**Issue Brief Outline: Comparing the Results of ACM/IMPAQ models**

1. Introduction
   1. Project Overview

Access to and use of paid and unpaid leave are critical to an individual’s financial security and quality of life (Winston, 2017). The United States remains an outlier when it comes to paid leave. Nearly every other developed country provides paid maternity leave, and most advanced industrial countries offer extended paid medical and parental leaves. In the US, there is no federal requirement for paid leave or sick days, which leaves many individuals, especially low-income workers, facing difficult tradeoffs. In 2016, only 14 percent of all US workers have access to paid family leave through their employers, and 68 percent have paid sick leave (BLS, 2016).

However, in recent years, paid family and medical leave programs have received considerable support from both sides of the political aisle. Some states and municipalities have moved forward on paid family leave. California enacted paid family leave legislation in 2002, New Jersey in 2008, Rhode Island in 2013, New York in 2016 (effective January 2018), District of Columbia in 2017 (effective July 2020), and Washington in 2017 (effective January 2020). Several states and municipalities using government funds have examined the feasibility of instituting paid leave polices in their constituency. However the sophistication and reliability of these methods are inconsistent. In order to support different state’s quantitative evaluation of proposed paid leave policy, we are creating a ***Leave Simulation Model*** along with the **US Department of Labor**. This model will offer a convenient and rigorous way for any state or municipality to test different scenarios of paid-leave programs and to estimate the implications on costs in benefits paid out as well as assess the costs of administering a program.

* 1. Purpose of comparing ACM/IMPAQ models

1. Methodology
   1. Methods for comparing results

We perform three different types of model tests.

***Comparing simulated and published program costs.*** The ability to closely predict total program cost is arguably the most important feature of a good microsimulation model. There are three states with sufficient historical data on benefit outlays to perform this test on: California, New Jersey, and Rhode Island. For each state, we specified the model parameters so that they can approximate the eligibility rules and benefit payout schedules as closely as possible (see Appendix B for state-specific mode testing parameters). Upon completion of simulation under a given simulation method for a given state, we compute the weighted sum of benefits received by each ACS worker in that state, with weight being the population represented by the worker (i.e. the ACS variable *PWGTP*). This weighted sum is our simulated total program cost and is then compared against the published program outlays of the same state.

***Comparing simulated and observed population level statistics.*** We recognize that the robustness of a microsimulation model cannot be fully verified if we can only confirm that the model can produce good estimates for the final program cost. In addition, we need to validate the model’s capability to approximate the real-world mechanisms by examining a series of key intermediate outputs. In our case, we consider the following intermediate outputs at the population level:

* Total number of leave takers
* Total number of leaves taken
* Total number of leave needers
* Average wage replacement ratio if receiving paid-leave benefit from employer

All of these population level statistics can be computed directly based on the respective variables observed for each worker in the FMLA data, allowing the comparison with the simulated counterparts for model testing purpose. The first two statistics directly affect the program caseload. The third statistic characterizes the size of worker group who would take up the benefit depending upon program generosity. The last statistic is a key parameter in our model that determines the source of benefit paid to the leave takers - in short, the lower replacement ratio from employer would incentivize worker to take up the state program.

* + 1. Replicate various outcomes for each model and compare differences in results
  1. Run models with same parameters
     1. Mapping parameters to IMPAQ/ACM terminology
     2. Run with each of RI, NJ, CA using their actual parameters at the point of 2012
     3. Generate results and compare the two models

**ACM Parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **CA** | **NJ** | **RI** |
| DEPENDENTALLOWANCE | 10 | 10 | 10 |
| ELIGIBILITYRULES | a\_earnings=300 | a\_earnings=8400 | a\_earnings=3840 |
| EXTENDLEAVES | yes | Yes | yes |
| GOVERNMENT | no | No | no |
| MAXWEEKS | OH=52, MD=52, NC=6, IC=6, IS=6, IP=6 | OH=26, MD=26, NC=6, IC=6, IS=6, IP=6 | OH=30, MD=30, NC=4, IC=4, IS=4, IP=4 |
| REPLACEMENTRATIO | 0.55 | 0.66 | 0.6 |
| STATEOFWORK | CA | NJ | RI |
| TAKEUPRATES | default=1 | default=1 | default=1 |
| WAITINGPERIOD | 1 | 1 | 1 |

**IMPAQ Parameters**

| **Parameter** | **California** | **New Jersey** | **Rhode Island** |
| --- | --- | --- | --- |
| ann\_hours | NULL | NULL | NULL |
| bene\_effect | FALSE | FALSE | FALSE |
| bene\_level | 0.55 | 0.66 | 0.6 |
| bond\_uptake | 1 | 1 | 1 |
| dependent\_allow | 10 | 10 | 10 |
| dual\_receiver | 0 | 0 | 0 |
| Earnings | 300 | 8400 | 3840 |
| ext\_base\_effect | TRUE | TRUE | TRUE |
| extend\_days | 0 | 0 | 0 |
| extend\_prob | 0 | 0 | 0 |
| extend\_prop | 0 | 0 | 0 |
| fmla\_protect | FALSE | FALSE | FALSE |
| full\_particip\_needer | FALSE | FALSE | FALSE |
| GOVERNMENT | FALSE | FALSE | FALSE |
| illchild\_uptake | 1 | 1 | 1 |
| illparent\_uptake | 1 | 1 | 1 |
| illspouse\_uptake | 1 | 1 | 1 |
| impute\_method | logit | logit | logit |
| matdis\_uptake | 1 | 1 | 1 |
| maxlen\_bond | 30 | 30 | 20 |
| maxlen\_DI | 260 | 130 | 150 |
| maxlen\_illchild | 30 | 30 | 20 |
| maxlen\_illparent | 30 | 30 | 20 |
| maxlen\_illspouse | 30 | 30 | 20 |
| maxlen\_matdis | 260 | 130 | 150 |
| maxlen\_own | 260 | 130 | 150 |
| maxlen\_PFL | 30 | 30 | 20 |
| maxlen\_total | 260 | 130 | 150 |
| minsize | NULL | NULL | NULL |
| own\_uptake | 1 | 1 | 1 |
| sens\_var | unaffordable | unaffordable | unaffordable |
| SELFEMP | FALSE | FALSE | FALSE |
| topoff\_min\_length | 0 | 0 | 0 |
| topoff\_rate | 0 | 0 | 0 |
| waiting\_period | 5 | 5 | 5 |
| week\_bene\_cap | 1216 | 594 | 795 |
| week\_bene\_cap\_prop | NULL | NULL | NULL |
| week\_bene\_min | 50 |  | 89 |
| weeks | NULL | NULL | NULL |

* 1. Outcomes to compare
     1. Population leave needing/taking estimates
     2. Length of leave estimates
     3. Number of eligible workers for program
     4. Program cost estimates

1. Results
   1. Compare R, Python, ACM models:
      1. Population leave needing/taking estimates
      2. Length of leave estimates
      3. Number of eligible workers for program
      4. Program cost estimates
   2. Discuss results
2. Conclusion
   1. Summary of findings
   2. Explanations for differences
   3. Next steps

**Mock Graphs for Results Section**

Bibliography

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