incorporate debt management into two month long storyline of a popular soap opera, *Scandal!*
  - Nationally televised soap
  - Has been running four times a week for 8 years
  - Storyline was developed in partnership with the production company of *Scandal!* and the National Debt Mediation Association (NDMA)
Study setting is urban Guateng (Johannesburg and Pretoria)
Identification

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- Empirical Challenges
  - Identify and separate effect of soap from other sources of messaging
  - Sample selection and endogeneity
  - Appropriate counterfactual when soap is nationally televised
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- Empirical Challenges
  - Identify and separate effect of soap from other sources of messaging
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- Our Study
  - Randomized encouragement design
Provide encouragement to a randomly selected “treatment” group to watch Scandal

- Provide small financial incentives for correct answers in two intermediate phone surveys
- Ask financial literacy and behavior questions as well (though not linked to incentive)

Conduct final in-person survey 4 months after conclusion of storyline
Research Design

- Provide encouragement to a randomly selected “treatment” group to watch Scandal
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- Find comparable soap opera that runs in the same primetime and has similar audience (Muvhango)
  - Provide identical financial incentives for correct answers in two intermediate phone surveys
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Research Setup

Listing Exercise
(3,000 people)

Select approx. 1,000 people to be encouraged
(500 per soap opera)

Scandal!
Soap opera with financial literacy messages

Muvhango
Soap opera without financial literacy messages

Listing through physical visits.
Two street skip.
Short questionnaire to determine eligibility and gather basic baseline.

Random selection into treatment and control

Financial incentive for both groups to watch their soap operas.
Incentive awarded if respondents can answer questions about the non-financial content of the show correctly.
Research Setup

Initial call to participants

Explain the survey, the incentives, and that respondents will only receive the payment if they watch the respective show which will be tested through a number of questions.

Surveys

3 surveys in total.
2 CATI
Survey 3 after the show aired and face-to-face.

Payment of Incentives

Respondents paid 60 ZAR (US $ 7) after survey 1 and 2 if they answered the questions correctly.
Payments through crediting airtime or M-Pesa.
Timeline

Timeframe: December 2011-November 2012

Soap Opera aired (13Feb – 27March 2012)

Listing Phase
(11 Nov - 6 Dec 2011)

1st CATI call
(1 - 14 March 2012)

Face- to- Face interviews
(12 - 26 July 2012)

Initial CATI call
(Feb 2012)

2nd CATI call
(27 March - 4 April 2012)

Focus Group Discussions
(13 - 16 Nov 2012)
Scandal!

The Storyline
Main Character: Maletsatsi
Wife, mother, and manager of local stokvel
Malestatsi gives into social pressure to furnish her guest room.
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Convinces her husband, Eddie.

Eddie, you don’t understand.

I want to be accepted, not mocked.
Buys furniture, fridge, dining set, and TV, all on shop credit!

And the TV? I don't need a new TV.
Buys furniture, fridge, dining set, and TV, all on shop credit!

Eddie is unhappy but Maletsatsi is convincing
Payments come due and Maletsatsi realizes she cannot afford them
She dips into the Stokvel pot, but lands into trouble
She turns to gambling

How about giving me a number to play?
She turns to gambling

And loses
Eventually Eddie finds out

I didn’t know what else to do. So I borrowed money from the stokvel.
Eventually Eddie finds out

I didn't know what else to do.
So I borrowed money from the stokvel.

And is quite unhappy

How can you be so irresponsible?
Together they seek help from the NDMA and work their way out of debt.

But the good news is that it's never too late to learn how to manage your debt.
Main Messages

- Over-indebtedness
  - Temptation spending
  - Borrowing on hire-purchase

- Gambling

- Help is available
  - National Debt Mediation Association
RCT allows for simple cross-sectional OLS using final follow-up data:

\[ Y_i = \alpha + \beta_1 . T R T_i + \gamma_1 . M_i + \varepsilon_i \]

- Intent to Treat estimate
- ATE similar since take-up v. high (96%)
<table>
<thead>
<tr>
<th>Summary Statistics and Tests of Randomization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Respondent is Female</td>
</tr>
<tr>
<td>Respondent is Black</td>
</tr>
<tr>
<td>Respondent Age</td>
</tr>
<tr>
<td>Respondent's Household Belongs to Lower LSM Group</td>
</tr>
<tr>
<td>Respondent Has a Job or Paid Work</td>
</tr>
<tr>
<td>Respondent Has Not Borrowed Money the Past 6 Months</td>
</tr>
<tr>
<td>Respondent Has Watched &quot;Scandal!&quot; in the Past 4 Weeks</td>
</tr>
</tbody>
</table>
### Sample Crossovers

Apart from Muvhango, which other shows did you watch in the last four weeks?

