

Dan F. Jacoby*

A cost-benefit analysis: implementing temporary disability insurance in Washington State

Abstract: Five states and Puerto Rico currently provide disability insurance to persons unable to work due to temporary disability. No states have adopted such policies since 1969. Labor unions and other advocacy groups have advanced bills in Washington and Oregon that would establish a public disability insurance plan to provide partial wage replacement for serious illness, accident and pregnancy. This paper estimates annual costs and benefits for a temporary disability insurance program in Washington State under the assumption that it would mirror the disability provisions in California without paid family leave.

Keywords: employment policy; temporary disability insurance.

*Corresponding author: Dan F. Jacoby, University of Washington, Bothell - School of Interdisciplinary Arts and Sciences 18115 Campus Way, NE Bothell, WA 98011, USA, e-mail: djacoby@uwb.edu

1 Introduction

An estimated 18–26% of all workers are currently insured for lost income due to temporary disabilities (US DOL, 2000; Levy, 2004; Bolin, 2007). The principal problem facing private insurers is that adverse selection by high-risk individuals will drive up cost. The vast majority of employees possessing disability insurance are covered under large employer group plans. Individual policies are typically expensive or not available at all (Hendren, 2012). Hendren reports that disability insurers' underwriting guidelines generally eliminate coverage for individuals with incomes under \$30,000, those in blue-collar occupations, and also for individuals with particular ailments. During the 2011–2012 legislative sessions, the Oregon and Washington State legislatures were asked to implement state run disability insurance programs. As more legislative proposals can be expected, the analysis here provides a template for cost-benefit analysis for future insurance proposals.

This paper estimates costs and benefits that would accrue with the implementation of a temporary disability program (TDI) in the state of Washington

modeled upon California's disability insurance program (SDI). California is one of five states with disability insurance plans that require eligible workers to pay into an insurance trust fund. Their state disability insurance plan covers more than 12 million workers annually against losses in income due to disability other than those caused by or occurring on their jobs.

In the first section of this paper, the history of TDI is discussed in relationship to the disability policy gaps TDI is designed to address. That section is followed by discussion of the limitations of private optional insurance. The third section of this report discusses data sources and the method for determining savings and net benefits to consumers. The results of those methods are discussed in section four. These sections are followed with a general discussion of the results and their policy implications.

2 Policy history and issues

Analysts typically distinguish between employer-provided paid sick leave and short- and long-term disability insurance. Sick leave is provided by employers and is not funded through insurance. The Bureau of Labor Statistics reports that the median number of sick days provided per year is six. Short-term disability insurance typically provides benefits that replace a portion of lost wages for periods up to 26 weeks. Short-term benefits may be provided through group coverage at work, through individual contracts, or through government programs. Long-term disability insurance typically lasts a minimum of 26 weeks. Where short-term disability requires brief waiting periods before benefits are collected (typically 5–30 days), long-term disability (such as Disability Insurance under Social Security Administration) may involve longer waiting periods. Some long-term disability plans maintain benefits for the duration of the disability into retirement Figure 1.¹

State-run disability policies emerged in the early 20th century when no-fault worker compensation systems were enacted to compensate employees injured at their workplaces. Disabilities that occurred outside of employment were not recognized until 1935, when the federal government approved social security laws known as old age, survivors and disability insurance (OASDI). The DI or disability component of the OASDI protects long-term (>12 months) disabled individuals

¹ In practice these distinctions are not always clear-cut. By providing up to 52 weeks of benefits, California looks more like a long-term disability insurance. In this paper, the term temporary disability (TDI) indicates benefits that end prior to the one year wait period in which Social Security disability benefits typically take effect.

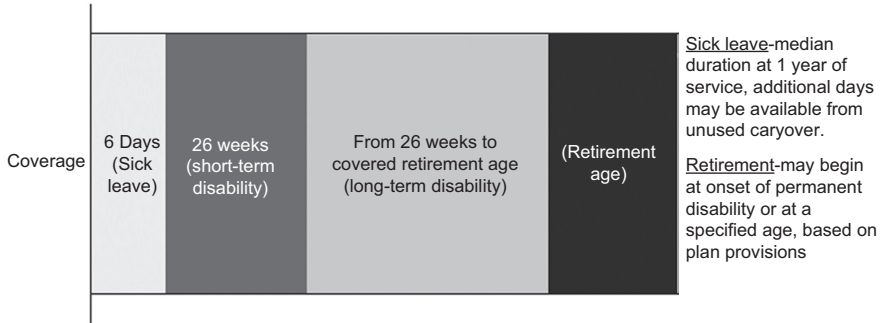


Figure 1 Disability coverage by benefit type, median time period (if available), civilian workers, March 2010.

Source: Bureau of Labor Statistics. Program Perspectives, Vol 3 Issue 2.

and their dependents via insurance-based benefits. Separately, supplemental security income (SSI) provides means-tested awards and medical benefits for low-income workers whose disabilities, again, are anticipated to last at least 12 months. Beginning in 1940s, a small number of states and territories enacted Temporary Disability Insurance (TDI) policies to provide short-term assistance. TDI can straddle the boundary between short- and long-term disability insurance as it aims to fill a critical gap in disability insurance coverage (SS Bulletin Supplement, 2010, p. 71).

States typically coordinate benefits TDI benefits with cash assistance programs such as unemployment insurance, workers compensation, sick leave, earned income tax credit, private disability, federal disability insurance, supplemental social insurance, veteran's disability insurance and private disability insurance.

State TDI programs define disability as the inability to perform regular or customary work due to a physical or mental condition. Such disability includes pregnancy. In California and New Jersey, insurance has been extended to include paid family leave (PFL). Depending on the state in question, following a waiting period of 7 days, the maximum TDI benefits period ranges between 26 weeks and a maximum of 52 weeks. Eligible beneficiaries pay insurance premiums while employed prior to approval of their disability claim.

In 1946, the US Congress encouraged TDI programs. Federal law enabled states to direct additional employee unemployment contributions to pay for temporary disability benefits. At that time, nine states required employees to contribute to the unemployment insurance to ensure sufficient resources. The balances from those employee taxes were largely unused reserves, and federal law therefore encouraged their application to state TDI plans. Although Rhode

Island established its TDI 4 years prior to the federal law, California, New Jersey and New York implemented their programs in the late 1940s in response to the federal provision. Puerto Rico and Hawaii subsequently added TDI in the late 1960s. Rhode Island mandates state insurance as the sole option for employers. California, New Jersey and Puerto Rico offer public insurance as the default option unless employers provide benefits equal to or exceeding the state's standard. New York and Hawaii differ in that they place primary responsibility upon employers to insure workers. State governments define their own occupational eligibility requirements. These generally exclude domestic workers, family workers, government employees, the self-employed and, in several instances, agricultural workers (SS Supp 2010, p. 71).

Citizens in Washington State who are unable to perform work due to disability are eligible for social security (DI), but only if their disabilities are diagnosed to extend beyond 1 year. This temporary gap provides the rationale for implementing a TDI system modeled after California's SDI. Although TDI is used in this paper as the equivalent of SDI, the later acronym is used solely when referring to California's program.

A state TDI program would complement or supplant disability coverage currently provided by employers. Fewer than half of all workers nationwide have some form of short-term employment-based sick leave. Upon examination of the American Council of Life Insurance Fact Book, Christianson (2007) concludes that group contracts offered by employers cover, at most, 30% of the labor force in 2002.² Because many of the plans that do exist have very limited benefits and/or durations, estimates of effective coverage range from 18 to 26% (US DOL, 2000; Levy, 2004; Bolin, 2007). When employers do not offer insurance, their employees have limited recourse other than to purchase individual, commercially offered disability insurance, which can be vastly more expensive.

