Evaluation of the Effectiveness of a Low-Cost Statistical Methodology to Target Services to Participants of a Local Welfare-to-Work Program

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Purpose

- Show how low-cost interventions can be integrated into the operations of existing workforce programs
- The pilot is relevant for the current interest in low-cost RCT trials
  - Demonstrates how a simple improvement in the referral of participants can improve outcomes
  - Embeds RCT in the existing program
  - Uses administrative data to minimize cost and the disruption of the evaluation to operations

Interest in Behavioral Economics

- Recent interest in using insights from behavioral economics to improve the participation and engagement in social programs and improve efficiency of government programs
- US and the UK have taken particular interest in integrating low-cost behavioral interventions in social programs and evaluating them with short-term, low-cost RCTs
  - UK established Behavioural Insights Team (BIT) in 2010
  - US created the Social and Behavioral Science Team (SBST) in 2014
  - Obama Administration also used lessons from behavioral economics in the design of stimulus programs under ARRA

Behavioral Economics

- Popularized by Thaler and Sunstein's *Nudge* and Thaler's *Misbehaving* as well as *Freakanomics* phenomenon
- Stresses empirical findings of behavior that are partially at odds with standard economic assumptions. The key findings from field research in behavioral economics imply that individuals can make systematic errors or be put off by complexity, that they procrastinate, and that they hold non-standard preferences and non-standard beliefs." DellaVigna (2009)
- Babcock et al. (2012) point out that the tendency of individuals to have imperfect self control creates behavioral barriers to reemployment.
- The pilot is consistent with insights from behavioral economics by referring participants to service providers that offer services and a delivery-of-service philosophy that more closely matches the way in which specific individuals process and information and respond to guidance (paternalistic approach versus a hands-off approach)

Obama Administration

- 2009: Incorporated some aspects of behavioral economics in ARRA stimulus programs 2013
- 2013: Sent memo to the heads of federal agencies stating that “many innovative companies use rapidly conducted randomized trials to identify high impact innovations” and Federal agencies should do the same
- 2014: creates the Social and Behavioral Sciences Team (purpose is to translate findings and methods from behavioral sciences into improvements in Federal policies and programs

Members of the Social and Behavioral Sciences Team visit the Oval Office to brief the President on their work. Maya Shankar is the director.

Obama Administration

- 2015: signed executive order that encourages Federal agencies to "design its policies and programs to reflect our best understanding of how people engage with, participate in, use, and respond to those policies and programs"
- Identify opportunities to help qualifying individuals, families, businesses access public programs and benefits
- Improve how information is presented to customers
- Identify programs that offer choices and carefully consider how the presentation and structure of those choices can most effectively promote public welfare
- Review elements of their policies and programs that are designed to encourage or make it easier for Americans to take specific actions

Workforce Programs

- The SBST lists 17 projects in its annual report, but none involves workforce programs
- USDOL has launched several nudge-type initiatives, but only one involves the delivery of workforce programs
- Pilot focuses on two of the four White House directives:
  - Improve how information is presented
  - Improve how choices of programs are presented to customers
- Pilot also incorporates an employability score, which Babcock et al. advocates
- Pilot embeds RCT and uses administrative data

Welfare-to-Work Pilot

- Pilot was conducted in the late 1990s at the Upjohn Institute with funding from USDOL
- Purpose: use data commonly collected at intake to quickly assess customers' needs and refer them to services that best meet their needs
- Demonstrate that individuals respond differently to different approaches in delivering services
- Knowledge can be used to target more effectively services to participants

Process

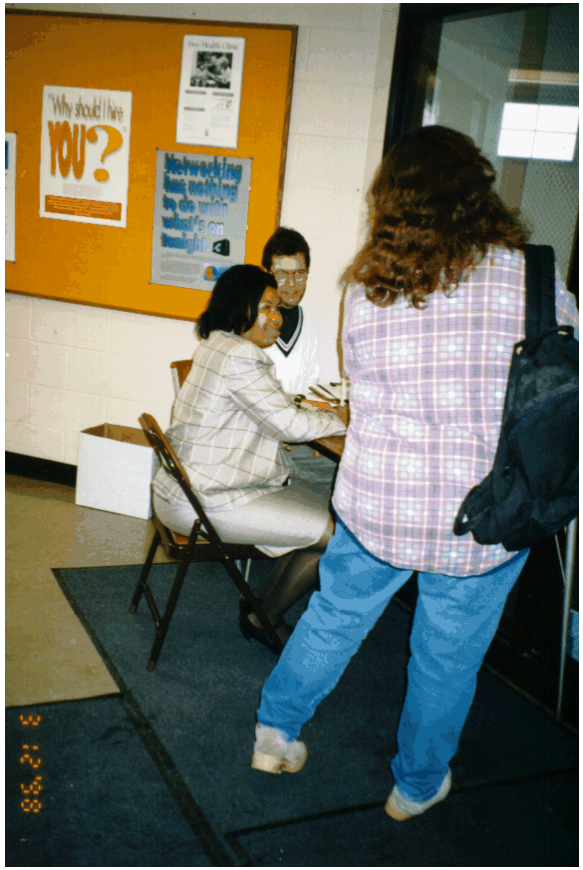
- Statistical assessment tool is estimated using attributes and work histories of participants who have recently completed Work First
- Coefficients of assessment model included in computer program (spreadsheet format)
- Customer information entered into PCs
- Probability is calculated and used to identify the degree of difficulty in finding employment
- Participant randomly assigned to service providers
- Comparative advantage of different combinations of referrals is computed and BC estimated

