A Summary

Very simple paper

- Randomized expansion of evangelical training program
  - Program targets ultra-poor Filipinos
  - Most would have considered themselves Catholic
- Study the programs economic impacts
Two Motivations

1. To shed light on the causal effects of religiosity
   - Strong correlations between religiosity and
     - Diligence, Thrift, Trust, Income, Criminality ...
     - Welfare? (income, life-satisfaction)
   - Are RCT’s a useful way to study this question?

2. Build knowledge on how best to alleviate poverty
   - Religious program lowers costs
   - Religious element may help raise funds
   - Program may address “psychological constraints”
Outline

Setting

Outcome Measures

Results
  6 Months
  30 Months
Partner: International Care Ministries

A faith based anti poverty NGO operating in the Philippines

Provide a program called Transform

Three parts to Transform

1. Values: 16 half hour “classes” over 16 weeks
   ► Plus whatever church participation comes from that
   ► Taught by local pastor + 6 local volunteers

2. Health: 16 half hour “classes” over 16 weeks
   ► Taught by ICM staff
   ► Healthy choices, hygiene pregnancy, family planning...

3. Livelihoods: 16 half hour “classes” over 16 weeks
   ► Taught by ICM staff
   ► Gardening, savings, loans, business in a box...
   ► e.g., baking, making detergent, vermiculture...
Our Randomization

Four treatment groups
- Values only (V)
- Health and Livelihoods (HL)
- Full Transform (VHL)
- Control (C)

Structure
- 140 pastors, each assigned to either (VHL, C) or (V, HL)
- Pastor chooses two communities
  - (VHL, C): half assigned to C and half to VHL
  - (V, HL): half assigned to V and half to HL
Data Collection and Analysis

Data collection

▶ Attempt at baseline failed ...
▶ We have follow up data at 6 months and 30 months
The Transform Values Curriculum (1)

Evangelical protestant

- 285 Million worldwide
  - 12% of Christians
  - 36% of protestants
  - 25% of US population

- Primary characteristics (Bebbington)
  - Centrality of conversion experience in salvation
  - Authority of Bible as God’s revelation to humanity
  - Stress on sacrifice of Jesus on the cross
  - Importance of missionary and social reform efforts
The Transform Values Curriculum (2)

Specific content

- The world is good and we are its custodians
- You are good and beautiful (made in the image of god)
- You have the choice to follow God’s law or not
- Failing to follow God’s law leads to chaos in your life
- Salvation is by grace not good works
- Good news: Jesus welcomes sinners
- Learning to live by god’s law takes time and is hard
- Over time it will become easier
- All your life should be for Jesus (even gardening)
- The importance of a community of believers
- Seeing the value of this new way of life
This is NOT the prosperity gospel

“...we also see ordinary and simple people who enthrone God as their Lord and Savior discover the deep satisfaction and contentment that make them happy even in their relative poverty.”
Outline

Setting

Outcome Measures

Results
  6 Months
  30 Months
Our analysis follows a pre-analysis plan

- Step one: does the intervention increase religiosity?
- Step two: if so, does it change “economic” outcomes?
- Step three: if so, what are the mechanisms?
Primary Religious Outcomes

Religion intrinsic index (Gorsuch and McPherson, 1989)
- 5 questions, about personal approach to god
  - “I have often had a strong sense of God’s presence”

Religion extrinsic index (Gorsuch and McPherson, 1989)
- 6 questions about external benefits of religion
  - “I go to church because it helps me to make friends”

General religious outcomes index
- 6 questions about religious actions and satisfaction
  - “to what extent do you consider yourself a religious person”

We adjust for multiple testing across this family.
List-Randomized Religious Outcomes

To address social desirability bias we “list randomized” two religiosity questions

▶ “I have made a personal commitment to Jesus Christ that is still important to me today”
▶ “I have read or listened to the Bible in the past week”

How many of the following are true:

▶ Half get $N$ non-sensitive questions
▶ Half get $N$ non-sensitive questions + sensitive question

We also ask the sensitive question directly, so can test

▶ Does total yeses in sensitive group equal total yeses in non-sensitive + directly asked (Coffman et al.)?
▶ Does this differ across treatments?
Evidence of social desirability bias, but no effect of treatment

<table>
<thead>
<tr>
<th>VARIABLES</th>
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<th>(2)</th>
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<tbody>
<tr>
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<td>Constant</td>
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<td>R-squared</td>
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<td>0.045</td>
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</table>
Primary Economic Outcomes

Direct welfare proxies
- Consumption
- Food security
- Life Satisfaction
- Perceived related economic status

Intermediates
- Income
- Labor supply

Multiple testing across this family
Mechanisms: Theories

We concentrate on three paths from religion to welfare

1. Weber, Heckman

\[ \text{religion} \rightarrow \text{beliefs/preferences} \rightarrow \{\text{income, welfare}\} \]

