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Economic Effects of Implementing a Paid Family and Medical Leave Program on the Colorado Economy

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Executive Summary

Legislators in Colorado recently introduced a bill during the 2018 session that would establish a statewide paid family and medical leave program that would cover all employees working in the state. The bill (House Bill 18-1001), sponsored in the House by Representatives Faith Winter and Matt Gray and in the Senate by Senators Kerry Donovan and Rhonda Fields, would mandate all Colorado employers participate in the program. The program would provide partial wage-replacement benefits to eligible individuals who take leave from work to care for a new child or a family member with a serious health condition or who is unable to work due to the individual's own serious health condition. The cornerstone of the paid leave program is a state-run family and medical leave insurance fund financed by an employee-side payroll tax from which family and medical leave benefits are paid out to eligible individuals. The payroll tax would require each employee in the state to pay a premium based on a percentage of the employee's yearly wages.

This report quantifies the economic impact implementation of the proposed paid family and medical leave program would have on the Colorado economy over a ten-year window spanning 2020 to 2029 using PI+, a widely-used economic forecasting and policy analysis model produced by Regional Economic Models, Inc. (REMI). Our analysis of a payroll tax-financed paid family and medical leave program suggests that implementing a program would do substantial harm to the Colorado economy. Economic impacts vary depending on the exact funding details, but the PI+ model forecasts that a program financed by an employee-side payroll tax could result in nearly 23,000 lost jobs in Colorado, a cumulative loss of $19.3 billion in real state gross domestic product, a reduction of $3.7 billion in personal income of Colorado residents, and out-migration from the state in excess of 20,000 people.

Background

In recent years, debate surrounding the offering of paid family and medical leave has gained momentum in policy circles. No precise definition of paid family and medical leave exists, but such leave is generally considered to encompass maternity (and possibly also paternity) leave that allows for an employee to take an extended leave of absence to care for and bond with a new child, family leave to care for a family member with a serious health condition, and own medical leave to attend to one's own serious health condition. Paid family and medical leave is distinct from other types of paid leave that might be offered by an employer such as paid sick leave and paid vacation time.

While experts continue to dispute the costs and benefits of paid family and medical leave programs, lawmakers in three states have taken action since 2013 (Rhode Island, New York, and Washington) to create state level programs. These three states join California and New Jersey as the five states in the nation (along with the District of Columbia) that have paid family and medical leave programs. The programs in California and New Jersey were established years earlier (2009 and 2013, respectively), paving the way for the recent expansion of state level programs.

Paid family and medical leave programs are separate from and offered in addition to forms of short-term leave that can be used for medical purposes. Such short-term leave includes paid sick leave, paid time off, and short-term disability insurance, which the Bureau of Labor Statistics defines as plans providing benefits for non-work-related injuries or illnesses on a per-disability basis with a typical coverage period of six months to 12 months. Workers also have recourse to unpaid leave through the Family and Medical Leave Act, a federal program that provides eligible employees with 12 weeks of unpaid job-protected leave for reasons that fall under the umbrella of parental leave, family leave, and own medical leave.

Additionally, temporary disability leave (TDI) programs intended to provide flexibility for workers to address short-term medical needs have existed in select states since the 1940s. Along with covering disabilities, serious medical conditions, or other ailments of a temporary nature, TDI programs generally also cover pregnancy and childbirth. Most of these TDI programs served as the foundation for the paid family and medical leave programs that have been established during the past decade and a half. Rhode Island's TDI program, founded in 1942, was the first such program in the nation and was expanded to include benefits for parental

and family leave in 2013. California's TDI program was established a few years later than Rhode Island's in 1946, but its expansion to provide paid family leave occurred earlier in 2002. New Jersey's enacted its TDI program in 1948 and expanded it to include benefits for parental and family leave in 2008. New York's also has a TDI program (enacted in 1949) but has not yet expanded it to include other forms of paid leave. The fifth and final state with a TDI program is Hawaii whose program was enacted in 1969. As with New York's program, the Hawaii TDI program has also not been expanded to include paid family and medical leave.