<table>
<thead>
<tr>
<th>Only Scandal</th>
<th>Scandal + One Other Show</th>
<th>Scandal + Two Other Shows</th>
<th>Scandal + Three Other Shows</th>
<th>Scandal + Four Other Shows</th>
<th>Other Shows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow-up 1</td>
<td>7.4%</td>
<td>2.2%</td>
<td>1.5%</td>
<td>0.5%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Follow-up 2</td>
<td>7.2%</td>
<td>1.9%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
## Attrition

### Final Follow-up Attrition

<table>
<thead>
<tr>
<th></th>
<th>Present in Final Follow-up</th>
<th>Face-to-Face Interview in Final Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invited to Watch &quot;Scandal!&quot;</td>
<td>0.002 (0.016)</td>
<td>0.003 (0.023)</td>
</tr>
<tr>
<td></td>
<td>1031</td>
<td>1024</td>
</tr>
<tr>
<td>Dependent Variable Mean in Control Group</td>
<td>0.933</td>
<td>0.839</td>
</tr>
</tbody>
</table>
# Results

## Financial Knowledge

<table>
<thead>
<tr>
<th></th>
<th>Score on General Financial Literacy Test</th>
<th>Score on Content Specific Financial Literacy Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invited to Watch &quot;Scandal!&quot;</td>
<td>-0.010</td>
<td>0.045*</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.024)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.005</td>
<td>0.014</td>
</tr>
<tr>
<td>N</td>
<td>963</td>
<td>963</td>
</tr>
<tr>
<td>Dependent Variable Mean in Control Group</td>
<td>0.564</td>
<td>0.425</td>
</tr>
</tbody>
</table>
## Debt Management

<table>
<thead>
<tr>
<th></th>
<th>Borrowed Money in the Past 6 Months from Any Source</th>
<th>Borrowed Money in Past 6 Months from a Formal Bank</th>
<th>Largest Borrowing in Past 6 Months is from a Formal Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invited to Watch &quot;Scandal!&quot;</td>
<td>-0.001</td>
<td>0.027*</td>
<td>0.088**</td>
</tr>
<tr>
<td></td>
<td>(0.030)</td>
<td>(0.015)</td>
<td>(0.043)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.003</td>
<td>0.004</td>
<td>0.014</td>
</tr>
<tr>
<td>N</td>
<td>963</td>
<td>963</td>
<td>315</td>
</tr>
<tr>
<td>Dependent Variable Mean in Control Group</td>
<td>0.327</td>
<td>0.045</td>
<td>0.130</td>
</tr>
</tbody>
</table>
### Purpose of Borrowing

<table>
<thead>
<tr>
<th>Purpose of Borrowing</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrowing for Consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borrowing to Cover Unexpected Expenses</td>
<td>-0.012</td>
<td>-0.019</td>
<td>0.026</td>
<td>0.075*</td>
</tr>
<tr>
<td>Borrowing to Pay Other Financial Obligations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borrowing for Productive Purposes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Invited to Watch "Scandal!"              | -0.012 | -0.019 | 0.026 | 0.075* |
|                                          | (0.045) | (0.054) | (0.056) | (0.041) |

| Dependent Variable Mean in Control Group | 0.196 | 0.312 | 0.355 | 0.116 |

R-squared: 0.013, 0.008, 0.001, 0.013

N: 304, 304, 304, 304
### Hire Purchase and Gambling

<table>
<thead>
<tr>
<th></th>
<th>Hire Purchase in the Past 6 Months</th>
<th>Gambled Money in the Past 6 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invited to Watch &quot;Scandal!&quot;</td>
<td>-0.043*</td>
<td>-0.052*</td>
</tr>
<tr>
<td></td>
<td>(0.024)</td>
<td>(0.029)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.004</td>
<td>0.003</td>
</tr>
<tr>
<td>N</td>
<td>963</td>
<td>963</td>
</tr>
<tr>
<td>Dependent Variable Mean in Control Group</td>
<td>0.188</td>
<td>0.307</td>
</tr>
</tbody>
</table>
Impact on Seeking Financial Advice
Impact on Seeking Financial Advice

NDMA Call Volume

Date
01jan2012 01feb2012 01mar2012 01apr2012 01may2012
Total Customer Calls
0 100 200 300 400 500
<table>
<thead>
<tr>
<th>Seeking Financial Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Immediate Impact</strong></td>
</tr>
<tr>
<td>Will seek Advice</td>
</tr>
<tr>
<td>from Formal Source</td>
</tr>
<tr>
<td>(1)</td>
</tr>
<tr>
<td>Invited to Watch &quot;Scandal!&quot;</td>
</tr>
<tr>
<td>(0.032)</td>
</tr>
<tr>
<td>R-squared</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Dependent Variable Mean in Control Group</td>
</tr>
</tbody>
</table>
## Seeking Financial Advice

<table>
<thead>
<tr>
<th></th>
<th>Immediate Impact</th>
<th>Long Term Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Will seek Advice</td>
<td>Will Seek Advice</td>
</tr>
<tr>
<td></td>
<td>from Formal Source</td>
<td>from Formal Source</td>
</tr>
<tr>
<td>Invited to Watch &quot;Scandal!&quot;</td>
<td>0.102***</td>
<td>0.019</td>
</tr>
<tr>
<td></td>
<td>(0.032)</td>
<td>(0.031)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.014</td>
<td>0.012</td>
</tr>
<tr>
<td>N</td>
<td>770</td>
<td>963</td>
</tr>
<tr>
<td>Dependent Variable Mean in Control Group</td>
<td>0.689</td>
<td>0.601</td>
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</table>
Mechanism

- NDMA messaging delivered by external character not central to the soap
  - Audience unable to establish emotional connection or following
  - Qualitative results confirm strong recall of Maletsatsi vs. no recall of NDMA counselor

- Results consistent with dual process decision making models (Metcalfe and Mischel, 1999; Kahneman, 2003; Lowenstein and O'Donoghue, 2005)
- "Hot" emotional system influenced by length of exposure and behavioral and demographic similarity (Gino, et al., 2009; Yaniv, 2011)
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Conclusion and Future Research

- Entertainment media has the power to capture the attention of individuals and provide policy makers with an effective and accessible vehicle to deliver carefully designed financial education messages.

- Future research: test causal channels and mechanisms of impact.