For the analysis in this paper, special attention is paid to Washington State's voluntary long-term disability insurance for state employees [WSED] because its size and low cost make it the best alternative to mandatory insurance. Washington provides state workers with basic and optional coverage. All eligible state employees receive basic coverage that provides benefits of up to \$240 monthly. Roughly 40% of the more than 100,000 state employees purchase optional coverage that replaces 60% of lost income from disabilities for incomes up to \$120,000.

² It is not clear whether these include insurance programs provided by employers but mandated by state TDI. Given other data, however, this appears likely.

3 The policy issues and concerns

Support for government-provided, mandatory insurance requires a strong rationale. To assess the argument for a state-run TDI, it is necessary to show why privately available, voluntary insurance is inadequate.

3.1 Private voluntary insurance

Whether it is Bolin's 26% or the Department of Labor's 18% of workers that are privately insured for temporary disability, the percentage is low. This data begs the question why more individuals do not voluntarily insure for this contingency. Four likely reasons are offered, each of which points to different aspects of the policy question.

- Some employers, especially small employers, do not offer or can not afford disability insurance options.
- Private insurance plans are subject to moral hazard and adverse selection, that increase insured risk and therefore increase premiums.
- Many individuals, especially those with low income, have limited options to purchase disability insurance or behave as if it is not worth the cost.
- Some individuals, especially those with higher incomes, possess alternative resources – savings, sick leave, vacation time, family income, or supportive employers – to help see them through any short-term disability.

Employer-sponsored disability insurance rates are determined by a firm's experience rating. Poor experience ratings make insurance expensive for employers and likely discourage some from providing coverage (Wolf and Haveman, 2000).

Moral hazard occurs when individuals who are protected from risk take fewer precautions to avoid costly outcomes. The USDOL survey makes clear that many more individuals would take leave and would take longer leave if they received greater compensation while doing so. The line between appropriate and inappropriate leave requires monitoring. The greater the adequacy of the insurance and the greater the ease in claiming it, the greater will be the costs of moral hazard.

Costs associated with moral hazard may be compounded by "adverse selection" and private information. When insurance is voluntary, individuals who know or believe themselves more likely to be victim to disabilities are more likely to seek insurance. Individuals in better health are less likely to do so. "Adverse selection" of this type raises the average payouts so that insurance premiums must increase. Hendren (2012) defines conditions where this can lead to complete failure to offer insurance to particular categories of individuals. Insurance

underwriter guidelines generally eliminate low-income earners (under \$30,000), blue-collar workers and workers with specific pre-existing conditions such as back problems. The consequence is that those most in need of coverage may be prevented from obtaining it (Christianson, 2007; Miller, 2007). Likewise, small firms with few employees are especially vulnerable to risk as they have fewer resources with which to cover unusually large claims. The result is that small firms are substantially less likely to provide insurance (USDOL, 2000: table 5.5), and when this is so, premiums are higher.

The principal advantage of mandatory insurance is that it spreads risks across a wider population. A mandatory statewide insurance program would benefit employees by reducing the cost of insuring their disability risks. Pooling risk statewide would eliminate cost competition among insurers who seek to minimize risks by excluding workers more likely to need insurance. TDI can thus be understood as complementary to the effort to eliminate exclusions for pre-existing medical conditions that are intended to reduce benefit claims and premiums.

Low-income earners are least likely to have the option to insure against disability. However, it is clear from the literature that these workers do value disability insurance. A recent study found that 80% of individual low income respondents said they would dedicate existing employment benefit resources towards disability insurance even if doing so reduced their take home pay. When reassembled into groups, these same respondents identified disability insurance among their top three health benefit priorities (Danis et al., 2007). Thus, it is not merely low income in itself, but the inability to access insurance that accounts for low coverage rates among the poor.

4 Theory, data and methods

Despite the theoretical questions involving moral hazard, adverse selection, private information and scale economies, we can estimate costs and benefits for a mandatory TDI program in a single state like Washington. Within the context of its mandatory insurance program California's claims and costs take those special factors into account. California's experience can be compared and adjusted to states that rely upon voluntary insurance. First, however, we need an economic framework to define what must be measured and why.

Figure 2 depicts this framework. The status quo equilibrium under voluntary insurance occurs at R_1 where Q_1 is demanded. The mandatory insurance rate R_2 , is lower than the voluntary rate. Q_2 represents the quantity consumers are willing to

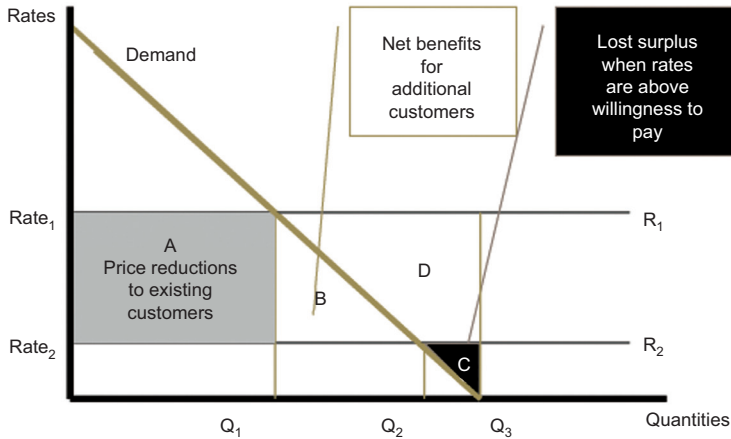


Figure 2 The demand for disability insurance and net benefits from a reduction in insurance premiums under mandatory insurance.

consume at R_2 , $Q_3 - Q_2$ represents additional insurance enrollment by individuals required to purchase mandatory insurance, the price of which is more than they are willing to pay. The task of this paper is to operationalize each of these terms in order to estimate the costs and benefits of a shift from voluntary to mandatory insurance.

Under standard economic theory, the demand for a product indicates consumers' willingness to pay for additional units of a good. Consumers' willingness to pay constitutes the value or benefit derived from consuming a good, and is illustrated as the area under the demand curve up to the level of consumption. Given the assumption that mandatory insurance lowers the rates consumers must pay for their insurance, gross and net benefits are visualized in the areas on the graph that are created by the movement from R_1 to R_2 .

We define gross savings as the rectangular area between R_1 and R_2 for insurees from 0 to Q_3 , or the entire population ensured under a mandatory TDI program (this includes areas A, B and D). Smaller net benefits are defined as the sum of: i) the grey area A showing the reduction in costs to the currently insured population; ii) the white triangle B which shows surplus value for the additional customers who choose to insure at lower rates; and iii) the black triangle C that depicts net costs for those required to insure at rates above those they would voluntarily choose to pay.

To estimate gross cost savings and net benefits, data must be collected and/or estimated for all the key parameters in our diagram. Most of these values can

be readily retrieved or constructed from the existing literature or through comparison based on data sources. However, before net benefits can be distinguished from gross cost savings, it is necessary to specify a demand curve for disability insurance. Demand estimates are typically reported in terms of elasticity, which refers to the responsiveness of consumers to changes in prices. More specifically, elasticity indicates the percentage change in the quantity demanded of a good that when its price changes by one percentage point. So an elasticity of -5 tells us that for each one-percentage point increase in price, the quantity demanded drops by 5%. The calculation of demand at different prices begins with the definition of elasticity in equation (1), below.

$$\text{Elasticity} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}} \quad (1)$$

When elasticity is known, only a baseline price and quantity are needed to generate estimates of demand using a rearrangement of equation (1) into equation (2) below.

$$\text{Percentage change in quantity demanded} = \text{Percentage change in price} \times \text{Elasticity} \quad (2)$$

In the absence of published estimates for TDI demand elasticity, an important task is to determine reasonable elasticity values for similar goods. Another challenge arises in defining demand when the lock-out effect Hendren (2012) ascribes to insurer's policy guidelines means that insurance purchases are less than the actual quantity demanded at current prices. This concern is addressed in the results section.