Existing paid family and medical leave programs have benefits and financing structures that vary by state. Income replacement rates for these programs either take the form of a strict replacement rate applied to a leave-taker's individual-specific income or a rate applied to a more general state-specific wage rate, such as the state average weekly wage. The replacement wage is capped either at a specific dollar value or at a percentage of some statewide average wage. Duration of leave also varies and is contingent on the intended purpose of the leave. For example, Rhode Island's program provides for up to four weeks of paid leave for parental and family care and up to 30 weeks for medical care, while California's program allows for up to six weeks for parental and family care and up to 52 weeks for medical care. Washington's program allows eligible workers to take up to 12 weeks off for any type of paid leave, whereas Hawaii's program allows for up to 26 weeks of paid leave—but for own medical reasons only.[1]

Colorado lawmakers recently considered legislation that would make Colorado the sixth state in the nation to implement a state level paid family and medical leave program. The bill, House Bill 18-1001 (or HB 18-1001), would create a family and medical leave insurance program to provide partial wage-replacement benefits to eligible individuals who take leave from work to care for a new child or a family member with a serious health condition or who is unable to work due to the individual's own serious health condition. The cornerstone of the paid leave program is a state-run family and medical leave insurance fund financed by an employee-side payroll tax from which family and medical leave benefits are paid out to eligible individuals. The payroll tax would require each employee in the state to pay a premium based on a percentage of the employee's yearly wages. The annual premium would not exceed 0.99 percent of an employee's wages in the first year of the program.

[1] Readers interested in learning more about existing state level paid leave programs may wish to refer to "The AEI-Brookings Working Group Report on Paid Family and Medical Leave: Charting a Path Forward," American Enterprise Institute and Brookings Institution, September 2018.

This report quantifies the economic impact implementing the proposed paid family and medical leave program would have on the Colorado economy. To estimate the economic impact of the program, we used PI+, a dynamic, multi-region economic forecasting and policy analysis model produced by Regional Economic Models, Inc. (REMI) that integrates input-output, computable general equilibrium, econometric, and economic geography methodologies. The underlying mechanics of the REMI model are based on decades of peer-reviewed literature.[2] The model is used by numerous clients in both the private and public sectors.[3] Variables forecast by the REMI model include key macroeconomic and demographic metrics such as levels of employment, production, income, inflation, labor force, and population. By comparing simulation results for scenarios which include proposed or yet-to-be-implemented policy changes with the model's baseline forecast, PI+ is able to obtain estimates of how these policy changes would impact employer firms, their employees, and the broader state economy.

Summary of House Bill 18-1001: Creating a Family and Medical Leave Insurance Program in Colorado

According to HB 18-1001, the moneys collected by the state through the new payroll tax would be channeled into a family and medical leave insurance fund created in the state treasury meant specifically for paid family and medical leave payments as outlined in the legislation. Any interest earned on the investment of money in the fund is to remain in the fund, and any money remaining in the fund at the end of a fiscal year remains in the fund and does not revert to the general fund or any other fund. In short, state money in the family and medical leave insurance fund is continuously appropriated for the specific and sole purpose of the paid leave program created by HB 18-1001, and the general assembly may not appropriate money from the fund for the general expenses of the state.

Payments into the insurance fund would begin on and after July 1, 2020, when every individual employed by a Colorado employer would pay a premium in an amount initially

[2] A list of the peer-reviewed literature is available at http://www.remi.com/download/model-equations-v2-0?wpdmdl=7783. The list of references includes articles published in the American Economic Review and The Review of Economics and Statistics.

[3] The REMI model is used by a diverse group of clients spanning academia, private consulting firms, local and regional governments, and nonprofits, to name a few categories. A list of clients that use the REMI model is available at http://www.remi.com/clients. The list has included consultancies like Boston Consulting Group and Ernst and Young, educational institutions like the Massachusetts Institute of Technology, nonprofit institutions like AARP and the Urban Institute, and federal, regional, and local government agencies.

determined by the director of the department of labor and employment's division of family and medical leave insurance. For the first year, premium amounts would be based on total estimated claims as a portion of total annual covered wages and are not to exceed 0.99 percent of total annual covered wages. Annual adjustments to the premium amounts may be made by the director to ensure the actuarial soundness of the fund and avoid an excessive fund balance. Premiums would be collected by each employer as a payroll deduction from employees' wages each payroll period and would be remitted to the labor and employment division for deposit into the insurance fund. In the event that collected premiums prove insufficient to ensure the solvency of the fund, the director may impose a solvency surcharge that every individual employed by an employer in Colorado would pay through a payroll deduction.