Operations

- FIA refers clients to Work First Program
- Intake and orientation take place twice a week at one site
- Job search assistance at three sites

Intake/Registration

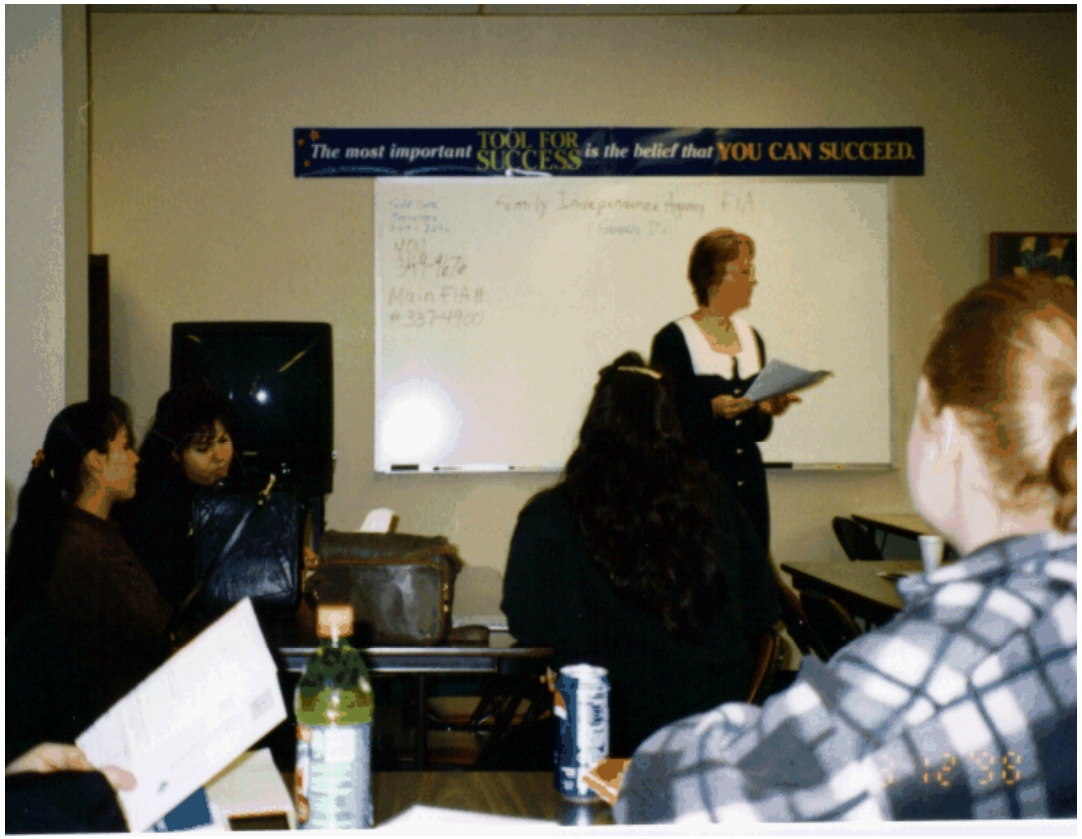
- Welfare recipients report to intake manager
- FIA provides personal information prior to intake
- Missing information is highlighted and client asked to fill in



