

Legislative Cost Estimating

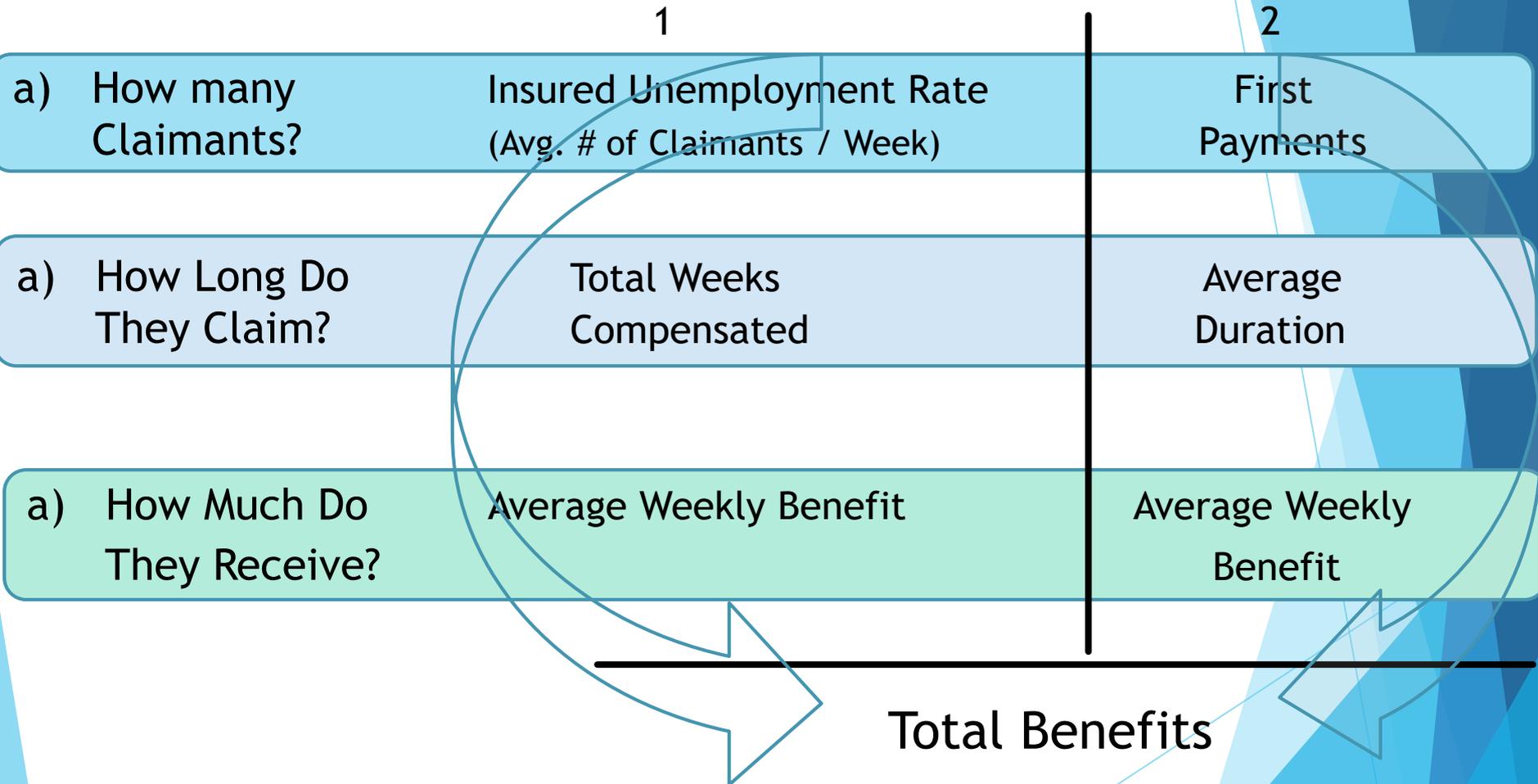
UI Benefit Financing Seminar
Division of Fiscal and Actuarial Services
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Legislative Cost Estimating

- ▶ How to measure the impact of a reduction in Potential Duration using a claimant distribution

Two Paths to Calculating Total Benefits




$$\text{BENEFITS} = \text{FP} * \text{AVG DUR} * \text{AWBA}$$

FP = First Payments

AVG DUR = Average Duration (weeks)

AWBA = Average Weekly Benefit Amount



BENEFIT FORMULAS

- ▶ **QUALIFYING** - BPW, BPW/HQW, BPW/WBA, WOW
- ▶ **WBA** - HQW, BPW, AWW
- ▶ **MAXIMUM WBA** - Fixed
- ▶ **ENTITLEMENT** - BPW, UNIFORM, WOW
- ▶ **MAX DURATION** - Fixed, Variable

BPW = Base Period Wages

HQW = High Quarter Wages

AWW = Average Weekly Wages

WBA = Weekly Benefit Amount

WOW = Weeks of Work

Impact of Potential Duration Change

- ▶ Needed to Determine the Average Duration:
 - ▶ Survival Rate
 - ▶ Potential Duration