To be eligible for the program, an individual must have been employed by and worked for one or more Colorado employers for at least 680 hours (or 504 hours in the case of airline flight crew members) during the person's qualifying year.[4] A worker who meets this qualification is considered a covered individual. An employer under the program means any person engaged in commerce or an industry or activity affecting commerce that employs at least one person for each working day during each of twenty or more calendar workweeks in the current or immediately preceding calendar year. HB 18-1001 does not provide exemptions for any set of employers whether defined by number of employees, industry, or some other characterization. The maximum duration for which family and medical leave insurance benefits would be payable to an eligible individual in any consecutive 52-week period is 12 weeks. Leave taken under the new paid family and leave program would run concurrent with any leave taken under the federal Family and Medical Leave Act of 1993.

The paid leave program laid out in HB 18-1001 is progressive in nature with eligible individuals being afforded varying amounts of replacement wage and salary contingent upon the individual's income relative to the "annual mean wage." Under the program, the "annual mean wage" means the estimated total annual wages of all occupations in Colorado divided by the occupations' estimated employment, as determined by the Bureau of Labor Statistics. The replacement income schedule in the proposed paid leave program is as follows:

[4] A qualifying year refers to the first four of the last five completed calendar quarters or the last four completed calendar quarters immediately preceding the first day of a covered individual's application year.

Table 1: Proposed Weekly Replacement Income Under the Proposed Paid Family and Medical Leave Program

Individual's Income as Percentage of Annual Mean Wage	Amount of Weekly Replacement Income
Not more than 20% of the annual mean wage	95% of eligible individual's weekly wage
More than 20% but not more than 30% of the annual mean wage	90% of eligible individual's weekly wage
More than 30% but not more than 50% of the annual mean wage	85% of eligible individual's weekly wage
More than 50% of the annual mean wage	66% of eligible individual's weekly wage

The weekly replacement income for eligible individuals taking leave is based on the individual's weekly wage earned from the job from which the individual is paid family and medical leave. Income earned from a second job while taking paid family and medical leave is not considered when calculating the weekly replacement income. Initially, the maximum weekly benefit distributed to any eligible individual taking paid leave would not exceed $1,000 per week. Beginning in 2022, the maximum weekly benefit amount would be annually adjusted to reflect recent average changes in Colorado personal income.

Modeling a New Payroll Tax Deduction

The paid family and medical leave program described in HB 18-1001 provides an economist with considerable latitude in modeling the program and dealing with important assumptions crucial to the analysis. A key assumption in this analysis is who ultimately bears the economic burden of the new premiums that finance the insurance fund. While the economic incidence of this new tax nominally falls on Colorado employees through a payroll deduction equal to a fraction of their wage and salary, depending on how employers react to the program's implementation, the actual economic burden may fall more on employers than on employees. The economic incidence of the payroll tax can be thought of as the combination of two extremes:

1. A scenario in which the employer essentially bears the full burden of the fund's insurance premiums. In this scenario, the wage and salary trajectories of employees continue according to their projected paths prior to the introduction of the paid family and medical leave program. The premiums paid to the insurance fund through a payroll deduction are

borne by employers through an additional pre-tax wage and salary payment to employees equal to the full amount of the insurance premiums. Consequently, take-home pay for employees is not impacted by implementation of the new paid leave program.

2. A scenario in which the employee essentially bears the full burden of the fund's insurance premiums. In this scenario, the wage and salary trajectories of employees continue according to their projected paths prior to the introduction of the paid family and medical leave program. The premiums paid to the insurance fund through a payroll deduction are borne completely by employees through a reduction of employees' wage and salary payments, reducing employees' take-home pay by the full amount of the insurance premiums.