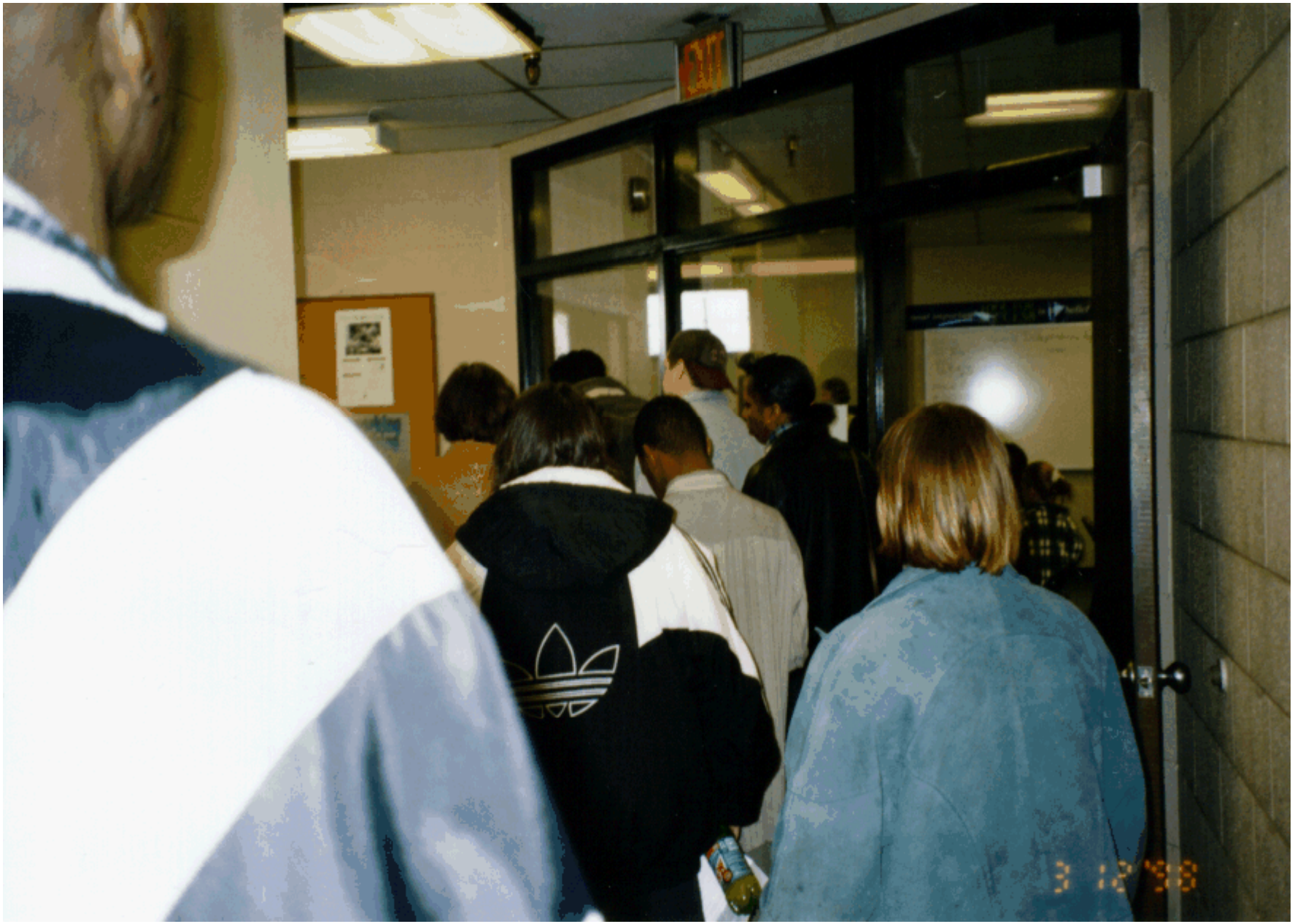
Data Input

- Missing data entered while clients are in orientation
- Most data entered prior to day of intake

