Defining Best Policy Practice through Scientific Experimentation

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OCSE’s financial incentive system measures State performance levels in 5 program areas

NV, historically, is one of the lower-ranked states in the Federal Performance Measures

<table>
<thead>
<tr>
<th>Key Measure</th>
<th>FFY 2005</th>
<th>FFY 2007</th>
<th>FFY 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paternity Establishment</td>
<td>53</td>
<td>52</td>
<td>49</td>
</tr>
<tr>
<td>Order Establishment</td>
<td>46</td>
<td>44</td>
<td>45</td>
</tr>
<tr>
<td>Current Support Collection</td>
<td>53</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Arrears Collection</td>
<td>50</td>
<td>50</td>
<td>51</td>
</tr>
<tr>
<td>Cost Effectiveness</td>
<td>49</td>
<td>46</td>
<td>42</td>
</tr>
<tr>
<td>Overall Ranking</td>
<td>53</td>
<td>52</td>
<td>53</td>
</tr>
</tbody>
</table>
Background

- Clark County is the largest jurisdiction responsible for 70% of state’s total caseload
- Programmatic challenges:
  - Caseload size (600 to 1200 cases/worker)
  - Approximately 60% of orders established through a court hearing and 30% by default
- Social and economic conditions
  - High unemployment
  - Weak educational system & low workforce skills
  - High nonmarital births
  - Transient population
With federal grant, embarked on a 3-year Research, Development, & Demonstration project (September 2009 to August 2012)

Develop, test, and evaluate early intervention (“EI”) strategies that increase the likelihood of non-custodial parents’ participation in the order establishment process and making sustained payments.
Project Components

- **Research**
  - Review of successful early intervention strategies

- **Development**
  - Early intervention tools (scripts, letters, flyer)
  - Customized data collection and workflow tool

- **Demonstration**
  - NCP enrollment through systematic random assignment (Treatment and Control)
  - Tracking of all grant actions and outcomes
  - Quality Control (regular audits & data review)
Project Goals

- Increase number of orders established by stipulation
- Increase number of cases with initial payment
- Increase number of cases with sustained payments
- Provide a basis for process improvement in order establishment and collections for Clark County
- Shed light on possible root causes of non-stipulated orders and non-payment
Research Design

- Scientific experiment (random assignment of non-custodial parents to a control or treatment group)

- NCPs in the treatment group receive intervention at three points in the life of their case
  - Pre-order establishment
  - Initial Collection
  - Sustained Collection
**Immediate contact** after NCP served with CS case

**Objectives:**
- Establish customer relationship
- Explain importance of participation in order establishment process
- Attempt to set a stipulation appointment

**Early Intervention Techniques:**
- Phone
- Letter
Pre-Order Establishment Intervention

Early Intervention #1
Pre-Order Establishment Phase

- Begin EI#1
  - A. Phone
  - B. Letter
  - C. Contact
  - D. No Contact

Immediate Goal #1

- E. Show at DAFS (successful EI#1)
- F. No show at DAFS (unsuccessful EI#1)

BAU Control Group

Treatment Group
Initial Collection Phase

Immediate contact after child support order is established

Objectives:
- Explain importance of making payments
- Discuss payment instructions (how and where)
- Direct to community resources, if needed

Early Intervention Techniques:
- Personal
- Phone
- Letter
Initial Collection Intervention

Immediate Goal #2

- G. Stipulate (@DAFS or @Court)
- H. Heard (case heard in court)
- I. Default (Administrative & Judicial)

Early Intervention #2 – Initial Collection Phase

Begin EI#2

- J. Personal
- K. Phone
  - M. Contact
  - N. No Contact

Begin EI#2

- L. Letter
  - 1

Immediate Goal #3

- P. Initial payment made in full (successful EI#2)
- Q. No initial payment or partial payment (unsuccessful EI#2)

O. Send positive reinforcement letter

PRL
Sustained Collection Phase

- **Immediate contact** after a missed or partial payment (maximum of 2 instances)

- **Objectives:**
  - Notify NCPs of missed/partial payment
  - Remind NCPs of interest and penalty charges for unpaid support and possible enforcement actions

- **Early Intervention Techniques:**
  - Phone
  - Letter
Sustained Collection Intervention

Early Intervention #3 – Sustained Collection Phase

Begin EI#3

- U. Phone
- V. Letter

W. Contact
X. No Contact

Immediate Goal #4

Y. Next payment made in full (successful EI#3)
Z. Next payment missed or paid partially (unsuccessful EI#3)

End of Grant Intervention

Monitor payments
To regular enforcement actions

R. Continue monitoring payments
S. Full payment made
T. Payment missed or paid partially
Policy is a social intervention. What information is available to ascertain the effect(s) of the intervention?

1. Experimental data → considered the gold standard
2. Observational data → Rubin/Pearl causal approaches
3. No data → mathematical models - agent based models
June 2010 to February 2012 data - 2,890 cases investigated.
For most analyses 1,195 cases utilized. Our population of interest does not consist of incarcerated individuals, out of state individuals, individuals with multiple child support cases.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>% Treat = 70.46</th>
<th>% BAU = 29.54</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>% Female = 12.10</td>
<td>% Male = 87.90</td>
</tr>
<tr>
<td>Visitation Rights</td>
<td>% Yes = 71.15</td>
<td>% No = 28.85</td>
</tr>
<tr>
<td>Employed</td>
<td>% Yes = 61.91</td>
<td>% No = 38.08</td>
</tr>
<tr>
<td>Disability</td>
<td>% Yes = 1.96</td>
<td>% No = 98.04</td>
</tr>
<tr>
<td>Public Assistance</td>
<td>% Yes = 7.77</td>
<td>% No = 92.23</td>
</tr>
<tr>
<td>Ever Incarcerated</td>
<td>% Yes = 38.14</td>
<td>% No = 61.86</td>
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</table>
## Data and Demographics