Survival Rate

- ▶ Probability of collecting benefits for week $t+1$ after collecting benefits for week t
- ▶ Proportion of week t recipients who also receive benefits for week $t+1$
- ▶ For purposes of this estimation exercise, this rate is assumed to be constant over the period of benefit collection



Survival Rate Calculation

$$\frac{\text{WEEK 2} + \text{WEEK 3} + \dots + \text{WEEK 26}}{\text{WEEK 1} + \text{WEEK 2} + \dots + \text{WEEK 25}}$$



**AVG(WEEK 2/WEEK 1, WEEK 3/WEEK 2 ...
WEEK 26/WEEK 25)**



Survival Rate Calculation

$$\frac{\text{WEEKS COMPENSATED - FP}}{\text{WEEKS COMPENSATED - EXHAUSTIONS}}$$

Potential Duration Calculation

Weeks of Potential Duration - Based on monetary entitlement

$$\frac{\text{Total Entitlement (\$)}}{\text{Weekly Benefit Amount (\$WBA)}} = \text{Weeks of Potential Duration}$$



Average Duration Calculation

Average Duration Formula

$$\frac{(1 - r^N)}{(1 - r)}$$

N = Potential Duration, r = Survival Rate

Example Average Duration Calculation

Assume: N = 26, r = .955

$$= (1 - .955^{26}) / (1 - .955)$$

$$= 15.5 \text{ weeks}$$



COST ESTIMATING EXAMPLE

Qualifying = \$2000 BPW

WBA = $1/25 * \text{HQP}$

Max WBA = \$250

Entitlement = $1/3 * \text{BPW}$

Max Duration = 26 Weeks (reduce to 20)

Survival Rate (Assumed) = 0.96

Current Law - Number of First Payments (000) in Wage Categories

| Base Period Wages | <u>High Quarter Wages</u> | | |
|----------------------------------|----------------------------------|-----------------------|-----------------------|
| | <u>\$2,000</u> | <u>\$5,000</u> | <u>\$8,000</u> |
| \$5,000 | 80 | 50 | -- |
| \$11,000 | -- | 60 | 20 |
| \$17,000 | -- | 30 | 40 |
| \$23,000 | -- | -- | 40 |
| \$29,000 | -- | -- | 80 |



Calculation of Potential Duration-Entitlement / WBA (weeks)

| Base Period <u>Wages</u> | <u>High Quarter Wages</u> | | | Total <u>Entitlement</u> |
|--------------------------------|---------------------------|----------------|----------------|-----------------------------|
| | <u>\$2,000</u> | <u>\$5,000</u> | <u>\$8,000</u> | |
| \$5,000 | 20.8 | 8.3 | -- | \$1,667 |
| \$11,000 | -- | 18.3 | 14.7 | \$3,667 |
| \$17,000 | -- | 26.0 | 22.7 | \$5,667 |
| \$23,000 | -- | -- | 26.0 | \$7,667 |
| \$29,000 | -- | -- | 26.0 | \$9,667 |
| WBA | \$80 | \$200 | \$250 | |

Calculate Actual Average Duration

$$\text{Avg. Duration} = (1 - .96^{\text{Pot. Dur}}) / (1 - .96)$$

| Base Period Wages | <u>High Quarter Wages</u> | | | <u>Total Entitlement</u> |
|-------------------------|---------------------------|----------------|----------------|------------------------------|
| | <u>\$2,000</u> | <u>\$5,000</u> | <u>\$8,000</u> | |
| \$5,000 | 14.3 | 7.2 | -- | \$1,667 |
| \$11,000 | -- | 13.2 | 11.3 | \$3,667 |
| \$17,000 | -- | 16.4 | 15.1 | \$5,667 |
| \$23,000 | -- | -- | 16.4 | \$7,667 |
| \$29,000 | -- | -- | 16.4 | \$9,667 |
| WBA | \$80 | \$200 | \$250 | |

$$(1 - 0.96^{20.8}) / (1 - 0.96) = 14.3$$


$$\text{BENEFITS} = \text{FP} * \text{AVG DUR} * \text{AWBA}$$

FP = First Payments

AVG DUR = Average Duration (weeks)

AWBA = Average Weekly Benefit Amount

Current Law Benefits Paid (\$000)

| Base Period Wages | <u>High Quarter Wages</u> | | <u>Total</u> \$8,000 | <u>Entitlement</u> |
|-------------------------|---------------------------|----------------|-------------------------|--------------------|
| | <u>\$2,000</u> | <u>\$5,000</u> | | |
| \$5,000 | 91.5 | 72.0 | -- | \$1,667 |
| \$11,000 | -- | 158.4 | 56.5 | \$3,667 |
| \$17,000 | -- | 98.4 | 151.0 | \$5,667 |
| \$23,000 | -- | -- | 164.0 | \$7,667 |
| \$29,000 | -- | -- | 328.0 | \$9,667 |
| WBA | \$80 | \$200 | \$250 | |