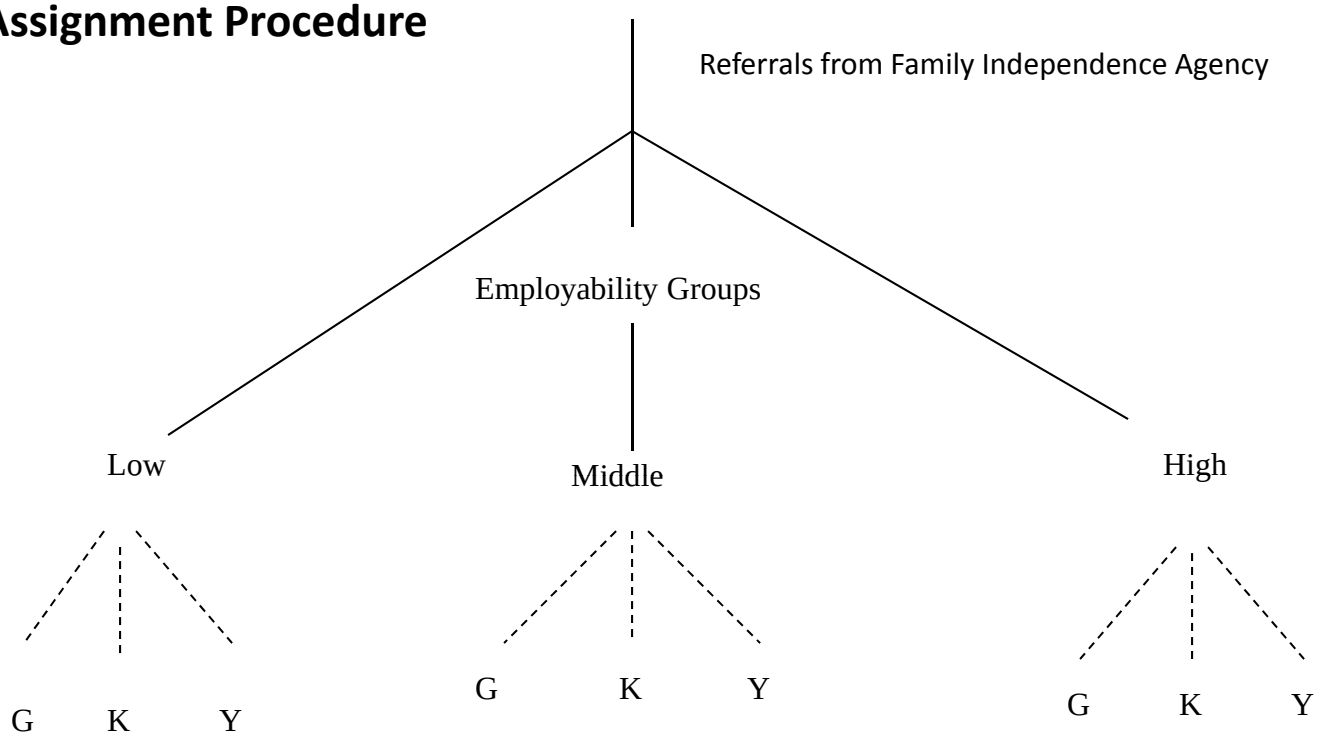
Orientation



- Clients attend orientation
- Leave with referral


EXIT

Random Assignment Procedure



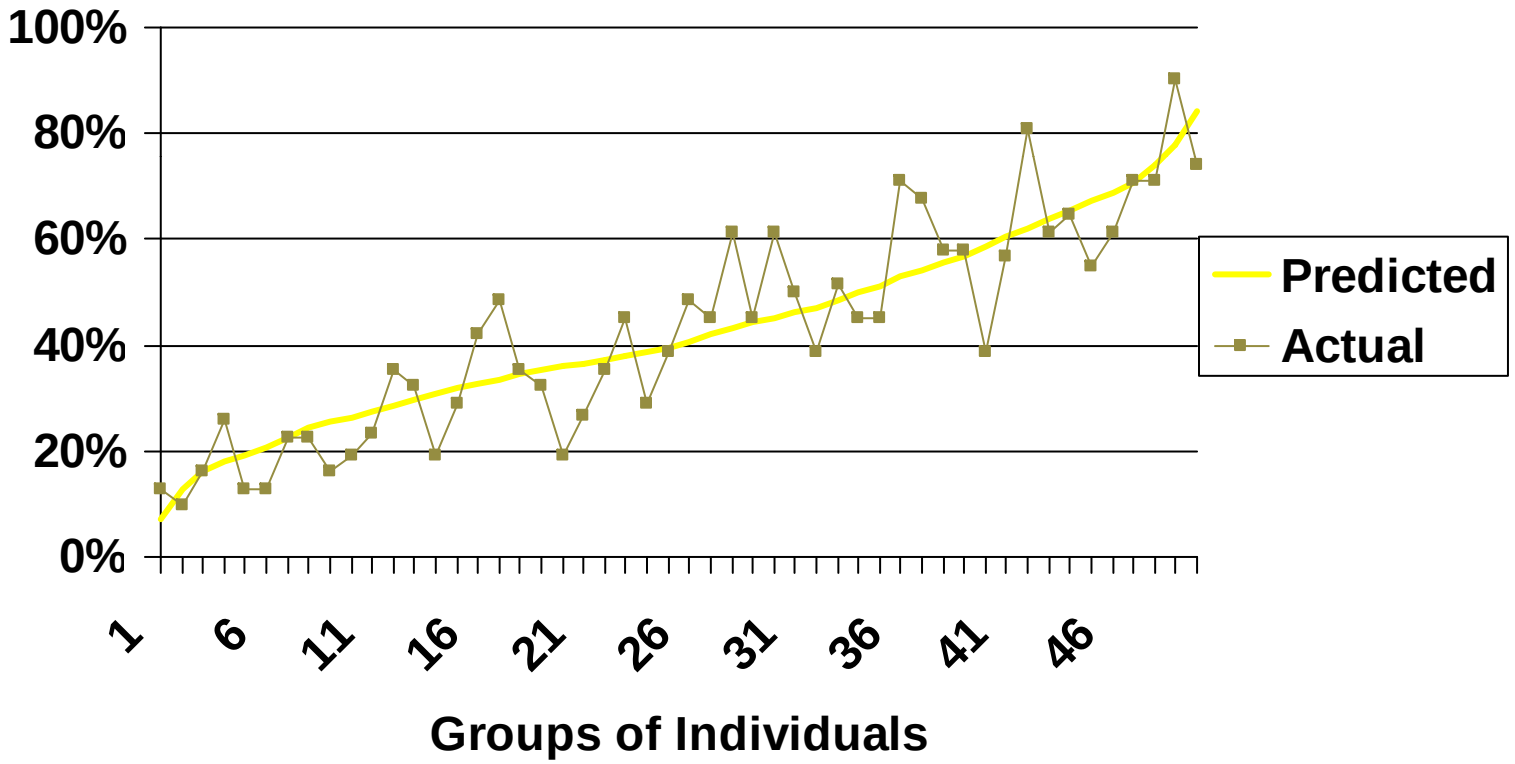
Dashed lines indicate that participants were randomly assigned to the next stage of the process.

