



## Adaptation of DOL Regression Model for Local Negotiations



## WIOA Negotiations

- Factors to be Considered in State Negotiations
  - Characteristics of those Served (Casemix)
  - Economic Conditions
  - National Targets
  - Continuous Improvement / Return on Investment
  - Targets of Other States
- Local Factors: Casemix & Economic Conditions
- Casemix & Economic Conditions to Be Addressed Thru Statistical Model
- Statistical Models require LOTS OF DATA to create
  - Historic results under the new Measures
  - Participant Casemix of those included in results
  - Economic Conditions relevant to the results

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## WIA vs WIOA

- In some ways, WIA & WIOA are very similar regarding Accountability:
  - Measures for Employment & Earnings & Credentials
- Similar is not the Same
  - Entered Employment not the same as Employed Q2
    - Unemployed at Date of Participation vs All Exiters
    - Q1 vs Q2
  - Retention not the same as Employed Q4
    - Q2-3 only mattered if Employed Q1
- Periods of Participation Extended by Self-Service
- What was purpose of capturing Demographics under WIA? Did Boards really understand it?
- Why does this matter? MODELING

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## Model Development & Strengths

- DOL had 10+ years of Title I Adult/DW/Youth Data
- Able to develop usable models except for
  - Median Earnings Q2 Post-Exit (Youth)
  - Measurable Skills Gains (Adult & DW & Youth)
- Great Statistical Technique
  - Tons of Data Elements that went WAY beyond model attempts under WIA
  - Recognition that Regression Models estimate “Average Effects” but that there are differences they can’t account for
    - Drop in Movie Ticket Sales hurts California more than Texas
    - Rise in Oil Prices helps North Dakota more than Maine
    - ESL has lesser impact in Texas than Michigan
  - Fixed Effects Model provided 2 predictions
    - Target (what an “Average State” should achieve)
    - Predicted (what “Your State” should achieve)

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## Model Development & Weaknesses

- Great Statistical Technique but some limitations
  - Credential Definition Changed after Models were Developed
  - Historic Data based Exit on ANY Qualifying Service
    - If Self-Service extended Exit into next Quarter, WIASRD didn't focus on the "WIOA" quarters
    - Texas data showed upwards of 8-9% of Title I exits occurred 1-4 quarters LATER than exits using WIOA standards
  - Supplemental Records usually gathered "when it counted"
  - Maybe Participant Characteristics were not fully captured?
  - Models included FEDES which is no longer available
- Data Limitations introduce Noise
- Fixed Effects Modeling hard for 50 States, PR & DC
  - Order of Magnitude Harder for nearly 600 WIBs
    - Tourism much bigger impact on Orlando FL than El Paso TX
    - Urban-Rural Characteristics not accounted for

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## Original Models vs Actual Results

- 11 Measures to Negotiate
- DOL Models were within 10% of Texas' Actual Results
  - 10 out of 11 using the "Targets" (missed Adult Credential)
  - 8 out of 11 using the "Predictions" (Missed Adult & DW Credential & Adult Earnings)
- DOL Models not as consistent at Board Level
  - "Targets" within 10% of Actuals 23.4% of the time
    - 72 of 308 Instances (28 Boards x 11 Measures)
  - "Predictions" within 10% of Actuals 19.5% of the time
    - 60 of 308 Instances
  - In some instances model went >100% and <0%
    - Lack of Fixed Effects, Quality of Local Data, "Small N" Problem
- What does this mean for Local Negotiations?
  - Aren't they supposed to use these models?

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## Key Local Negotiation Provisions

- WIOA Statute §116(c)(3) on Local Negotiations:
  - Make adjustments for the expected economic conditions and the expected characteristics of participants to be served in the local area, using the statistical adjustment model developed pursuant to subsection (b)(3)(A)(viii)
- WIOA Regulation §677.210 on Local Negotiations:
  - The objective statistical adjustment model . . . must be . . . used in order to reach agreement on local negotiated levels of performance for the upcoming program year
  - The negotiations will include a discussion of circumstances not accounted for in the model and will take into account the extent to which the levels promote continuous improvement
- TEGL 9-17 says the Statistical Model is a Tool to be used in Negotiations and that States are to USE the model and ADAPT it to OUR Needs at the local level

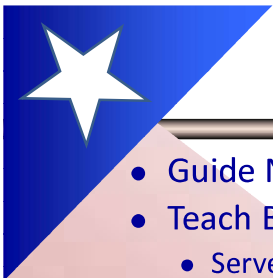
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## In Summary

- Models developed based on Historic Data that was not perfectly aligned to purpose
  - Some Differences in Exit Quarters
  - Different Incentives for Documenting Characteristics & Employment
  - Credential Models Developed under proposed measure definition, not the final definition
- Models are not optimized for each Board
- Models may not account for all relevant factors
- Models are Tools and Must be Adapted to OUR Needs

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## What Are Our Needs?