Consideration of these two scenarios is instructive, and both cases were modeled as part of this analysis. Of course, in between these two extremes exist an infinite number of cost-sharing scenarios where employers and employees split the cost of the new insurance premiums so that no one side bears the full economic burden. To provide some insight as to how a sharing of the new program's economic burden between employers and employees might influence economic outcomes, we also model:

3. A third scenario in which the economic burden is split 50-50 between employers and employees. In this scenario, the wage and salary trajectories of employees continue according to their projected paths prior to the introduction of the paid family and medical leave program. The premiums paid to the insurance fund through a payroll tax deduction are split between employers and employees with (1) employers paying an additional amount of pre-tax wage and salary to employees equal to 50 percent of the full amount of the insurance premiums and (2) employees experiencing a reduction in their take-home pay also equal to 50 percent of the full amount of the insurance premiums.

Numerous assumptions regarding issues like wage and salary growth path, actuarial soundness, whether to model each individual income strata, *etc.*, are required to complete an analysis like this one. Our assumptions on these key details are as follows:

- We assume the new paid leave program is actuarially sound on an annual basis with total premiums received by the insurance fund in a particular year equaling the amount of

replacement income required to pay eligible individuals taking paid leave during that same year. In no year is there a surplus left in the fund that may be invested in non-cash assets yielding a positive rate of return, nor is there ever a deficit which requires the director to make a solvency surcharge.

- We assume that a payroll tax of 0.99 percent is levied on a mix of employers and employees for every single year in the forecast window. This assumption allows for the most generous amount of paid leave benefits to be paid out in the first year of the program and implies that the program's creators anticipate correctly a revenue burden of less than 1 percent of payroll is necessary for the successful operation of the program.
- We do not model each of the wage strata given in Table 1 separately and instead model the flows of money paid into the insurance fund which are then recycled back into the economy in aggregate fashion.
- We assume that the paid family and medical leave program is implemented in 2020 and continues in perpetuity.
- We analyze the economic impact of the paid leave program of a ten-year forecast window spanning 2020 to 2029.

A note about not modeling each wage strata separately and instead modeling the flows of money into and out of the insurance fund in aggregate fashion: This was not a choice we elected to make but rather a course of action forced upon us due to constraints imposed by the model. Specifically, because the REMI model is primarily a model based upon firm dynamics, it lacks the flexibility to produce forecasts with adjustments made to targeted groups of individuals or households. For example, using the REMI model, we are unable to model replacement income to employees as a function of employees' average weekly wages because the model does not provide distributional data on wages across employees or households.

By not modeling each of the wage strata given in Table 1 individually and modeling the flows of moneys received by the fund back into the economy in an aggregate fashion, we perhaps simplify patterns of spending due to the progressive structuring of the fund premiums. It is possible, for instance, that while it can be expected that meaningful additional health care spending results from any of the life events that would cause an individual to take paid family and medical leave irrespective of income, higher income households who avail themselves of the benefit may also increase their purchases of non-health care-related non-necessities since they

have a more generous budget constraint than lower income households and the paid leave benefit offsets the medical and family leave costs that they previously would have been forced to paid for out of pocket.[5] This limitation might produce minor alterations in the forecast changes in demand for goods and services of specific industries and changes in spending on specific consumption categories (from what those changes would be if it was possible to model spending for specific income strata) but is unlikely to change the forecast aggregate changes in macroeconomic variables like employment and measures of production.

A crucial factor that determines the size of the payroll tax imposed on employers and employees through this paid leave program is the estimated wages and salaries of Colorado employees in the years during which the program is assumed to be operating. According to HB 18-1001, an "employee" means any person (including migratory laborers) performing labor or services for the benefit of an employer in which the employer may command when, where, and how much labor or services shall be performed. In the context of the bill, an "employer" means any person engaged in commerce or industry or activity affecting commerce that employs at least one person for each working day during each of twenty or more calendar workweeks in the current or immediately preceding calendar year. The definition of employers includes the state or political subdivisions of the state (public sector workers). The estimated wage and salaries of Colorado employees (both private sector and public sector) used in this analysis were taken directly from the REMI model and are provided in **Table 2**.[6]

[5] Such considerations are subject to a certain amount of uncertainty due to a number of factors including the existing availability of paid family and medical leave to workers in different income strata, the willingness to take paid family and medical leave even when the benefit is offered, and differences in the propensity to save among individuals.