Data for analyses come from several sources including the USDOL Survey of Leaves (2000), US Census data for the Washington and California labor force, state level data on SDI available through California's Employment Development Department, and data from Washington Public Health Authority's for basic and optional long-term disability insurance.

5 Results

5.1 TDI population and claims rate

As the TDI plan that is being evaluated is modeled upon California's SDI, the experience of that state is relevant in estimating Washington's TDI-covered

population and its leave take-up or claims rate.³ For the past 2 years, California's claimants have totaled just fewer than 5.5% for the more than 12 million of its SDI-covered workers (EDD, Oct 2011).⁴ California SDI reports that 660,000 initial claims for disability payments were made in fiscal year 2010.

Before projecting California's 5.5% TDI claims rate onto Washington, it is important to consider whether demographic differences influence that rate. In a study of California's Paid Family Leave similar to this, Dube and Kaplan concluded that despite California deviations from national population patterns, "demographic differences have virtually no net impact on predicted leaves (2002, p. 26)." Based on the analysis below that conclusion is substantially the same with regard to the impact of demography upon Washington State relative to California SDI claims. Figure 3 indicates that differences in sub-population percentages are generally modest. That impression is supported by Table 1 showing the estimated impact of key demographic variables upon the California SDI leave take-up rate of 5.5%.

The percentage of state population accounted for by each sub group is multiplied by the ratio of that group's claims relative to its percentage of national population. This yields the expected percentage of leaves taken each group in California. For example, the percentage of men in Washington's labor force is 2.4% lower than the percentage in California. This fact alone would be expected to decrease the state take up rate by 0.09%. However, because a decrease in the percentage of men necessarily entails an increase in the percentage of women, impact from both must be considered together. In this case the combined impact is quite small, so that the overall leave rate increases by only 0.04%. Based on an assumed California rate of 5.5%, Washington's take up rate would be very marginally higher at 5.54%.

The largest single difference in the demographic make up of the two states is the size of their Hispanic populations.⁵ Census data indicates Washington's Hispanic population is 26.7% points lower than that of California. When netted against the necessarily higher non-Hispanic population, the estimated effect reduces leaves by -0.4%. This likely overstates overall

3 See Jacoby 2011, for an earlier analysis demonstrating that California's experiences provide a reasonable baseline and is in accord with data on national leave-taking.

4 Over the past decade California's rate has ranged between 5% and 5.5%. We use the most recent rates because our comparisons rely upon recent Washington and California population data.

5 Census data collection has changed over the period since the DOL conducted its FMLA survey in 2000. Statistics now tabulate Hispanics as an ethnicity that is combined with different racial identities. Thus, unlike the DOL's survey the Hispanic data is separated out so that its impact is compared solely to the non-Hispanic population.

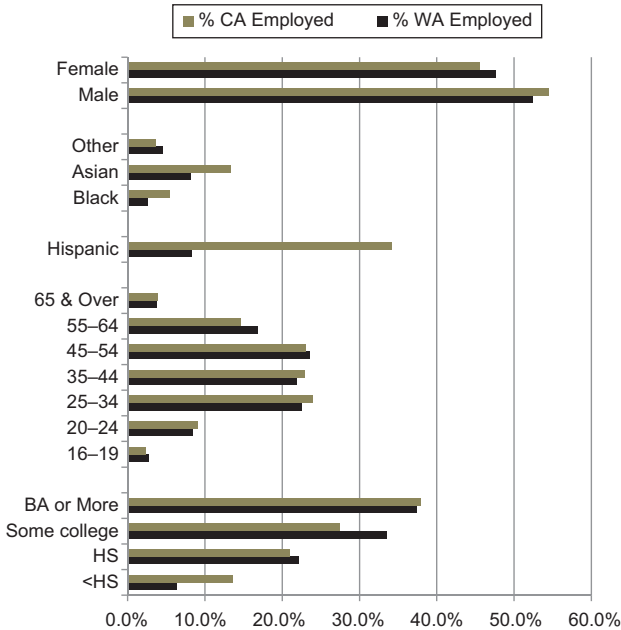


Figure 3 Comparison of key 2010 demographic variables for Washington and California.

differences between the two states to the extent that workers identify with other subgroups whose impact must be measured separately. To conclude the discussion, we note smaller population differences having lesser impacts include the percentage of Asians (5.5% lower in WA) and Whites (7.1% higher in WA).

Table 1 supports conclusions that Washington’s TDI leave rate will be slightly lower than California’s, perhaps 0.25% less. In subsequent analyses California’s 5.5% is considered a high estimate. 5.25% may be regarded as a more likely rate, while 5.0% constitutes a low estimate.

5.2 SDI covered workforce and beneficiaries

Table 2 presents estimations of Washington State’s TDI population and of the number of expected beneficiaries. Because occupational structure is quite similar to that found in California (see Appendix), the size of Washington’s disability covered population is based on a direct comparison of labor force and employment levels.

Table 1 Effects of demographic differences in WA and CA on SDI take up rate.

	WA % Employees	CA % of Employees	Group leave			Net impact**
			Difference (%)	Rate	Impact	
Gender						
Male	52.4	54.5	-2.1	0.82	-0.09	
Female	47.6	45.5	2.1	1.19	0.14	0.04
Race						
White	84.6	77.5	7.1	0.98	0.36	
Black	2.6	5.5	-2.9	1.1	-0.17	
Asian	8.1	13.3	-5.2	0.79	-0.21	
Other	4.6	3.6	1.0	1.08	0.06	0.04
Ethnicity						
Hispanic	8.3	34.1	-25.8	1.14	-1.62	
Non-Hispanic	91.7	65.9	25.8	0.86	1.22	-0.40
Age						
16-19	2.7	2.4	0.3	n/a	n/a	
20-24	8.5	9.2	-0.7	0.68	-0.02	
25-34	22.5	23.9	-1.5	1.22	-0.10	
35-44	21.9	22.9	-0.9	1.01	-0.05	
45-54	23.6	23.0	0.6	1.015	0.03	
55-64	16.9	14.6	2.3	1.03	0.13	
65 & Over	3.8	4.0	-0.2	0.7	-0.01	-0.02
Education*						
<HS	6.4	13.6	-7.2	1.13	-0.45	
US	22.2	21.0	1.2	0.94	0.06	
Some College	33.5	27.4	6.1	1.15	0.39	
BA or More	37.5	38.0	-0.5	0.91	-0.03	-0.02

Sources: US Census Bureau: Annual Average Statewide Data <http://www.bls.gov/lau/tables.htm>; Leave Use Rates derived from DOL 2000 survey.

*Education totals are for employed population over 2.

**After accounting for changes with categories, net impact shows change in baseline from 5.5% claims rate.

In 2010, Washington's labor force was 19.46% the size of California's labor force. Its employment ratio was 19.9% of California. These ratios are not identical because each has different unemployment rates. Recently, Washington's unemployment rate has been lower than that found in California. Accordingly we split the difference (19.65%) between the labor force and employment ratios in order to estimate the percentage of Washington's employed workers who would be covered by TDI insurance. For 2010, 12 million California workers were covered under the state's plan. Applying the 19.65% suggests that 2,360,000 Washington

Table 2 Estimation of Washington TDI population and claims.