- Guide Negotiations? Yes, but What Else?
- Teach Boards that Creaming Doesn't Help
  - Serve Highly Educated People with lots of Work History & Relevant Skills? Target Goes Up
  - Serve Less Educated People with many "Other Characteristics" that May Negatively Impact Employment? Target Goes Down
- Answer the Arguments
  - "We have more Hard to Serve participants"
  - "We're serving more Hard to Serve Participants Now"
  - Let's see what the data shows
- Reinforce Performance Periods (lag)
  - Make sure their arguments line up with the measurement periods

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## What Did TWC Do?

- Built Model Tool w/ prior 6 Years & last 4 Qtrs
  - Tool Uses all of DOL's Elements & Weighting
  - Each DOL Model Element filled out for each Board
    - Demographics / Education
    - Prior Employment / Earnings
    - Other Characteristics Impacting Employment
    - Service Levels
    - Industry Employment
    - Unemployment Rate
- Year by Year Comparison
  - Actual Performance (Numerators & Denominators & Rates)
  - Model's Predictions
  - Predictions based on Expected Change
  - Casemix & Economic Trends
  - IMPACT OF CHANGE IN EACH FACTOR

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## Local Negotiation Regression Tool

- Excel Workbook – Nothing too Tricky
- One Tab for each of the 11 Models / Measures
  - Transparent – All Factors, All Predictions, All Formulae
  - Measure / Model Tabs are great for training
- One Board Negotiation Tab
  - Shows all 11 measures
  - Includes TWC's proposed target
  - Provides space for Board Proposals / Justifications
- TWC's Proposed Targets
  - Lean more on Predicted Change

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## Mins & Maxes & Cont. Improvement

- TWC uses Mins & Maxes in target setting as part of Continuous Improvement Strategy
- Maxes
  - Ensure reward for greatness isn't "Great! Now do More"
  - Provide Space where Strong to focus on where Weak
    - Say Board is 93% on Adult Employed Q2 but 65% on DW; Where should they focus?
    - Law of Diminishing Returns
  - Usually Set at 7<sup>th</sup> best performance
    - Why 7<sup>th</sup>? 28 Boards so 7<sup>th</sup> best is Top Quartile
- Mins
  - Promote continuous improvement by setting a Floor
  - Usually set at 7<sup>th</sup> lowest performance
    - Why 7<sup>th</sup>? 28 Boards so 7<sup>th</sup> worst is Bottom Quartile
- Incentive Awards

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## Future Plans

- Develop Local Fixed Effects
  - Need to differentiate between Legitimate Differences & Bad Performers
- Correction Factor for Median Earnings
  - Historic Performance based on those Employed in Q2
  - Negotiations based on Total Casemix
  - Not all Exiters Employed in Q2 so Total Casemix less useful in negotiating future outcomes
  - Example
    - Total Exiters = 100 BAs, 20 Grad School, 50 HS grads, 70 dropouts
    - Employed Q2 = 99 BAs, 20 Grad School, 25 HS grads, 20 dropouts
- Incorporation of the Statistical Models into TWC's Business Insight Generator
  - "Real Time" performance assessments

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## Adult Employed Q2 Page 1: Overview

| Program Year                                   | PY12   | PY13    | PY14    | PY15   | PY16    | PY17    | Last 4Qtrs |
|------------------------------------------------|--------|---------|---------|--------|---------|---------|------------|
| Exiters From                                   | 2011Q3 | 2012Q3  | 2013Q3  | 2014Q3 | 2015Q3  | 2016Q3  | 2017Q2     |
| Exiters To                                     | 2012Q2 | 2013Q2  | 2014Q2  | 2015Q2 | 2016Q2  | 2017Q2  | 2018Q1     |
| Actual Numerator                               | 133    | 122     | 163     | 139    | 145     | 156     | NA         |
| Actual Denominator                             | 192    | 163     | 199     | 176    | 179     | 202     | 197        |
| Actual Performance                             | 69.27% | 74.85%  | 81.91%  | 78.98% | 81.01%  | 77.23%  | NA         |
| DOL Target (Average State)                     | 74.71% | 77.06%  | 81.58%  | 84.07% | 81.59%  | 77.78%  | 79.20%     |
| DOL Prediction (Texas)                         | 72.90% | 75.25%  | 79.78%  | 82.27% | 79.79%  | 75.98%  | 77.40%     |
| Predicted Change from Prior Year               | NA     | 2.35%   | 4.53%   | 2.49%  | -2.48%  | -3.81%  | 1.42%      |
| Expected Performance based on Predicted Change | NA     | 71.62%  | 79.37%  | 84.40% | 76.50%  | 77.19%  | 78.65%     |
| % of DOL Target                                | 92.72% | 97.13%  | 100.40% | 93.94% | 99.28%  | 99.29%  | NA         |
| % of DOL Prediction                            | 95.02% | 99.46%  | 102.67% | 96.00% | 101.52% | 101.65% | NA         |
| % of Expected Performance                      | NA     | 104.51% | 103.20% | 93.57% | 105.90% | 100.05% | NA         |