G refers to Goodwill, F to Foundations, Y to Youth Opportunities Unlimited.

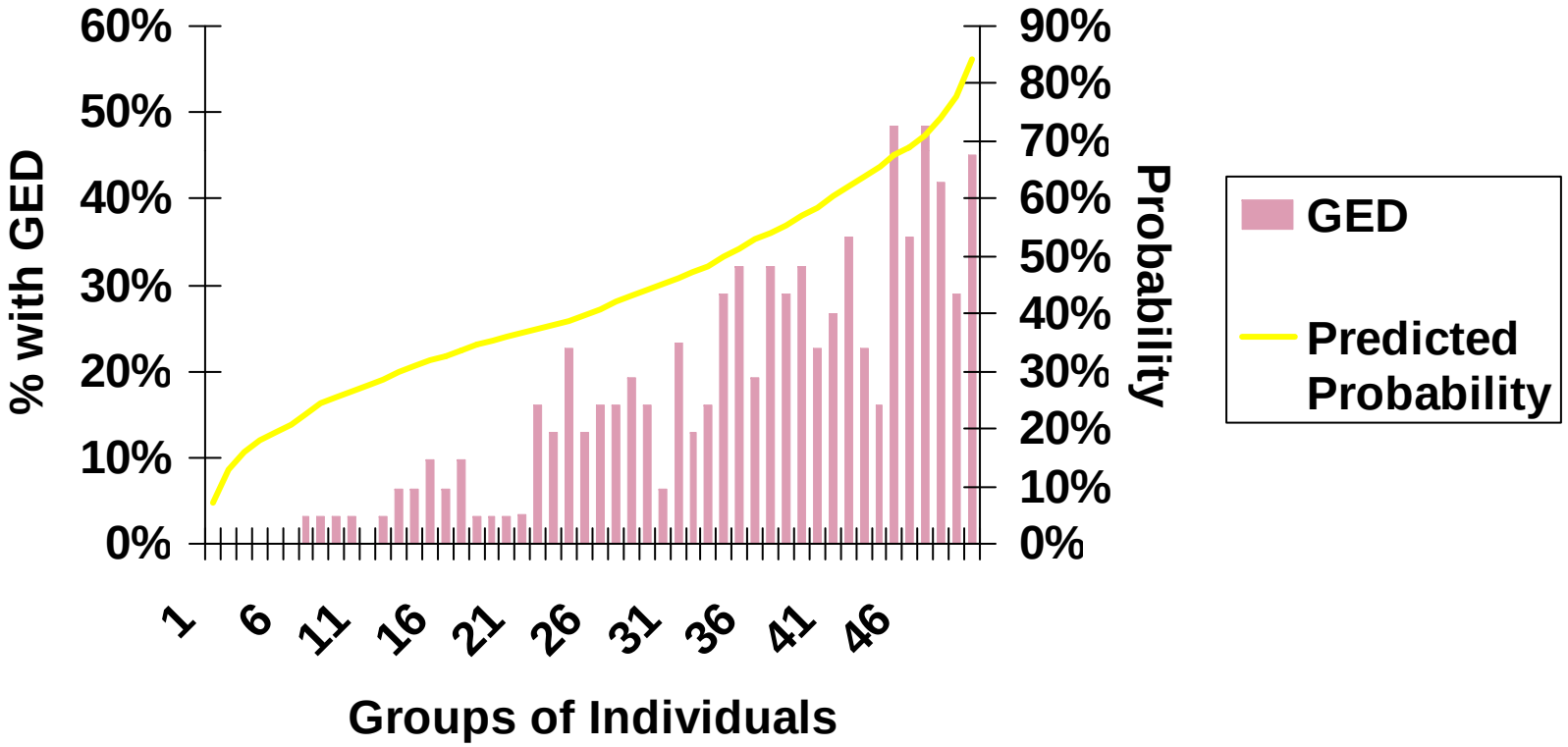
Logit Estimates of Job Retention Model

Variable	Coefficient	Std. Error	z-statistic
Single parent	0.223	0.156	1.429
Age	0.115	0.041	2.790
Age2	-0.002	0.001	-2.602
No school	-1.801	0.555	-3.244
Grade less than 9	-0.44	0.304	-1.495
Grade 9	-0.167	0.252	-0.662
Grade 10	-0.775	0.218	-3.553
Grade 11	-0.431	0.157	-2.744
GED	0.174	0.162	1.074
VOCED	-0.591	0.487	-1.212
Post secondary 1 yr	0.079	0.501	0.159
Post secondary 2 yrs	0.016	0.438	0.371
Post secondary 3 yrs	0.011	0.884	.0.13
Goodwill	-0.463	0.187	-2.485
Foundation	-0.560	0.164	-3.406
No target	0.064	0.116	0.555
Admission date	-0.003	0.001	-5.424
Code20_1	1.107	0.144	7.683
Code20_2	-0.393	1.055	-0.373
Non compliance	-0.750	0.281	-2.672
constant	36.921	7.26	5.086

