

Comparing the PFL Community with a Comparison Group

Accounting for nonrandom differences

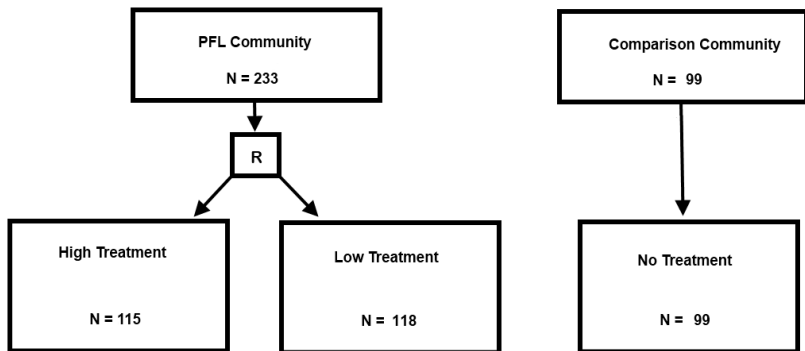
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Introduction

PFL: Randomisation – gold standard evaluation

Comparison group: Nonrandom assignment



PFL vs “No Treatment” Group Baseline Results

Significantly Different at Baseline

Category	PFL vs Comparison
Demographics & SES Indicators	6/33
Maternal Well-being & Personality	6/24
Maternal Health & Pregnancy	9/35
Thoughts About Parenting	7/13
Social Support	0/9
Total	28/114 (25%)

Accounting for Differences

- Treatment effect may be biased downwards
- Control for all differences?
- Conditioning on 28 measures not feasible (in small sample)
- First step: Factor analysis to reduce this set

Factor Analysis

- Examine correlations between measures
- Extract a reduced set of variables
- 6 variables:
 - Pearlin Self Efficacy Scale
 - Adult Adolescent Parenting Inventory
 - Vulnerable Attachment Style Ques.
 - Parent Age
 - Living with Grandparent
 - Cognitive Resources

Three Conditioning Methods

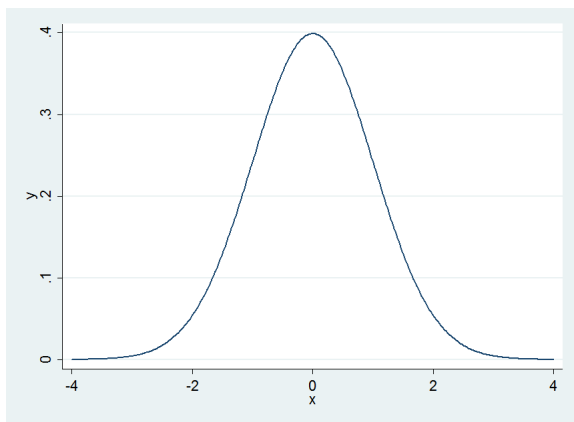
- 1. Parametric
- 2. Nonparametric
- 3. Semiparametric