[6] REMI's wage rate forecasts are based on the assumed inflation rate and industry-specific productivity change, but in the short term they impose total wages from the RSQE forecast and also growth rates from the CBO projections, which are not industry-specific.

Table 2: Forecast Aggregate Wage and Salary Earned by CO Private Sector Workers from 2020 to 2029 (Billions of Current Dollars)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Est. Total CO Wages and Salary	$182.2B	$189.7B	$197.5B	$205.9B	$214.6B	$223.3B	$232.2B	$241.5B	$251.2B	$261.3B
Est. Private Sector CO Wages and Salary	$150.9B	$157.3B	$164.1B	$171.4B	$179.0B	$186.5B	$194.2B	$202.2B	$210.7B	$219.5B
Est. Public Sector CO Wages and Salary	$30.6B	$31.7B	$32.7B	$33.8B	$34.9B	$36.0B	$37.2B	$38.5B	$39.7B	$40.9B

The assumed aggregate amounts of additional payroll taxes, reductions in employee wages and salary, and additional health care spending for Scenarios 1, 2, and 3 describe above are provided below in **Table 3**, **Table 4**, and **Table 5**. As mentioned previously, a payroll tax of 0.99 percent of employee wages and salary (split in some fashion between employers and employees) was assumed to apply for each year in the forecast window. Given the estimated wages and salary in Table 3, this amounts to $1.9 billion in additional payroll tax in 2021, a figure which steadily increases to $2.6 billion in 2029. The assumption that the program is actuarially sound with no surpluses accruing across all years means that additional health care spending equals the total amount of additional payroll tax paid in each year.

Table 3: Assumed Additional CO Payroll Tax and Health Care Expenditures Under a Paid Family and Medical Leave Program Financed by an Employer-Side Payroll Tax (Billions of Current Dollars)

	2020[7]	2021	2022	2023	2024	2025	2026	2027	2028	2029
Additional Payroll Tax Paid by Employers	$0.9B	$1.9B	$2.0B	$2.0B	$2.1B	$2.2B	$2.3B	$2.4B	$2.5B	$2.6B
Additional Health Care Demand	$0.9B	$1.9B	$2.0B	$2.0B	$2.1B	$2.2B	$2.3B	$2.4B	$2.5B	$2.6B

[7] The reader will note that the estimated additional payroll tax in 2020 is considerably less than what might be expected given the estimates in all other years. This circumstance is due to the fact that program implementation begins in July of the first year and, hence, the payroll tax is assumed to apply to only one-half of a full year's worth of employee wages and salary.

Table 4: Assumed Reduction in CO Employee Wages and Salary and Additional Health Care Expenditures Under a Paid Family and Medical Leave Program Financed by Reduced Compensation (Billions of Current Dollars)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Est. CO Wages and Salaries	$182.2B	$189.7B	$197.5B	$205.9B	$214.6B	$223.3B	$232.2B	$241.5B	$251.2B	$261.3B
Total Reduction in Wages and Salary	-$0.9B	-$1.9B	-$2.0B	-$2.0B	-$2.1B	-$2.2B	-$2.3B	-$2.4B	-$2.5B	-$2.6B
Additional Health Care Demand	$0.9B	$1.9B	$2.0B	$2.0B	$2.1B	$2.2B	$2.3B	$2.4B	$2.5B	$2.6B

Table 5: Assumed Additional CO Payroll Tax, Reduced Employee Wages and Salary, and Additional Health Care Expenditures Under a Paid Family and Medical Leave Program Financed by a 50-50 Employer/Employee Split (Billions of Current Dollars)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Est. CO Wages and Salaries	$182.2B	$189.7B	$197.5B	$205.9B	$214.6B	$223.3B	$232.2B	$241.5B	$251.2B	$261.3B
Additional Payroll Tax Paid by Employers	$0.45B	$0.94B	$0.98B	$1.02B	$1.06B	$1.11B	$1.15B	$1.20B	$1.24B	$1.29B
Total Reduction in Wages and Salary	-$0.45B	-$0.93B	-$0.98B	-$1.02B	-$1.06B	-$1.11B	-$1.15B	-$1.20B	-$1.24B	-$1.29B
Additional Health Care Demand	$0.9B	$1.9B	$2.0B	$2.0B	$2.1B	$2.2B	$2.3B	$2.4B	$2.5B	$2.6B