<table>
<thead>
<tr>
<th></th>
<th>Verified Yearly Income</th>
<th>Monthly Obligation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>min</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>median</strong></td>
<td>3,090</td>
<td>220</td>
</tr>
<tr>
<td><strong>max</strong></td>
<td>205,411</td>
<td>1,677</td>
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<tr>
<td><strong>s.d.</strong></td>
<td>15,742.54</td>
<td>217.42</td>
</tr>
</tbody>
</table>

Macatangay & Westveld (DAFS & UA) Intervening for Success
Analyses and Results

Analyses

Outcomes of interest:

- Probability of showing up at DAFS (Pre-Order Intervention)
- Probability of establishing orders by stipulation (Pre-Order Interv.)
- Probability of making a first payment (Collection Intervention)
- Probability of making sustained payments (Collection Intervention)

A Bayesian inferential approach was used.
Analyses and Results

Outcome 1

Probability of “showing-up” at DAFS

A logistic regression was used to examine the relationship between “showing-up” at DAFS and the treatment allocation and gender. We found (with high probability):

- No difference between the phone call and letter in regards to showing-up at DAFS.
- Men, compared to women, are more likely to show-up.
Probability (\(\pi\)) of Showing Up at DAFS

\[ Pr(\pi_{\text{phone}} \geq \pi_{\text{letter}} | y) = Pr(\pi_{\text{phone}} - \pi_{\text{letter}} \geq 0 | y) \approx 0.85 \]
\[ Pr(\pi_{\text{male}} \geq \pi_{\text{female}} | y) = Pr(\pi_{\text{male}} - \pi_{\text{female}} \geq 0 | y) \approx 0.99 \]
Analyses and Results

Outcome 2
Probability of establishing orders by stipulation

administrative default < judicial hearing < stipulation

An ordered multinomial regression was used to examine the relationship between order establishment and the treatment allocation and gender. We found (with high probability):

- No difference between the letter and BAU in regards to the probability of stipulating.
- A difference between the phone call and BAU in regards to the probability of stipulating.
- Men, compared to women, are more likely stipulate.
Analyses and Results

Outcome Probabilities

- Administrative Default
- Judicial
- Stipulation

Outcome Probabilities for various categories and conditions:

- Male NCP
- Female NCP
- BAU
- Letter
- Phone

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PPMRN 2012 - Rutgers
Based on the design an NCP has a “treatment” path. For example:

BAU → Default

Phone 1 → Default → Phone 2 → ⋯

Phone 1 → Stipulation → Personal → ⋯

Important note: NCPs that Default can not be randomized to a personal contact.

We wish to compare these treatment paths ⇒ Here we will examine the effect of the second intervention.
Analyses and Results

Outcome 3

Probability of making a full initial payment

no payment < partial payment < full payment

An ordered multinomial regression was used to examine the relationship between order establishment and the treatment path and gender. We found (with high probability):

- No difference between the letter and BAU in regards to the probability of making a full payment.
- No difference between the phone and BAU in regards to the probability of making a full payment.
- A difference between the personal and BAU in regards to the probability of making a full payment.
- No difference between men and women.
Analyses and Results

Based on Non-Defaulted Cases

Outcome Probabilities

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Probability

No Payment | Partial Payment | Full Payment

0.0 0.2 0.4 0.6 0.8 1.0

Male NCP
Female NCP
BAU
Letter
Phone
Personal

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Intervening for Success
PPMRN 2012 - Rutgers
## Analyses and Results

### Outcome 4

Examining continuing payments - arrears

- **Example from an NCP:**

<table>
<thead>
<tr>
<th>Owed per month</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
<th>Month 4</th>
<th>Month 5</th>
<th>Month 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paid per month</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Arrears</td>
<td>224.00</td>
<td>0.00</td>
<td>68.93</td>
<td>-172.28</td>
<td>-361.80</td>
<td>-292.87</td>
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<td>448.00</td>
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<td></td>
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</tbody>
</table>
All Cases

Analyses and Results

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Intervening for Success

PPMRN 2012 - Rutgers 26 / 31
A linear mixed effects model was used to examine the relationship between the arrears and covariates:

- Fixed effects: Treatment Path, Month, Gender
- Random effects: Intercept, Month

We found \textit{(with high probability)}:

- No difference between the letter and BAU in regards to decreasing the mean level of arrears.
- No difference between the phone and BAU in regards to decreasing the mean level of arrears.
- A difference between the personal and BAU in regards to decreasing the mean level of arrears.
- No difference between men and women.
- An overall increase in the mean level of arrears over time.
What’s Next

- Continue examination of the arrears data.
- Examine the effect of sending letters or making phone calls after missed payments.
- Based on the analyses and “utility” functions outlined by the federal government we can consider best practices (i.e. cost effectiveness):

![Diagram]

- Leadership & Enterprise
- Social Interventions
- Data
- $p(\theta|\text{Data})$ Updated Beliefs
- $p(\theta)$ Prior Beliefs
- $p(z|\text{Data})$ Predicted Future Outcomes
- $\mathcal{U}(\text{Performance}; z)$ Target
- Decisions
What’s Next

- Organization-wide training on Early Intervention by key functional areas.
- Development of a workflow tool to ensure systematic and immediate intervention at critical points in the life of a case.
- Management reporting to monitor actions and outcomes.
- Continuing process improvements.
Thank You