Actual and Predicted Probability



GED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Probability
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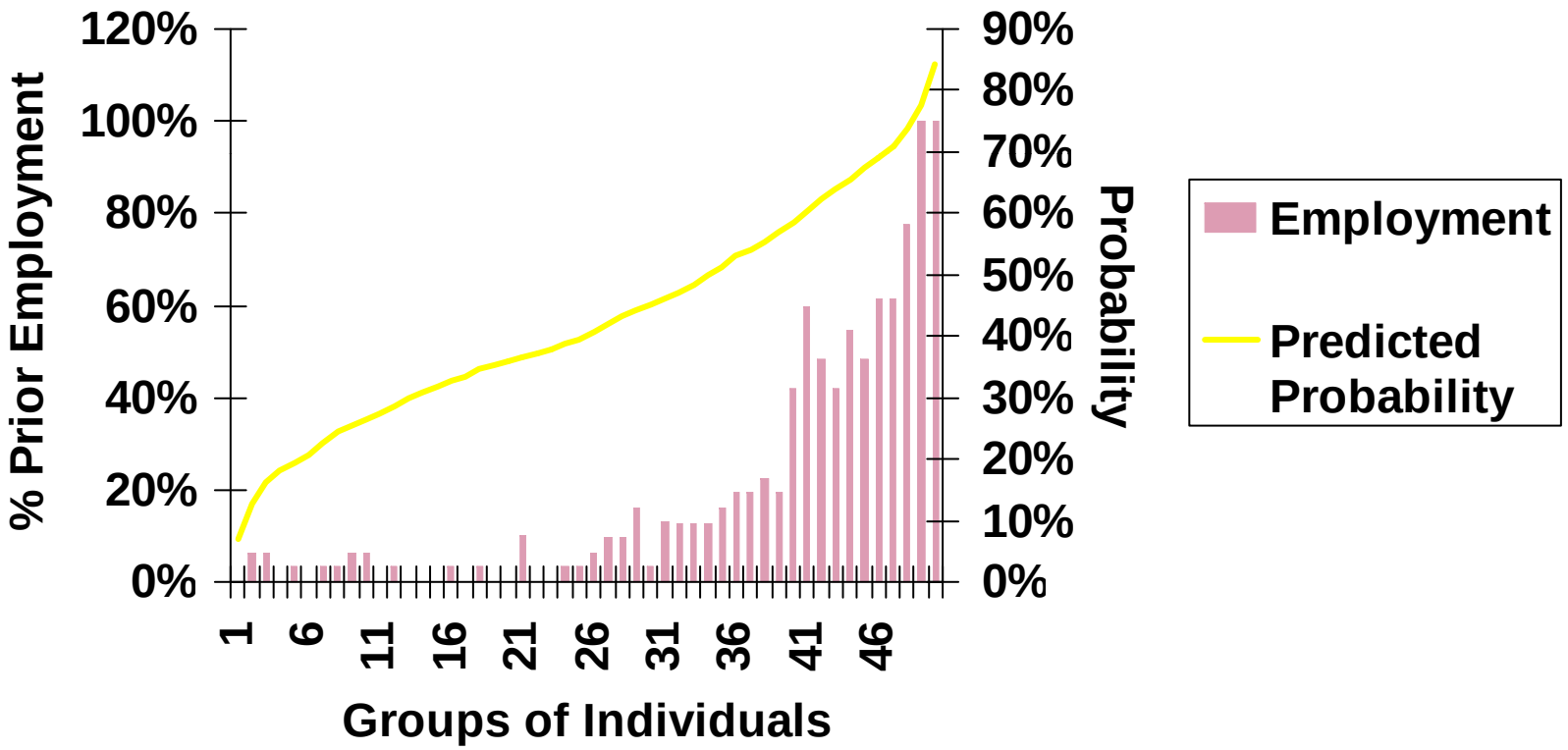
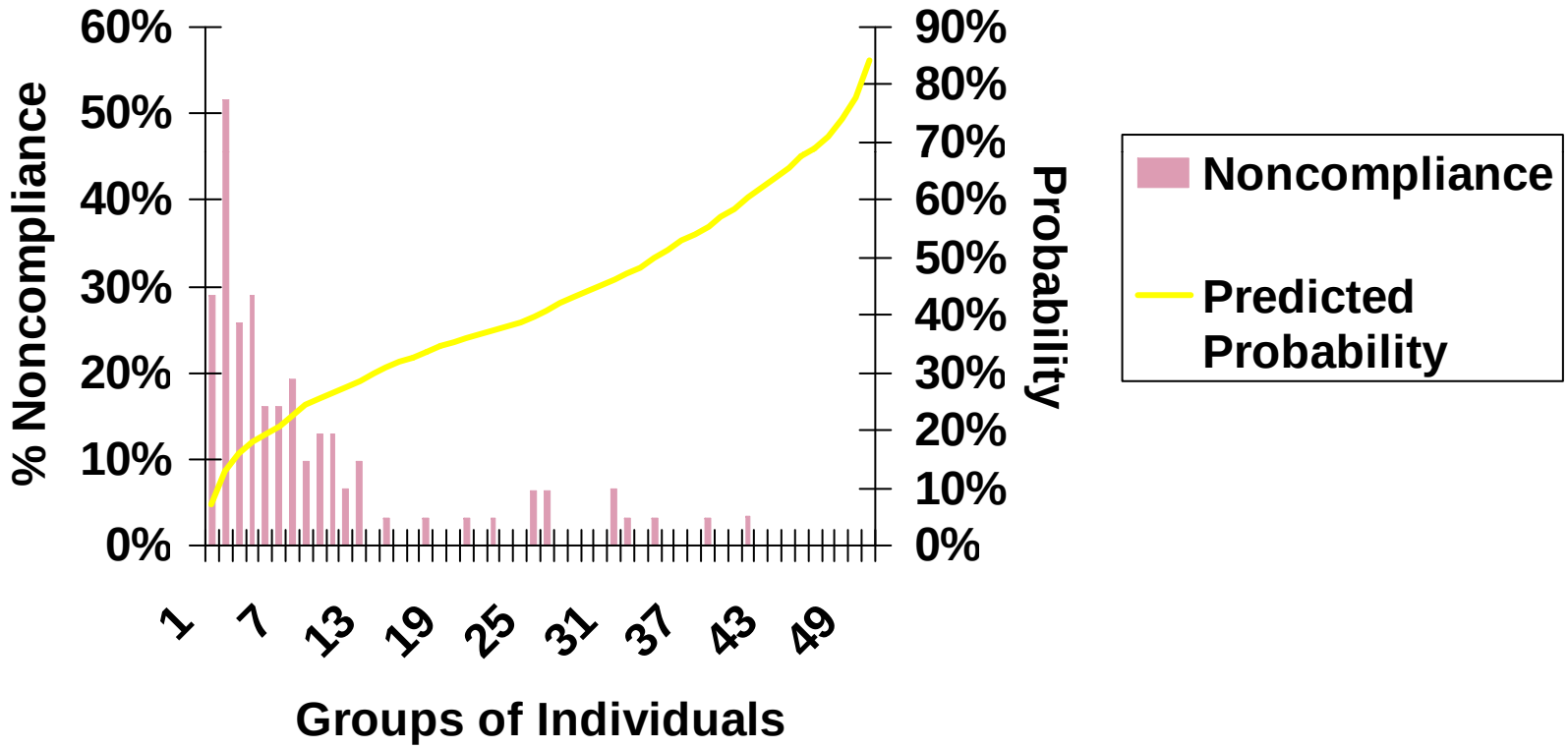
Groups of Individuals
GED
Predicted Probability