Compare the results from each approach

Parametric Conditioning

Assume that the distribution is known

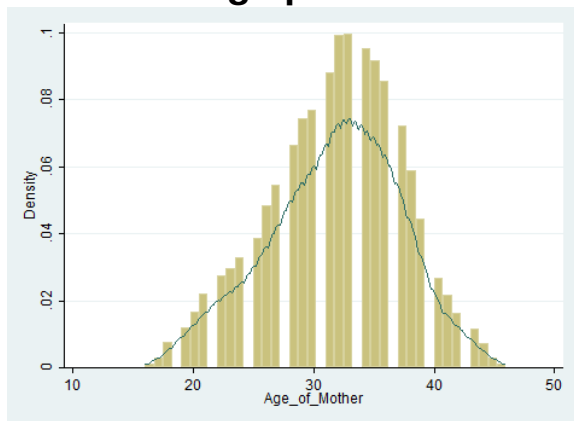
The Normal Distribution



Parametric Conditioning

Safe to make this assumption if sample is large

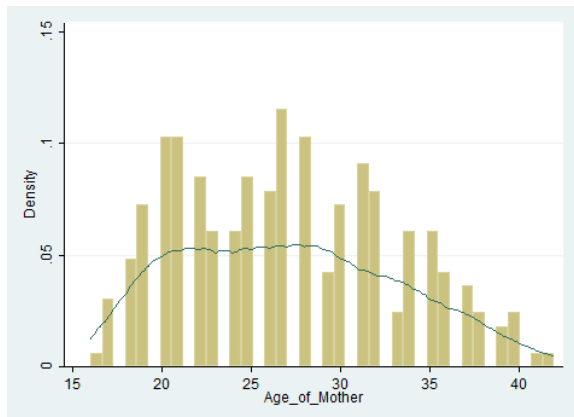
Growing up in Ireland



Parametric Conditioning

Assumption does not hold in smaller samples

Preparing for Life



Nonparametric Conditioning

- No distributional assumptions
- Use permutation tests within blocks
- Blocks constructed based on the conditioning variables

Nonparametric Conditioning

For example, controlling for age:

Group	ASQ Communication	Above Median Age
High	40	No
Comp	55	No
High	60	No
High	55	No
Comp	60	No
High	45	Yes
Comp	40	Yes
Comp	55	Yes
High	60	Yes
Comp	50	Yes

Nonparametric Conditioning

Controlling for age and living with grandparent:

Group	ASQ	Above Median Age	Grandparent
Comp	55	No	No
High	60	No	No
Comp	55	No	Yes
High	50	No	Yes
High	60	No	Yes
High	60	Yes	No
Comp	40	Yes	No
Comp	40	Yes	No
High	60	Yes	Yes
Comp	45	Yes	Yes

Nonparametric Conditioning

Disadvantages

- Cannot condition on continuous measures
- Blocks cannot be too small

2 dichotomized variables – 4 blocks

Block	No. Individuals
1	25
2	58
3	70
4	11

6 dichotomized variables – 64 blocks

Semiparametric Conditioning

- Parametric method for continuous measures
- Block permutation tests for dichotomized measures
- Based on Freedman and Lane (1983)

Results - Child Development

Outcome	Average Score		p-values Uncond.	Conditional p-values		
	PFL _{HIGH}	COMP		Parametric	Non-P	Semi-P
ASQ Communication	53.27	51.51	0.072	0.009	0.065	0.022
ASQ Fine Motor	50.86	51.15	0.572	0.351	0.197	0.346
ASQ Gross Motor	41.17	39.76	0.223	0.071	0.035	0.061
ASQ Personal Social	46.54	48.55	0.853	0.655	0.793	0.648
ASQ Problem Solving	52.16	52.53	0.582	0.338	0.578	0.468
‡ASQ Social-Emotional	14.57	17.65	0.057	0.015	0.021	0.019
‡Difficult Temperament	11.75	12.48	0.217	0.238	0.103	0.275
‡ASQ Communication cutoff	0.00	0.00	–	–	–	–
‡ASQ Fine Moto Cutoff	0.01	0.00	0.740	0.513	0.558	0.631
‡ASQ Gross Motor Cutoff	0.01	0.06	0.074	0.045	0.128	0.013
‡ASQ Personal Social Cutoff	0.06	0.05	0.636	0.506	0.273	0.315
‡ASQ Problem Solving Cutoff	0.07	0.05	0.754	0.627	0.616	0.765
‡ASQ Social-Emotional Cutoff	0.01	0.02	0.320	0.195	0.219	0.233