Details on differences in how reductions in wages and salary for private sector workers versus public sector workers bear mentioning due to the different manners in which the reductions impact the economy. Wages and salary for *private sector* workers are forecast to make up approximately 83 percent of total wages and salary paid to Colorado workers from 2020 to 2029, and reductions to this income category were modeled as a reduction in compensation to CO private sector workers. Specifically, the aggregate reduction of private sector wages and salary was distributed across all industries as decreases in compensation paid to employees according to industry-specific employment weights. Reducing wages and salary directly tightens the budget constraints of workers who have less money to spend on goods and services produced by firms (both in-state and out-of-state). This reduced demand in turn lessens the demand for labor since fewer goods and services need to be produced to meet consumer demand, and it also introduces deflationary pressures which lower the price level.

Modeling reductions in wages and salary to *public sector* employees was handled differently due to the unavailability of any variable in the REMI model that specifically captures compensation paid to public sector employees. However, a variable representing state government spending is available in the model, and we used this spending variable to capture assumed reductions to public sector compensation. Specifically, we represent both employer- and employee-financing of the paid family and medical leave program by public sector employees as a reduction in state government spending. The justification for this approach centers on the balanced budget requirement outlined in Colorado's state constitution and the unlikelihood that overall government spending will increase (which would require tax increases) to pay for the program's costs.[8]

Given these constraints, an employer-financed payroll tax for public sector employees requires a reduction in state government spending equal to the full amount of the payroll tax revenue. Employee-financing of the payroll tax by public sector employees (through reduced wages and salary) is also modeled as a reduction in government spending. However, there is a nuance to the employee-financing approach that merits consideration: all else equal, reducing government spending would produce a budget surplus on an annual basis. The prospect of continual surpluses raises the question of how to treat such a constant stream of excess funds in the modeling.

One possibility is that the surpluses may be added to the state government's "rainy day" fund, to be used at a future date under exigent circumstances when revenues alone will not be able to cover necessary expenses in a particular year(s). This is a plausible scenario considering that in recent years, excess revenues collected for the Colorado's General Fund have been added to the General Fund balance (rather than being refunded to taxpayers).[9] Alternatives to this scenario are that excess revenues are remitted to taxpayers through a refund or the tax burden on taxpayers is decreased such that the amount of excess revenues collected falls to zero. In our

[8] According to Article 10, Section 16 of the Colorado state constitution: "No appropriation shall be made, nor any expenditure authorized by the general assembly, whereby the expenditure of the state, during any fiscal year, shall exceed the total tax then provided for by law and applicable for such appropriation or expenditure, unless the general assembly making such appropriation shall provide for levying a sufficient tax . . . to pay such appropriation or expenditure within such fiscal year." See http://www.ncsl.org/research/fiscal-policy/state-constitutional-and-statutory-requirements-fo.aspx#co for more information.

[9] The state's General Fund receives general-purpose revenue collected from incomes, sales, and use taxes which is used to fund the state's core programs such as education, health care, human services, corrections, and general government. In recent years, the year end general balance was $799,105 in 2013, $935,027 in 2014, $1,175,388 in 2015, $1,076,582 in 2016, $1,154,018 in 2017, and $2,006,752 in 2018.

analysis when dealing with the scenarios in which there is some amount of public sector employee financing of the insurance fund, we provide for a degree of sensitivity analysis by modeling both (1) the case in which excess revenues are assumed to be added to the General Fund balance and (2) the case in which the government collects no excess revenue due to contemporaneously reducing the tax burden on taxpayers by the dollar amount of the insurance fund anticipated to be paid for by public sector employees.[10] Including this nuance into the modeling brings the total number of scenarios modeled to five.