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## Adult Employed Q2 Page 1: Casemix

| Program Year                            | Model Weight | PY12   | PY13   | PY14   | PY15   | PY16   | PY17   | Last 4Qtrs |
|-----------------------------------------|--------------|--------|--------|--------|--------|--------|--------|------------|
| Female                                  | 0.075143925  | 57.29% | 60.12% | 62.81% | 55.11% | 69.27% | 59.41% | 61.93%     |
| Age 25 to 44                            | 0.02312671   | 55.73% | 59.51% | 58.79% | 72.16% | 65.92% | 62.87% | 60.41%     |
| Age 45 to 54                            | -0.007904579 | 22.92% | 22.09% | 23.12% | 9.66%  | 15.08% | 12.87% | 14.21%     |
| Age 55 to 59                            | 0.095992322  | 4.17%  | 6.75%  | 8.04%  | 3.41%  | 2.79%  | 7.43%  | 9.64%      |
| Age 60+                                 | -0.42006248  | 1.56%  | 3.68%  | 1.01%  | 1.14%  | 2.79%  | 6.44%  | 6.09%      |
| Hispanic ethnicity                      | -0.007959154 | 27.08% | 22.09% | 28.14% | 34.09% | 35.75% | 28.22% | 21.32%     |
| Race: Asian (not Hispanic)              | 0.10932432   | 4.17%  | 7.36%  | 5.53%  | 6.82%  | 6.70%  | 4.46%  | 9.64%      |
| Race: Black (not Hispanic)              | -0.022925286 | 36.46% | 41.72% | 34.17% | 28.98% | 31.84% | 35.64% | 42.13%     |
| Race: Hawaiian/Pacific Islander         | -0.002990903 | 0.00%  | 1.84%  | 1.51%  | 0.00%  | 0.00%  | 0.00%  | 0.00%      |
| Race: American Indian or Native Alaskan | -0.082735295 | 2.08%  | 4.91%  | 0.50%  | 3.41%  | 1.68%  | 1.49%  | 4.06%      |
| Race: More than one                     | -0.057630242 | 5.21%  | 7.36%  | 6.53%  | 7.39%  | 7.26%  | 4.95%  | 8.12%      |

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## Adult Employed Q2 Page 2: Impact of Change in Casemix

| Program Year                            | Model Weight | PY12 | PY13   | PY14   | PY15   | PY16   | PY17   | Last 4Qtrs |
|-----------------------------------------|--------------|------|--------|--------|--------|--------|--------|------------|
| Female                                  | 0.075143925  | NA   | 0.21%  | 0.20%  | -0.58% | 1.06%  | -0.74% | 0.19%      |
| Age 25 to 44                            | 0.02312671   | NA   | 0.09%  | -0.02% | 0.31%  | -0.14% | -0.07% | -0.06%     |
| Age 45 to 54                            | -0.007904579 | NA   | 0.01%  | -0.01% | 0.11%  | -0.04% | 0.02%  | -0.01%     |
| Age 55 to 59                            | 0.095992322  | NA   | 0.25%  | 0.12%  | -0.44% | -0.06% | 0.44%  | 0.21%      |
| Age 60+                                 | -0.42006248  | NA   | -0.89% | 1.12%  | -0.06% | -0.70% | -1.53% | 0.14%      |
| Hispanic ethnicity                      | -0.007959154 | NA   | 0.04%  | -0.05% | -0.05% | -0.01% | 0.06%  | 0.05%      |
| Race: Asian (not Hispanic)              | 0.10932432   | NA   | 0.35%  | -0.20% | 0.14%  | -0.01% | -0.25% | 0.57%      |
| Race: Black (not Hispanic)              | -0.022925286 | NA   | -0.12% | 0.17%  | 0.12%  | -0.07% | -0.09% | -0.15%     |
| Race: Hawaiian/Pacific Islander         | -0.002990903 | NA   | -0.01% | 0.00%  | 0.00%  | 0.00%  | 0.00%  | 0.00%      |
| Race: American Indian or Native Alaskan | -0.082735295 | NA   | -0.23% | 0.36%  | -0.24% | 0.14%  | 0.02%  | -0.21%     |
| Race: More than one                     | -0.057630242 | NA   | -0.12% | 0.05%  | -0.05% | 0.01%  | 0.13%  | -0.18%     |

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