Prior Employment



Noncompliance



Services

- Three providers: k, y, and g
- Each pursues a different approach to assisting clients ranging from self-help to providing in-depth services
- Participants spend different amounts of time in services
- Offers opportunity to target services

Assessment and Employability Planning

	Percentage of Participants		
Number of hours	k	g	y
1	1.9	1.9	14.6
2	38.3	19.0	52.8
16	19.6	0.9	1.9
20	26.9	76.8	27.7

Number of Participants Employed 90 Consecutive Days by Combination of Providers

		Employability Group				
Combination of Providers		Low	Middle	High	Total	Ranking
1	gyk	58	68	96	221	1
2	gky	58	26	72	156	5
3	ygk	52	40	96	187	3
4	ykg	52	26	97	175	4
5	kyg	30	68	97	195	2
6	kgy	30	40	72	142	6

Note: Providers are designated as letters: "g" Goodwill; "k" foundation; and "y" YOU. The combination "gyk" refers to low employability group assigned to Goodwill, the middle employability group to YOU, and the high employability group to the Foundation.

Hourly Wages and Weekly Hours of Participants Working 90 Days

	Employability Group					
	Low		Middle		High	
	Wage	Hours	Wage	Hours	Wage	Hours
Good-will	$7.02	32.9	$6.08	25.9	$6.02	28.2
BF	$5.04	24.6	$5.14	25.8	$7.43	32.2
YOU	$7.03	31.9	$6.23	32.0	$7.21	32.3
All	$6.39	30.1	$5.82	27.5	$6.85	30.6

Average Weekly Earnings by Provider Combinations

Provider Combination	Average Weekly Earnings
gyk	$192
gky	$211
ygk	$181
ykg	$175
kyg	$165
kgy	$189
randomly assigned	$195

Net Effect of Field Experiment

Net effect is the difference in the earnings of the treatment group (B_T) and the earnings of the control group (B_C)

$$B_T - B_C = [(R_T-R_C)\bullet E_C] + [(E_T-E_C)\bullet R_C] + [(R_T-R_C)\bullet(E_T-E_C)]$$

R: Number who retained jobs

E: Average weekly earnings during 90 days

Two Scenarios

- First Scenario: Assumes that the difference in number of participants retaining their jobs for 90 days persists throughout 8 quarters
- Second Scenario: Assumes that the difference in job retention narrows throughout the 8-quarter period
- Both scenarios assume wages grow by 3% per year and use a 10% annual discount rate when computing net present value

Difference in Earnings: First Scenario

Quarters after leaving program	$B_T - B_C$	R_T	R_C	E_T	E_C
1	$112,179	222	175	$192	$195
2	113,666	222	175	193	196
3	115,165	222	175	195	197
4	116,675	222	175	196	198
5	118,197	222	175	197	199
6	119,730	222	175	199	201
7	121,274	222	175	201	202
8	122,830	222	175	202	203
NPV	$840,827				
B/C	5.8	(Program cost=$145,000)			

Difference in Earnings: Second Scenario

Quarters after leaving program	$B_T - B_C$	R_T	R_C	E_T	E_C
1	$112,179	222	175	$192	$195
2	98,706	216	175	193	196
3	85,073	210	175	195	197
4	71,279	204	175	196	198
5	57,321	198	175	197	199
6	43,197	193	175	199	201
7	28,906	187	175	201	202
8	14,445	181	175	202	203
NPV	$471,054				
B/C	3.3	(Program cost=$145,000)			

Conclusion

- Statistical model exhibited sufficient precision to distinguish among participants by job retention
- Considerable variation in retention rates among different combinations of participants with providers
  - Difference in highest and lowest retention rates among providers was 56%
  - 28% between highest and average
- A priori assignment of participants to providers in treatment group was same combination that yielded highest retention rate
- Targeting resources can be an effective strategy: Benefit-to-cost ratio ranged from 3.3 to 5.8