2. Putnam, Knack Keefer

\[ \text{religion} \rightarrow \text{social capital} \rightarrow \{\text{income, welfare}\} \]

3. Lybbert/Wydick, Selligman

\[ \text{religion} \rightarrow \text{hope/self-efficacy} \rightarrow \{\text{income, welfare}\} \]

We ignore other paths, e.g.,

- Becker and Woessman, human capital
- Barro and McCleary, cost of church attendance
Mechanisms: Preferences and Beliefs

Grit (9 questions from Duckworth)
- e.g., “I am a very hard worker”
- We think a useful version of Weber
- Two parts
  - Perserverence of effort (hard work)
  - Consistencey of interest (calling)

Index of self control (self reported)
- e.g., “I’m good at resisting temptation”
- Grit is perserverence in goal seeking, self control is avoidance of temptation
Mechanisms: Optimism and Hope

Locus of control

- Three parts
  - Gods control of your life
  - Your control of your life
  - Luck’s control of your life

- Internal locus strongly associated with economic outcomes (Heckman)

Optimism in 3 parts

- Life orientation index (how will the world treat me)
- Expectations index (how do I see the future)
- Optimism index (self reported optimism and pessimism)
Mechanisms: Social Capital

- Trust index (WVS style questions)
- Social safety new (how much do you think the community would help you?)
- Community activities index
Outline

Setting

Outcome Measures

Results
- 6 Months
- 30 Months
Analysis setup

Following the PAP we test for linearity

- Cannot reject \( VHL - C = V + HL - C \)
- Cannot reject \( HL = 0 \)

So, we run the regression

\[
y_i = \alpha + \beta^1 \text{AnyV} + \beta^2 \text{AnyHL} + \epsilon_i
\]

we are interested in the effect of \( \text{AnyV} \)
Outline

Setting

Outcome Measures

Results
  6 Months
  30 Months
We have a “first stage”!

<table>
<thead>
<tr>
<th></th>
<th>Religion Intrinsic Index</th>
<th>Religion Extrinsic Index</th>
<th>General Religion Index</th>
<th>Religion-List Randomization</th>
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</thead>
<tbody>
<tr>
<td>Any V</td>
<td>0.102</td>
<td>0.130</td>
<td>0.077</td>
<td>0.048</td>
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<tr>
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<td>(0.024)</td>
<td>(0.024)</td>
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<td>(0.037)</td>
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<tr>
<td>Any HL</td>
<td>0.014</td>
<td>-0.021</td>
<td>0.001</td>
<td>-0.028</td>
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<tr>
<td></td>
<td>(0.024)</td>
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<td>FDR q-value for Any V</td>
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<td>FWER q-value for Any V</td>
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<td>Control group mean</td>
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<td>0</td>
<td>0</td>
<td>0.606</td>
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<tr>
<td>Control group SD</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.034</td>
</tr>
</tbody>
</table>
## Economic outcomes: 6 Months

<table>
<thead>
<tr>
<th></th>
<th>Last month HH consumption (PHP)</th>
<th>Food security index</th>
<th>Last month HH income (PHP)</th>
<th>Adult labor supply (last 7 days)</th>
<th>Life satisfaction index</th>
<th>Perceived relative economic wellbeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any V</td>
<td>-1.078 (100.4)</td>
<td>0.010 (0.023)</td>
<td>386.1 (126.8)</td>
<td>0.926 (1.091)</td>
<td>0.019 (0.022)</td>
<td>-0.113 (0.047)</td>
</tr>
<tr>
<td>Any HL</td>
<td>-102.960 (93.3)</td>
<td>-0.044 (0.023)</td>
<td>131.2 (126.3)</td>
<td>-1.822 (1.095)</td>
<td>-0.010 (0.022)</td>
<td>-0.040 (0.047)</td>
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<tr>
<td>FDR q-value for Any V</td>
<td>[0.992]</td>
<td>[0.779]</td>
<td>[0.016]</td>
<td>[0.595]</td>
<td>[0.595]</td>
<td>[0.05]</td>
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<tr>
<td>FWER q-value for Any V</td>
<td>[0.993]</td>
<td>[0.934]</td>
<td>[0.097]</td>
<td>[0.934]</td>
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<td>[0.301]</td>
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<td>Control group mean</td>
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<td>4,213</td>
<td>79.58</td>
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<td>Control group SD</td>
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<td>5,567</td>
<td>57.70</td>
<td>1</td>
<td>2.256</td>
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</table>
Mechanisms Beliefs: 6 Months

No significant/consistent effects on
  ▶ Internal Locus of control
  ▶ Optimism
  ▶ Self Control

Positive impact on feeling that god is in control
  ▶ Powerful others subscale of locus of control