2010	CA (in 1000s)	WA as % of CA	WA (in 1000s)
Labor force	18,195	19.46	3541
Employment	15,976	19.90	3180
TDI covered employment	12,158	19.68	2393
Estimated claims			
High 5.50%	–	–	132
Medium 5.25%	–	–	126
Low 5.25%	–	–	120

Source: US Census Bureau: Statistical Abstract of the US Tables 594, and 617.

Shaded numbers are estimates.

Estimate of TDI covered employment for Washington is calculated with average.

workers would be eligible under a Washington State TDI program.⁶ This further implies that with a take-up rate of 5.25%, just fewer than 126,000 claims would have been paid in Washington during 2010.

5.3 Trust fund and insurance premiums

Whereas California has gained experience through the administration of its SDI funds and has flexibly adjusted its insurance rate to maintain its trust fund reserves, in Washington State projected insurance rates must be based upon the estimated rate for TDI claims. If revenues exceed disbursements, insurance premiums may be raised or lowered, as has been the practice in California where, over the last 4 years, the state has experienced three separate annual rates ranging from 1% to 1.2%.⁷ Table 3 relies upon equations (1) and (2) to show how various assumptions impact trust fund revenues and disbursements for claims per \$1000 in insured income.

$$\text{Trust fund revenue} = \text{Premium rate per insured dollar} \times \$1000 \text{ in insured salary} \quad (1)$$

⁶ This estimate approximates the number of employees reported by state officials under the Occupational Employment Survey. WA State Employment Security Department computes 2,693,214 workers. These workers, eligible for unemployment insurance, are defined similarly to California's SDI covered workers. Of these Washington State workers, 93% had wages of \$100,000 or less, this year's approximate cutoff point for temporary disability insured wages in California.

⁷ http://www.edd.ca.gov/about_edd/pdf/qsdi_Avg_SDI_Contributions.pdf.

$$\text{Trust fund disbursements per claims per \$1000 in insured salary} \\ = \text{Benefit rate} \times \text{Leave length} \times \text{SDI population claims}^8 \quad (2)$$

We use claims and revenue per \$1000 in insured earnings noting that actual disbursements are conditioned upon earnings during the qualifying period. This

Table 3 Disability fund assumptions and adequacy.

Benefits rate (55%)	Premium (%)	TDI leave rate (%)	TDI covered salary (\$)	Av leave length % year	Fund (\$)	Claims (\$)
5.5% Leave rate assumption						
	1.00	5.50	1000.00	28	10.00	8.47
	1.00	5.50	1000.00	30	10.00	9.08
	1.00	5.50	1000.00	32	10.00	9.68
	0.90	5.50	1000.00	28	9.00	8.47
	0.90	5.50	1000.00	30	9.00	9.08
	0.90	5.50	1000.00	32	9.00	9.68
	1.10	5.50	1000.00	28	11.00	8.47
	1.10	5.50	1000.00	30	11.00	9.08
	1.10	5.50	1000.00	32	11.00	9.68
5.25% Leave rate assumption						
	1.00	5.25	1000.00	28	10.00	8.09
	1.00	5.25	1000.00	30	10.00	8.66
	1.00	5.25	1000.00	32	10.00	9.24
	0.90	5.25	1000.00	28	9.00	8.09
	0.90	5.25	1000.00	30	9.00	8.66
	0.90	5.25	1000.00	32	9.00	9.24
	1.10	5.25	1000.00	28	11.00	8.09
	1.10	5.25	1000.00	30	11.00	8.66
	1.10	5.25	1000.00	32	11.00	9.24
5.0% Leave rate assumption						
	1.00	5.00	1000.00	28	10.00	7.70
	1.00	5.00	1000.00	30	10.00	8.25
	1.00	5.00	1000.00	32	10.00	8.80
	0.90	5.00	1000.00	28	9.00	7.70
	0.90	5.00	1000.00	30	9.00	8.25
	0.90	5.00	1000.00	32	9.00	8.80
	1.10	6.00	1000.00	28	11.00	9.24
	1.10	6.00	1000.00	30	11.00	9.90
	1.10	6.00	1000.00	32	11.00	10.56

⁸ The equation assumes stable average weekly benefits. These could change if the percentage of insured workers making claims from various insured income brackets varied over time. This assumption is consistent with California's experience where modest average benefit payouts reflect increases in maximum weekly benefit levels.

involves an assumption that premiums are paid on incomes equal to the amount of employee earnings that qualify for insurance benefits. Benefits are calculated at 55% of eligible earnings.

The column showing Average Leave Duration adjusts for variation in leave length. This allows us to accommodate recent California experience in which average leave duration has risen modestly and is now 15.7 weeks, or over 30% of a year.

Under the high (5.5%) TDI claims rate assumption, a 1% insurance premium covers expected claims. Were premiums reduced from 1% to 0.9%, funds would be slightly insufficient to cover leaves if leave lengths remained at their current level (\$9.00 would be raised for every \$9.08 in claims). A rate of 1.1% on insured salaries generates excess funds under all assumptions. For 2012, California reduced the SDI premium from 1.2% to 1%. *It is worth noting that California imposes an additional 0.1% to cover Paid Family Leave benefits that are outside the Washington proposal.*

In setting rates, an allowance must be made for administrative expenses. TDI insurance fund administration in Washington State will likely differ from that in California. Nonetheless California's experience suggests a baseline forecast that administrative costs would be <5% of total expenses. Over the 5-year period beginning in 2005–2006, administrative costs fell from 4.7% of total disability trust fund expenses to 3.7%. At that level of expenditure, administrative cost fit comfortably within the trust fund parameters referenced earlier in Table 3. If, however, California achieves economies of scale in its administration due to its size and its joint administration of SDI and PFL, then the percentage of Washington's administrative expenses could be higher (CA EDD, 2011).⁹

Total costs in Table 3 do not include administrative expenses. Assuming these are 3–5% adds roughly 30–50 cents to the claims expense projected in the final column of Table 3. In projecting a 5.25% claims rate, payroll deductions of 1% suffice to cover administrative expenses. For every \$10 in trust fund revenues, adjusting costs for administrative expenses causes them to rise in our worst-case scenario from \$9.24 to 9.74. Given natural variation in all of the factors influencing claims and benefits, it is inappropriate to specify too precise a rate. In point of fact, California has adjusted rates several times to address transitory influences upon its Disability Trust Fund. California sets its insurance rates using a formula that maintains fund balances between 25% and 50% of annual disbursements. In consonance with that goal, the conclusion here is that setting rates at 1% of

⁹ http://www.edd.ca.gov/About_EDD/pdf/edd-diforecast11.pdf.

insured wages will generally be sufficient to cover Washington claims under the assumption of a 5.25% take-up rate. Prudence suggests that Washington initiate its program with payroll deductions modestly greater than 1.0% to build up reserves while it establishes its own history.

This insurance rate does not account for likely start-up expenses. Some idea of these expenses is gained by examining California's roughly equivalent enterprise in starting up its new paid family leave program in 2002–2003. The state calculated that its one-time expenditures over the 3-year implementation were \$11.8 million, or roughly one-third of its total administrative expenditures of \$33.2 million. The bulk of California's start-up expenses were incurred during 2003–2004 and equaled \$8.7 million out of the state's total administrative expenditure of \$14.8 million. Assuming that Washington State is able to replicate California's experience, we should anticipate that total administrative expenses (recurring and one-time) would be between 4% and 7% of projected disbursements, and thus temporarily increase expenses by roughly 40–70 cents for every \$10 in claims, or an amount that would be well-accommodated by an additional temporary 0.1% in the rate applied to insured earnings. Expenses may be *higher* in Washington State because it will be building a new agency, whereas California expanded the responsibilities of its SDI infrastructure. On the other hand, Washington may be able to hold down costs by tapping into the experience of its state unemployment administration or its Public Health Authority, which currently administers the optional public employee disability insurance fund.