80 First Pays * \$80 WBA * 14.3 Weeks = \$91,520

Proposed Law

Potential Duration (weeks)

| Base Period Wages | <u>High Quarter Wages</u> | | | Total Entitlement |
|-------------------------|---------------------------|----------------|----------------|----------------------|
| | <u>\$2,000</u> | <u>\$5,000</u> | <u>\$8,000</u> | |
| \$5,000 | 20.0 | 8.3 | -- | \$1,667 |
| \$11,000 | -- | 18.3 | 14.7 | \$3,667 |
| \$17,000 | -- | 20.0 | 20.0 | \$5,667 |
| \$23,000 | -- | -- | 20.0 | \$7,667 |
| \$29,000 | -- | -- | 20.0 | \$9,667 |
| WBA | \$80 | \$200 | \$250 | |

Proposed Law

Average Duration (weeks)

| Base Period Wages | <u>High Quarter Wages</u> | | | <u>Total Entitlement</u> |
|-------------------------|---------------------------|----------------|----------------|------------------------------|
| | <u>\$2,000</u> | <u>\$5,000</u> | <u>\$8,000</u> | |
| \$5,000 | 13.9 | 7.2 | -- | \$1,667 |
| \$11,000 | -- | 13.2 | 11.3 | \$3,667 |
| \$17,000 | -- | 13.9 | 13.9 | \$5,667 |
| \$23,000 | -- | -- | 13.9 | \$7,667 |
| \$29,000 | -- | -- | 13.9 | \$9,667 |
| WBA | \$80 | \$200 | \$250 | |

Proposed Law WBA (No Change)

| Base Period Wages | <u>High Quarter Wages</u> | | | <u>Total Entitlement</u> |
|-------------------------|---------------------------|----------------|----------------|------------------------------|
| | <u>\$2,000</u> | <u>\$5,000</u> | <u>\$8,000</u> | |
| \$5,000 | \$80 | \$200 | -- | \$1,667 |
| \$11,000 | -- | \$200 | \$250 | \$3,667 |
| \$17,000 | -- | \$200 | \$250 | \$5,667 |
| \$23,000 | -- | -- | \$250 | \$7,667 |
| \$29,000 | -- | -- | \$250 | \$9,667 |
| WBA | \$80 | \$200 | \$250 | |



Proposed Law Benefits Paid (\$M)

| Base Period Wages | <u>High Quarter Wages</u> | | | Total <u>Entitlement</u> |
|-------------------------|---------------------------|----------------|----------------|-----------------------------|
| | <u>\$2,000</u> | <u>\$5,000</u> | <u>\$8,000</u> | |
| \$5,000 | 89.0 | 72.0 | -- | \$1,667 |
| \$11,000 | -- | 158.4 | 56.5 | \$3,667 |
| \$17,000 | -- | 83.4 | 139.0 | \$5,667 |
| \$23,000 | -- | -- | 139.0 | \$7,667 |
| \$29,000 | -- | -- | 278.0 | \$9,667 |
| WBA | \$80 | \$200 | \$250 | |



Benefit Reduction from Reduced Max Potential Duration

| | <u>Current</u> | <u>Proposed</u> | <u>Change</u> |
|-----------------|----------------|-----------------|---------------|
| Max Duration | 26 wks | 20 wks | -23.1% |
| FP (000) | 400 | 400 | NA |
| Wks Comp (000) | 5,586 | 5,131 | NA |
| Bens Paid (\$M) | 1,119.8 | 1,015.3 | -9.3% |
| Average WBA | \$200.47 | \$197.87 | -1.3% |
| Avg Dur (wks) | 14.0 | 12.8 | -8.1% |



EXERCISE - CURRENT LAW

QUALIFYING = \$2500 BPW

WBA = $1/25 * HQW$

MAX WBA = \$300

ENTITLEMENT = $1/3 * BPW$

MAX DURATION = 26 Wks ----(Reduce to 14)

Survival Rate: .955

Steps for Legislative Cost Estimation Exercise (Excel)

- ▶ Open Excel spreadsheet “**Legislative Cost Estimating Exercise.xlsx**”
- ▶ In the “**COMPUTE**” sheet, compute each step to get to final benefits using the assumptions from slide 24 for **Current Law** (26 weeks Potential Duration). 1st Payment distribution, BPW & HQW are all provided.
 - ▶ Compute WBA using HQW included in Table 1
 - ▶ Compute total entitlement using BPW in Table 1
 - ▶ Compute Potential Duration for each cell in Table 2
 - ▶ Compute average duration for each cell in Table 3
 - ▶ Compute Total Benefits for each cell in table 4

Enter Assumptions for Proposed Change

- ▶ Once Current Law projection is completed:
 - ▶ Go to “**Settings**” sheet and enter assumptions from slide 24 for proposed law
 - ▶ Do not change rows 15 to 18 for this exercise
 - ▶ Step through and review estimates in:
 - ▶ “FIRST PAYMENTS”
 - ▶ “POTENTIAL DURATION”
 - ▶ “AVERAGE DURATION”
 - ▶ “WBA”
 - ▶ “BENEFITS”
 - ▶ Review comparison in “**SUMMARY**” sheet.