Marginally positive impact on Grit
### Mechanisms Beliefs: 6 Months

#### Increase in Grit

<table>
<thead>
<tr>
<th></th>
<th>Grit Index</th>
<th>Persistence of Effort</th>
<th>Consistency of Interest</th>
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</thead>
<tbody>
<tr>
<td>Any V</td>
<td>0.041*</td>
<td>0.087**</td>
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<td>(0.022)</td>
<td>(0.021)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>Any HL</td>
<td>0.017</td>
<td>-0.015</td>
<td>0.032</td>
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<tr>
<td></td>
<td>(0.022)</td>
<td>(0.021)</td>
<td>(0.023)</td>
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<tr>
<td>Control group mean</td>
<td>0</td>
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</tr>
<tr>
<td>Control group SD</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Puzzles

- No increase in consumption and food security
- No increase in assets
  - But poorly measured
- No increase in total labor supply
  - But shift away from agriculture to other types of labor
- Decrease in perceived relative economic status
Is the Income Effect Real?

Concentrated on Transform attendee

- Any V effect on income of Transform attendee is +236 PHP \( (p = 0.0006) \)
- Any V effect on total income of other household members is +164 PHP \( (p = 0.151) \)

Social desirability bias?

- V curriculum does not teach prosperity gospel
- Surveyors are from IPA, not ICM
- No effect on measured life satisfaction
- Negative effect on perceived relative economic status
- No evidence of desirability bias from list randomization

Not due to religiosity?

- No effect of HL on primary economic outcomes
Outline

Setting

Outcome Measures

Results

6 Months

30 Months
All Results Dissipate

No ongoing primary religious effect
  ▶ If anything, control is more religious
  ▶ Nothing significant

No ongoing income effect
  ▶ No other primary economic outcomes significant

No statistical difference in measured mechanisms
## Control Group Catch up

### Intrinsic Index

<table>
<thead>
<tr>
<th>Treatment arm</th>
<th>6 months</th>
<th>30 months</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>-0.012</td>
<td>0.262</td>
<td>0.274</td>
</tr>
<tr>
<td>V</td>
<td>0.125</td>
<td>0.196</td>
<td>0.071</td>
</tr>
<tr>
<td>V - C</td>
<td>0.137</td>
<td>-0.066</td>
<td>0.203</td>
</tr>
<tr>
<td>HL</td>
<td>0.058</td>
<td>0.285</td>
<td>0.227</td>
</tr>
<tr>
<td>VHL</td>
<td>0.112</td>
<td>0.224</td>
<td>0.112</td>
</tr>
<tr>
<td>VHL - HL</td>
<td>0.054</td>
<td>-0.061</td>
<td>0.115</td>
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</tbody>
</table>

### Extrinsic Index

<table>
<thead>
<tr>
<th>Treatment arm</th>
<th>6 months</th>
<th>30 months</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.364</td>
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<tr>
<td>V</td>
<td>0.203</td>
<td>0.365</td>
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<tr>
<td>V - C</td>
<td>0.209</td>
<td>0.007</td>
<td>0.202</td>
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<tr>
<td>HL</td>
<td>0.074</td>
<td>0.373</td>
<td>0.299</td>
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<tr>
<td>VHL</td>
<td>0.099</td>
<td>0.336</td>
<td>0.237</td>
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<tr>
<td>VHL - HL</td>
<td>0.025</td>
<td>-0.037</td>
<td>0.062</td>
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</table>

### General Religion Index

<table>
<thead>
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<th>30 months</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>-0.004</td>
<td>0.165</td>
<td>0.169</td>
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<tr>
<td>V</td>
<td>0.037</td>
<td>0.154</td>
<td>0.117</td>
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<tr>
<td>V - C</td>
<td>0.041</td>
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<tr>
<td>HL</td>
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<tr>
<td>VHL</td>
<td>0.065</td>
<td>0.094</td>
<td>0.028</td>
</tr>
<tr>
<td>VHL - HL</td>
<td>0.109</td>
<td>-0.035</td>
<td>0.144</td>
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Implications of Catchup

6 month results show “causal impact of religiosity”
  ▶ Program increases religiosity
  ▶ Religiosity increases income

30 month results imply
  ▶ Unclear how to make the effects last

Control Catch Up
  ▶ Unlikely representative of secular trend
  ▶ Raises external validity problem: was the 6 month effect only present because the subject pool were ‘going to become religious anyway’
Conclusions

- 15-week Christian values class can significantly increase religiosity
  - RCT can generate first stage to study religion
- Increased religiosity increases income 6 months after program end by 9%
  - Puzzling no increase in consumption + assets
- Possible mechanisms:
  - Grit and sense that God is in control
- Effects do not last
  - Possibly because subject pool were destined to increase religiosity