5.4 The low priced alternative

To determine cost savings to individuals already insured for disability it is necessary to estimate how much lower their insurance premiums would be under a mandatory TDI. Existing data does not allow us to specify the various rates paid by the estimated 18–26% of currently insured individuals. However, by identifying an existing low-cost alternative to a mandatory state-run TDI, we can calculate a measure of the reduced cost this group would experience. Defining this as the lowest priced alternative, the difference between the two represents the most conservative estimate of benefits to covered individuals, Washington State's voluntary public employee disability insurance [WSED] provides such an alternative. While more expensive than California's SDI, WSED is far more affordable than the commercial insurance policy rates available to individuals. Depending on age and other variables, where available such commercial

Table 4 Employee payroll deduction rate for optional long-term disability plan.

Wait period (days)	2009–2010		Projected 2012	
	Higher Ed (%)	TRS, PERS (%)	Higher Ed (%)	TRS, PERS (%)
30	2.48	1.96	1.86	1.47
60	1.26	1.04	0.95	0.78
90	0.69	0.57	0.52	0.43
120	0.40	0.34	0.30	0.26
180	0.30	0.27	0.23	0.20
240	0.29	0.26	0.22	0.20
300	0.27	0.24	0.20	0.18
360	0.26	0.23	0.20	0.17

Source: <http://www.washington.edu/admin/hr/benefits/insure/fac-staff-lib/ltd/optional-rates.html>.

policies can be ten times more expensive than either WSED or California's mandatory SDI.¹⁰

WSED blends short- and long-term disability features. The state pays for basic disability coverage for all employees. That insurance provides 60% of the first \$400 of monthly earnings (maximum benefit is \$240). However, employees may choose to purchase optional insurance to cover 60% of the first \$10,000 in monthly earnings. Its long-term disability benefits exceed their benefits associated with California's plan due to that state's limitation of 52 weeks of benefits. However, the insurance rates can be adjusted so that they correspond closely to the benefit provisions under California SDI.

Table 4 depicts the rates available for Washington State employees who choose different benefit waiting periods. The columns labeled TRS, PERS (retirement systems) show premiums for the plan whose benefits most closely parallel California's SDI. The portion of WSED premium that corresponds to California's SDI is obtained by deducting the long-term component in Washington's disability insurance plan (payments that extend beyond California's maximum 52 weeks) from its shortest waiting term rate. For 2009–2011 the equivalent TDI rate for TRS & PERS employees is 1.73% (or 1.96–0.23). The corresponding payroll deduction in California during those years was 1.1% and represents the cost of

¹⁰ Mutual of Omaha provides 24 months of benefits after a 30-day waiting period at rates that start at 1.4% for male executives in their twenties (3.6% for similarly positioned laborers) and rise as high as 14.8 for males aged 58. Women's rates are consistently higher by at least 3%. http://www.mutualofomaha.com/disability-insurance/plan/quote.php?mc=CAS**&sitelink=3&gclid=CPn4s462kq0CFQSFhwodmzMikw#.

insuring income when the maximum benefit period is 1 year. The difference between WSED and the corresponding SDI rates is a substantial 0.63%, making California's mandatory insurance one-third lower than the optional rates in Washington.

Because benefits under the two plans are quite similar, benefits are unlikely to account for the difference in rates. Where Washington benefits replace 60% monthly earnings, California reimburses 55%. This 5-percentage point difference in benefits could, at best, account at least 10% of the differential, if there were no other variations in benefits. However, two factors more than offset this: 1) the waiting period under Washington's voluntary plan is 30 days, whereas California requires only 7 days; and 2) as the employer, the State pays the premiums for employees' basic insurance that provides up to \$240 of the allowable monthly benefits for all public employees.¹¹

These features should decrease employee rates relative to those in California. Because state employees are disproportionately likely to be white collar or clerical workers, whose claim rates are typically lower, there is little to explain the difference in rates beyond the inherent contrast in a voluntary and small insurance pool relative to a mandatory insurance pool of much greater size.

Projected 2012 rate decreases in both states will narrow the difference from 0.63% to 0.3% (Table 4). These rate reductions for WSED's TRS, PERS plan will make the portion of the premium that corresponds to SDI equal to 1.3%. California's 2012 rates will go from 1.1% to 1.0%.¹²

11 Other benefit differences in the two states' plans are worth mention. In 2010 California's mandatory program insured 55% of pre-disability earnings, up to \$95,000 annual income. Washington's optional plan replaces 60% of monthly earnings up to \$120,000 annually. Because insurance premiums are calculated as a percentage of earnings, the level of insurable income differences is not material to the calculations presented here. Washington's optional plan contains additional features, including retirement benefits for some employees, and an option for retirement benefits for higher education employees. Retirement benefits do not necessitate further adjustments because they can be included in the portion of the insurance premium allocated for long-term disability. The Higher Educational option replaces employer and employee contributions to retirement plans to individuals on disability leave. That provision largely accounts for the higher rates among higher education employees noted in our chart. Those rates (e.g., 1.86% for 2012 higher education personnel choosing a 30-day waiting period) are not used in the calculations of costs savings attributed to a mandatory plan.

12 Elin Myer of Washington's Public Health Authority understands the decline to better experience ratings which in turn are the result of the economic downturn and the performance pressures that have been placed upon employees. Phone conversation Dec 20, 2012.

5.5 Savings relative to alternative plan

Cost savings from mandatory TDI can be thought of as the difference between R1 and R2 as depicted earlier in Diagram 2. Applying the savings from the difference in rates suggests total savings of not <30%, and likely substantially more. Savings resulting from 20, 30 and 40% premium reductions shown at the bottom of Table 5. These savings represents the difference in premium costs necessary to insure 2,326,000 individuals (the estimated Washington TDI covered population) under a statewide mandatory plan with benefits equivalent to California's SDI relative to the optional WSED insurance rates. Table 5 provides details on the premium revenues generated by earners in various income groups. The first two columns in Table 5 show the number and percentage of wage earners who fell into various income classes during 2010. The breakout of workers by income class assists the analysis and discussion because a) earnings over \$100,000 are not insured and generate no revenue and, b) the percentage of low-wage workers, most of whom are not presently insured for TDI, can be clearly identified.

Data for the 2010 earnings distribution in Table 5 were retrieved from the federal Occupational Employment Survey. They do not include most household or agriculture workers or the self-employed, which accounts for the lower than expected figures given earlier data showing 3 million employed Washington State workers. Given SDI exclusions based upon occupational eligibility, even this figure is 360,000 higher than Washington's expected TDI insured workforce (per Table 2). For this reason, the total premium savings are adjusted downward from \$379 to \$364 million in the bottom row.

Table 5 Estimated insurance savings by income level Washington State earnings 2010.