Results - HOME

Outcome	Average Score		p-values Uncond.	Conditional p-values		
	PFL _{HIGH}	COMP		Parametric	Non-P	Semi-P
Acceptance	6.38	6.42	0.596	0.445	0.390	0.455
Childcare	4.19	4.11	0.209	0.486	0.371	0.440
Interact	11.66	11.54	0.371	0.064	0.142	0.086
Involve	4.38	4.31	0.344	0.082	0.462	0.130
Learn	6.79	6.43	0.103	0.045	0.129	0.071
Not Items	5.96	5.93	0.256	0.187	0.236	0.157
Organisation	5.58	5.55	0.444	0.460	0.345	0.417
Outings	4.78	4.73	0.227	0.326	0.437	0.328
Physical Environment	6.49	6.35	0.222	0.104	0.129	0.116
Play	7.33	7.00	0.098	0.015	0.169	0.026
Responsivity	9.12	9.11	0.488	0.158	0.226	0.181
Routine	7.35	7.47	0.710	0.644	0.666	0.666
Total	17.05	16.91	0.237	0.038	0.079	0.031
Toys	7.76	7.02	0.014	0.005	0.018	0.007
Variety	3.57	3.01	0.001	0.001	0.006	0.001

PFL: High vs Low

Sensitivity to conditioning methods

- Examine the true RCT data
- Conditioning should not effect the results

Results - Child Development

Outcome	Average Score		p-values Uncond.	Conditional p-values		
	PFL _{HIGH}	PFL _{LOW}		Parametric	Non-P	Semi-P
ASQ Communication	53.27	51.82	0.116	0.081	0.241	0.082
ASQ Fine Motor	50.85	51.42	0.654	0.652	0.607	0.629
ASQ Gross Motor	41.17	38.30	0.062	0.072	0.253	0.087
ASQ Personal Social	46.54	49.91	0.379	0.386	0.687	0.390
ASQ Problem Solving	52.16	52.50	0.624	0.566	0.694	0.543
‡ASQ Social-Emotional	14.57	15.00	0.388	0.316	0.767	0.340
‡Difficult Temperament	11.75	12.35	0.245	0.168	0.193	0.196
‡ASQ Communication cutoff	0.00	0.01	0.273	0.248	0.256	0.317
‡ASQ Fine Moto Cutoff	0.01	0.01	0.522	0.708	0.732	0.662
‡ASQ Gross Motor Cutoff	0.01	0.05	0.112	0.157	0.204	0.180
‡ASQ Personal Social Cutoff	0.06	0.10	0.179	0.156	0.428	0.192
‡ASQ Problem Solving Cutoff	0.07	0.08	0.458	0.477	0.692	0.409
‡ASQ Social-Emotional Cutoff	0.01	0.05	0.124	0.094	0.270	0.064

Results - HOME

Outcome	Average Score		p-values Uncond.	Conditional p-values		
	PFL _{HIGH}	PFL _{LOW}		Parametric	Non-P	Semi-P
Acceptance	6.38	6.33	0.287	0.205	0.112	0.268
Childcare	4.19	3.94	0.008	0.013	0.058	0.014
Interact	11.66	11.34	0.192	0.102	0.113	0.102
Involve	4.38	4.38	0.495	0.576	0.808	0.559
Learn	6.79	6.44	0.080	0.106	0.403	0.065
Not Items	5.96	5.98	0.894	0.735	0.611	0.802
Organisation	5.58	5.61	0.592	0.609	0.475	0.585
Outings	4.78	4.80	0.620	0.612	0.654	0.592
Physical Envir.	6.49	6.24	0.071	0.094	0.009	0.088
Play	7.33	7.07	0.151	0.170	0.547	0.150
Responsivity	9.12	8.66	0.187	0.136	0.155	0.123
Routine	7.35	7.15	0.155	0.169	0.330	0.159
Total	17.05	16.74	0.062	0.021	0.022	0.026
Toys	7.76	7.30	0.041	0.045	0.381	0.030
Variety	3.57	3.12	0.003	0.002	0.072	0.001

Closing Remarks

- Semiparametric conditioning most feasible
- Semiparametric method returns the closest results for the true RCT sample
- Next step: Further examination of the factor analysis methods

Thank you