Income range	Employed	% Total	Premiums	40% Savings	30% Savings	20% Savings
< 20,000	271,935	10.1	51,667,650	20,667,060	15,500,295	10,333,530
20 to 40K	1,112,258	41.3	333,677,400	133,470,960	100,103,220	66,735,480
40 to 60K	603,480	22.4	301,740,000	120,696,000	90,522,000	60,348,000
60 to 80K	333,275	12.4	233,292,500	93,317,000	69,987,750	46,658,500
80 to 100K	179,416	6.7	161,474,400	64,589,760	48,442,320	32,294,880
100–150K	146,986	5.5	139,636,700	55,854,680	41,891,010	27,927,340
150–200K	45,709	1.7	43,423,550	17,369,420	13,027,065	8,684,710
>200K	156	0.0	148,200	59,280	44,460	29,640
Totals	2,693,215		1,265,060,400	506,024,160	379,518,120	253,012,080
Adj Total	2,326,000		1,108,542,223	485,357,100	364,017,825	242,678,550

Source 2010 Data courtesy of Charles Saibel and Scott Bailey, Washington State Employment Security Dept.

5.6 Net benefits

Net benefits are not equal to the \$364 million gross benefit of insuring the anticipated 2.36 million TDI eligible employees at rates lower than the next best alternative [the WSED]. While savings of this magnitude dwarf all other potential gains, net benefits as depicted earlier in Figure 2 (modified and reproduced here as Figure 4), must be calculated as the difference between what is paid for insurance and how much users value it. When a person pays 1% of his or her income for insurance, that individual may value the security from insurance by more than the dollar amount that 1% of income represents. In that case, net benefits exist from the consumption of insurance. If insurance is compulsory, on the other hand, an individual may be forced to pay more for insurance than the value it yields. In that case, for that individual net benefits are negative (or one could say, alternatively there are net costs). Such losses are depicted by the Black triangle labeled area C in Figure 4. Thus, under a mandatory insurance scheme, savings due to lower premiums do not measure net benefits.

To compute net benefits, we must first estimate willingness to pay for disability insurance. Individual's willingness to pay defines the market demand curve and can be derived if from the elasticity of demand for insurance. Referring again to Figure 4 the task is to define Q_1 , the quantity of disability insurance currently purchased, and Q_2 , the quantity of insurance that would be purchased voluntarily (where willingness to pay is greater than price). Once demand is estimated, the consumer surplus for new consumers (area B in Figure 4) can be calculated.

Because mandatory insurance plan requires individuals ($Q_3 - Q_2$) to purchase insurance even though their willingness to pay is less than price, this loss in value (area C in Figure 4) must be deducted from benefit estimates.

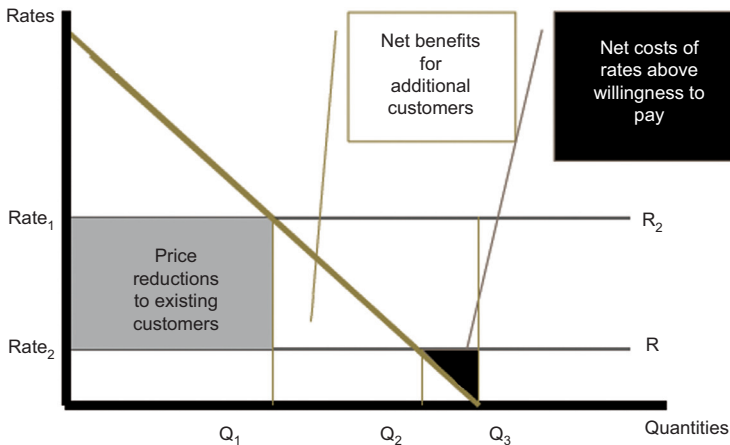


Figure 4 Schematic representation of net benefits from implementation of temporary disability insurance.

Demand estimates are typically reported in terms of elasticity, which tells us the responsiveness of consumers to changes in the prices they face. No published studies estimating the demand elasticity for disability insurance have been identified. Although not an elasticity measure, Chandra (2003) reports that individuals are willing to forego up to 5% of lifetime consumption in order to protect against significant disability losses. More usable estimates are available if we look at related items. There are, for example, numerous studies of the elasticity of demand for health insurance. Liu and Chollett (2005) summarize these studies and find that the estimates for non-group health policies available to individuals range from a low of -0.2 to -0.067 . Estimates of employer take-up rates are more indicative of the elasticity of demand for group coverage and elasticity estimates for these products converge around -0.6 . For Non-group Health Insurance, the Congressional Budget Office (2005) estimates price elasticity to be -0.57 . Along a different vein, disability insurance may also be linked to term life, in that both seek to replace lost earnings. The elasticity for term-life insurance estimates range between -0.3 and -0.69 (Pauly et al., 2003).

Equation (2) from the earlier methods section is applied to estimate demand at various prices applies.

$$\text{Percentage change in quantity demanded} = \text{Percentage change in price} \times \text{Elasticity} \quad (2)$$

Based on the observation of Washington State employees, we assert that 40% of the population would opt into disability coverage when insurance rates are 1.3% of earned income or higher. This is a conservative estimate as WSED employees faced higher rates up to the present day.¹³ Applying the formula in equation 4 to an assumed elasticity of -0.33 we find that universal coverage is achieved when rates fall to 0.2%.¹⁴ If we assume demand elasticity of -0.5 , close to the upper end of the estimated range for insurance products, 100% insurance coverage is achieved at an insurance rate of 0.4%.

Using the demand derived from the elasticity estimates, we can interpret points on the demand curve as consumers' valuation of the goods under consideration. In other words, if rates of 0.2% are required to induce the last worker to voluntarily purchase insurance, then this 0.2% of income is the monetary value or benefit to that worker of this purchase. If that individual were instead required to

¹³ Employees are not automatically allowed to add optional coverage once their initial eligibility period at hire is over and can not respond to lower rates.

¹⁴ Of course, reality will not necessarily follow the formula, as it is likely that some individuals would never choose to insure themselves, even if rates were zero.

pay 1.0% of income for the same quantity of consumption, the individual incurs a net cost or loss of 0.8% rather than a net benefit.

As distinct from the earlier gross benefit (cost saving) calculation, once a demand curve has been specified, net benefits can be calculated for consumers currently opting out of the market because they find the rates available to them are the rates available to them are unacceptable (i.e., this is generally above the WSED 1.3% rate, which is not available to most Washington residents in any event). Net benefit calculations in Table 6 show their sensitivity to elasticity and baseline coverage assumptions. The baseline coverage refers to the 18–26% estimates of

Table 6 Net benefits as estimated levels of demand for temporary disability insurance.

Percent of workers insured	Baseline coverage at 18%		Baseline coverage at 27%	
	Insurance rate	Marginal benefits (\$)	Insurance rate	Marginal benefits (\$)
A. Net benefits under demand elasticity of 0.33				
18	2.5	303,089,371		
21	2.3	39,811,200		
24	2.1	36,748,800		
27	1.9	33,073,920	1.9	270,604,800
31	1.7	28,582,400	1.7	28,582,400
35	1.5	22,968,000	1.5	22,968,000
40	1.3	15,749,486	1.3	15,749,436
46	1.1	6,124,800	1.1	6,124,800
52	0.9	-7,349,760	0.9	-7,349,760
60	0.7	-27,561,600	0.7	-27,561,600
71	0.5	-61,248,000	0.5	-61,248,000
88	0.3	-128,620,800	0.3	-128,620,800
101	0.2	-117,596,160	0.2	-117,596,160
Total benefits		148,771,657		1,653,166
B. Net benefits under demand elasticity of -0.5				
18	2.1	419,548,800		
23	1.9	50,112,000		
27	1.7	23,582,400	1.7	207,731,853
33	1.5	34,800,000	1.5	34,800,000
40	1.3	23,862,857	1.3	23,862,857
48	1.1	9,280,000	1.1	9,280,000
58	0.9	-11,136,000	0.9	-11,136,000
71	0.7	-41,760,000	0.7	-41,760,000
88	0.50	-92,800,000	0.50	-92,800,000
99	0.40	-74,240,000	0.40	-74,240,000
Total benefits		346,250,057		55,738,710

current coverage. The lower coverage rate may be justified because many who are insured, have low benefits relative to the proposed TDI.¹⁵ On the other hand, given Hendren's assertion that some individuals are currently locked out of the market by underwriter's guidelines, estimated coverage rates likely understate actual demand. Given the nature of those exclusions – income under \$30,000, Blue-collar work, and existing ailments such as back pain – unsatisfied demand could be quite large (e.g., nearly 30% of all households have incomes under \$30,000). Even so, it is unlikely that all excluded individuals, especially those nearest the poverty line, would seek out insurance at current rates. An alternative assumption is that TDI demand would be highest among the population most expected to file claims. If so, current purchases would underestimate demand by something less than the 5.5% annual claims rate estimated for Washington based upon California's SDI experience in which no prior-condition disqualifications are enforced.¹⁶ This suggests that current consumption could be as high as 31% under current conditions if all restrictions on enrollment were dropped.

Under the -0.33 elasticity assumptions, net benefits are estimated at \$1.65 million dollars when the baseline coverage rate is 26%, and \$148 million when the baseline coverage rate is dropped to 18%. Under the more liberal -0.5 elasticity assumption, net benefits range between \$203 and \$346 million. The wide range in these estimates reflects limits in the data available. Nonetheless, \$148 million appears to be a conservative and justifiable estimate.¹⁷ This is especially true when we take into account the likelihood that low income workers are the individuals most likely to be unwilling to pay estimated premiums. The willingness to pay in Table 6 assumes premium levels that are based upon average

15 In the absence of more reliable statistics, we are not able to say how many enrollees have plans comparable or better than either the existing Washington State voluntary plan or California's mandatory SDI plan. Better information would allow more precise estimates for different insurance products. Yet, for reasons discussed throughout the paper, with this unavoidable exception the parameters adopted throughout the paper have been chosen so as not to establish conservative estimates of net benefits.

16 While the 5.5% rate is an annual rate, and current willingness to pay should represent the stock of all people, not just those who make claims in a given year, we can be reasonably certain that a substantial portion of the 5.5% claims rate did not anticipate their disability, and that the further one looks into the future, the smaller that percentage of excluded consumers will be who can anticipate their future claims.

17 The extent of the conservative bias in these estimates may be suggested by the degree to which to Hendren's excluded population understate actual demand. Under the assumption that this population might be as much as 5% per year, annual net benefits could be substantially higher than 5%, as consumer surplus for this group would be realized not simply from a reduction in rates, but from insurance purchases at rates above those currently charged (for a schematic, see Figure A1 in Appendix).

income for all purchasers. By definition, low-income workers have below average earnings, and thus the negative benefits attached to workers with low willingness to pay are likely to be substantially overstated because no adjustment for income has been made.

5.7 Reduction in turnover costs

In addition to the net costs or benefits to workers, employers may benefit if paid leave reduces turnover. Using data from the USDOL survey on leave-taking, Dube and Kaplan (2002) estimate that workers taking non-maternity paid leaves are 8.2% more likely to return to their original employer. Assuming this holds true for disability covered job leavers in Washington State, we expect turnover to fall. They estimate that at the end of their leaves, 88.3% of non-paid leave takers return to their employer, whereas paid leave takers return at a higher 96.5% rate. Assuming that paid and non-paid leave populations are roughly equal for leaves greater than a month, then we can divide estimated 120,000 total SDI leave takers in Washington State so that 57,840 paid leave takers would return to their original employer while 52,980 unpaid leave takers returned to their original employer. The difference between the two groups of returnees, (4860) may be described as a benefit of paid leave under SDI, as that is the estimated improvement in turnover by implementing paid leave. This is a substantially smaller improvement than Dube and Kaplan find in their study of California PFL. Separately, they acknowledge their turnover results may be overstated when unpaid leave-takers are employed by less desirable firms who consequently have higher turnover rates. Nonetheless, they may have overcorrected by using very low (\$1,100) estimates of the per worker cost of turnover. Because turnover cost estimates can range as high as 150% of income, even doubling the Dube and Kaplan figure is conservatively low.¹⁸ At \$2,000 per employee, the savings to employers would be roughly \$9.7 million. One could easily rationalize the use of turnover savings of \$10,000 per worker yielding \$50 million in savings. A good reason for using a low cost savings is the speculative nature of the estimate.

5.8 Coordination of benefits

There are numerous public and private benefit programs that overlap to a greater or lesser degree with temporary disability assistance. The complexity of interactions

¹⁸ <http://www.sashacorp.com/turnframe.html>.

between leave benefit or assistance programs make it hard to estimate how employers and employees will react to TDI, especially given the difficulty of obtaining accurate data to do so. The same is true of government programs. For the current analysis, savings are acknowledged from the coordination of benefits that lower employer costs. No estimate of these values is offered.

5.9 Additional costs

There may also be indirect costs not fully calculated here. Because Washington State has no income tax, the fiscal impact on the state due to increased disability leaves is hard to calculate. Sales tax revenue could decline as a result of temporarily decreased income for leave takers. This impact could be offset if leave taking prevents additional lost income due to employees need to work and failure to attend to medical disabilities.

6 Discussion

TDI is one of four major alternatives available to address concerns that arise when temporary disabilities occur. One approach is to leave workers to fend for themselves, as they currently do. Alternatively, governments may sponsor voluntary insurance plans that provide better options for workers to insure themselves. Third, the alternative evaluated here, government may require workers to insure themselves through a state-run mandatory disability insurance trust fund. Finally, the government may take direct responsibility for providing cash assistance when workers are disabled.

The conclusion of this analysis is that sizable net benefits can be achieved by implementation of a mandatory temporary disability program in Washington State. Gross benefits may be set at \$364 million. Gross benefits must be qualified by taking into account the likelihood that not all consumers would find TDI worthwhile. When this additional calculation is made a defensible estimate of net benefits comes to \$148 million per year, without consideration of indirect benefits such as the reduction of turnover, the consolidation and elimination of redundant state and employer benefits, and the ability of workers to tend more effectively to their health.

A drawback to the technique used to estimate net benefits is that it does not fully recognize the budget constraints that low-income workers face and the extent to which it is this which inhibits our primary measure of the value of TDI,

their willingness to pay. On one hand, willingness to pay is an appropriate method by which to measure how much workers gain or lose when they are required to pay mandatory fees. It captures workers' perceptions of changes in their welfare when they believe their payments exceed what they are willing or able to pay for greater security. However, from a policy perspective, a low willingness to pay is likely to be interpreted as meaning that economic security has low importance among precisely those workers who are most insecure. In other words, security comes to be understood as a luxury. Certainly that is one way to interpret Levy's (2002) finding that "only 15% of workers in the bottom fifth of the wage distribution have any sick leave, 13% have long-term disability and 19% have health insurance (2004, p. 11)." She notes, by contrast, that earners in the top fifth of the earnings distribution have coverage rates between 72% and 86% for each of these benefits. TDI is at least partially justified as an attempt to offset results of income disparity such as these. Yet, there is a definite circularity when costs and benefits have to be calculated in reference to willingness to pay calculations that are constrained by that same inequality.

The TDI proposal advanced in Washington would avoid reliance upon revenue from that state's regressive sales tax, it would not be as progressive as the federal income tax that sets higher rates on higher incomes. Instead, TDI is funded proportionally. As such, it has the advantage of being understood as insurance rather than redistribution, and in this way achieves a greater level of acceptability.

Benefits from TDI rely upon the power of the state to require insurance. That is basis of its cost savings. As structured, it is likely to meet resistance from two sets of individuals: those who do not feel they can afford it, and those who believe their existing employer-provided benefits provide adequate or superior value.

The conclusion of this study is that implementation of a Washington State TDI would generate significant cost savings as compared with the best existing alternative for insuring a large portion of the state labor force. Even after taking into account costs associated with the mandatory character of its fees, the estimate of nearly \$148 million in net benefits is substantial. It can be accomplished through a fiscally responsible program that cares for individuals unable to undertake work for significant lengths of time. By placing disability assistance on an insurance basis, workers benefit from their own collective savings so as to achieve the intangible benefits of dignity and independence.

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Appendix

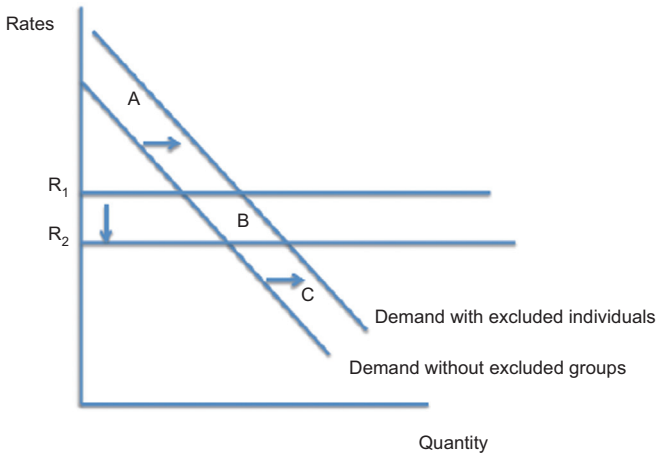


Figure A1 Net benefits for individuals previously excluded from the market. Assuming individuals who were refused disability insurance coverage under existing private insurance provisions were entitled to TDI under state coverage, demand shifts to the right [in previous analyses, only benefits from price reduction and expanded coverage (areas E and C) were included. Net benefits now increase by area A as well, because we would expect many of these individuals to have a willingness to pay that exceeds current insurance rates.

Appendix Comparison of 2010 employment by occupation in Washington and California.

Labor force and occupational comparison for Washington and California In 2010

	California		Washington		Comparisons	
	Totals-in 1000s	Percent	Totals-in 1000s	Percent	WA % of CA	% Differences
LF	18195		3541		19.5%	
Employed	15976	87.80%	3180	89.81%	19.9%	2.0%
Occupations						
Management	2507	15.7	499	15.7	19.9	0.0
Professional	3597	22.5	783	24.6	21.8	2.1
Service	2909	18.2	546	17.2	18.8	-1.0
Sales	1836	11.5	313	9.8	17.0	-1.6
Office, Admin	2014	12.6	383	12.0	19.0	-0.6
Farm, Fish, Forestry	222	1.4	52	1.6	23.4	0.2
Construction	747	4.7	162	5.1	21.7	0.4
Install, Maintenance	500	3.1	101	3.2	20.2	0.0
Production	812	5.1	158	5.0	19.5	-0.1
Transportation	830	5.2	182	5.7	21.9	0.5

Source: US Census Bureau: Statistical Abstract of the US Tables 594, and 617 Employed percentage is percent of Labor force.

Percentages of occupations are calculated from total State employment.

References

- Albelda, R., & Clayton-Matthews, A. (2006). *Sharing the costs, reaping the benefits: paid family and medical leave in massachusetts, the future of work papers series*. Paper No. 2, June 2006. Labor Resource Center, UMass Boston and the Institute for Women's Policy Research, Washington, DC.
- American Council of Life Insurance (2011). Factbook. Chapter 11, disability and long-term care insurance. Available at: <http://www.acli.com/Tools/Industry%20Facts/Life%20Insurers%20Fact%20Book/Pages/GR11-198.aspx>. Accessed on April 12, 2013.
- Bolin, J. N. (2007). How well are we doing addressing disability in America? Examining the status of adults with chronic conditions, 1995–2005. *Journal of Health and Human Services Winter*, 30(3), 306–326.
- Christianson, D. I. (2007). Disability income insurance: the private market and the impact of genetic testing. *Journal of Law Medicine Ethics*, 35(Suppl2), 40–46.
- California State Disability Insurance Program. *Strategic Plan, 2007–11*.
- Chandra, A., & Samwich, A. (2005). *Disability risk and the value of disability insurance*. NBER Working Paper Number 11605.

- Dube, A., & Kaplan, E. (2002). *Paid family leave in California: an analysis of costs and benefits*. Unpublished manuscript Available at: <http://www.laborproject.org/publications/pdf/dube.pdf>. Accessed on November 11 2004.
- Danis, M., Lovett, F., Sabik, L., Adidkes, K., Cheng, G., & Aomo, T. (2007). Low-income employees' choices regarding employment benefits aimed at improving the socioeconomic determinants of health. *American Journal of Public Health, 97*(9), 1650–1657.
- Employment Development Department, State of California (Oct. 2011). *Disability Insurance (DI) Fund Forecast*.
- Gates, L., Talker, Y., & Akabas, S. Optimizing return to work among newly disabled workers: a new approach toward cost containment. *Benefits Quarterly, 5*(2), 19–26
- Gruber, J. (2000). Disability insurance benefits and labor supply. *The Journal of Political Economy, 108*(6), 1162–1183.
- Gruber, J. (2010). *Public finance and public policy* (3rd ed.). New York, NY: Worth Publishers.
- Hendren, N. (2012). *Private information and insurance rejections*. NBER Working Paper Series 18282.
- Hengst, S., & Kleiner, B. H. (2002). Implications of the family and medical leave act for organizations. *Managerial Law, 44*, 9–15.
- Jacoby, D. (2011). Preliminary report on cost and benefits of temporary disability insurance in Washington state, commissioned by ILWU.
- Liu, S., & Chollet, D (2006). Price and income elasticity of the demand for health insurance and health care services: a critical review of the literature. Final report. *Mathematical Policy Research, Inc.* Reference No. 6203–042.
- Lovell, V. (2004). *Estimating the costs of paid family and medical leave*. Washington, DC: Institute for Women's Policy Research.
- Miller, P. S. (2007). Genetic testing and the future of disability insurance: thinking about discrimination in the genetic age. *Journal of Law Medicine Ethics, 35*(2 Suppl), 47–51.
- Naples, M., & Frank, M. (2007). *The fiscal viability of New Jersey family leave insurance*. Institute for Women't Policy Research.
- Nevada Legislative Counsel Bureau. Temporary disability benefits. Bulletin No 33. December 1958.
- Pauly, M., Withers, K., Subramanian-ViSwanathan, K., Lemaire, J., Hershey, J., Armstrong, K., & Asch, D. (2003). *Price elasticity of demand for term life insurance and adverse selection*. NBER Working Paper No. 9925.
- US Social Security Administration (1994). The first Six Months. *Social Security Bulletin, 57*, 3.
- Waldfoegel, J. (1999). The impact of the family and medical leave act. *Journal of Policy Analysis and Management, 18*(2), 281–302.
- US Social Security Administration. A primer: social security act programs to assist the disabled. *Social Security Bulletin, (2005/06)*. 66(1), 53–59.
- US Social Security Administration, Annual Statistical Supplement to the Social Security Bulletin, 2010.
- US Department of Labor (2000). Balancing the needs of families, FMLA Survey Report <http://www.dol.gov/whd/fmla/toc.htm>. Accessed on August 1, 2011.