Assumed Distribution of Collected Payroll Taxes to Health Care Industries for Medical-Related Expenses

Tax revenue that is channeled into the insurance fund is assumed to be paid out to cover expenses related to events and circumstances that incite workers to avail themselves of paid family and medical leave. These expenses will be medically-related expenses and will almost certainly be associated with major life events like taking care of a newborn or tending to a serious long-term injury. We assume that expenses associated with taking paid leave would follow the distribution of spending on health care industries in Colorado according to REMI's baseline forecast. REMI's forecasts for spending on ambulatory health care services, private hospitals, and nursing and residential health care facilities in Colorado from 2020 to 2029 is given in **Table 6**. We consider the allocation of the insurance funds according to this distribution reasonable given that medical incidents leading to the taking of paid leave would likely be serious enough to require considerable ambulatory health care services and hospital stays.[11] The fact that these three subsectors are relatively labor intensive helps offset any disemployment effects that may result from additional taxes applied to other industries as well as a broad decrease in consumer spending.

[10] In the REMI model, the reduced tax burden was implemented by decreasing the "personal tax" variable by the appropriate dollar amount in each year.

[11] "Ambulatory health care services" and "hospitals" are two industries defined in the North American Industry Classification System. The former consists of industries that provide health care services directly or indirectly to ambulatory patients and do not usually provide inpatient services. Instead, health practitioners in this subsector provide outpatient services with the facilities and equipment not usually being the most significant part of the production process. In contrast, the hospital subsector consists of establishments that provide medical, diagnostic, and treatment services that include physician, nursing, and other health services to inpatients and the specialized accommodation services required by inpatients.

Table 6: Forecast Private Demand for Health Care Goods and Services in Colorado from 2020 to 2029 (Billions of Current Dollars)

Industry	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Ambulatory Health Care Services	$30.8B	$32.6B	$34.3B	$36.1B	$37.9B	$39.8B	$41.9B	$43.9B	$46.3B	$48.5B
Private Hospitals	$23.4B	$24.6B	$25.9B	$27.2B	$28.6B	$30.2B	$31.6B	$33.2B	$34.9B	$36.7B
Nursing and Residential Health Care Facilities	$5.9B	$6.2B	$6.4B	$6.7B	$7.0B	$7.3B	$7.7B	$8.0B	$8.4B	$8.8B

The distribution of future spending in the Colorado health care sector is forecast to remain relatively static through 2029 (**Table 7**). As a share of total state health care spending, spending on ambulatory health care services are forecast to increase slightly from 51.2 percent in 2020 to 51.6 percent in 2029. Spending on hospital care is also expected to increase slightly from 38.9 percent to 39.1 percent during this same time frame while spending on nursing and residential health care facilities drops slightly from 9.9 percent to 9.4 percent.

Table 7: Forecast Percentage Share of Private Demand for Health Care Goods and Services in Colorado from 2020 to 2029

Industry	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Ambulatory Health Care Services	51.2%	51.4%	51.5%	51.6%	51.6%	51.6%	51.6%	51.6%	51.6%	51.6%
Private Hospitals	38.9%	38.8%	38.8%	38.8%	38.9%	38.9%	39.0%	39.0%	39.0%	39.1%
Nursing and Residential Health Care Facilities	9.9%	9.7%	9.7%	9.6%	9.5%	9.5%	9.5%	9.4%	9.4%	9.4%

Modeling Reductions in Consumer Spending by Employees

In four out of the five modeled scenarios, employees are assumed to shoulder some of the new tax burden that pays for the insurance fund program. Conventional economic theory contends that consumers typically attempt to maximize utility (happiness) through consuming goods and services subject to budget constraints. Given this framework, added tax burdens placed on workers (who are also consumers) means that workers' budget constraints are tightened, permitting them to consume less than they otherwise would. We modeled reductions in consumer spending by decreasing spending on goods and services sold in Colorado by the total

dollar amount that wages and salaries of employees (both private sector and public sector) were decreased. The reductions were spread across industry categories according to weights contained in the REMI model based on historical spending patterns of goods and services sold in Colorado. Reductions in spending for each year were set equal to the exact amount that wages and salary were reduced for that year so that intertemporal considerations related to consumer behavior did not factor into the analysis (*i.e.*, the budget constraints on consumers are binding and the net amount of borrowing or saving by consumers in all time periods equals zero).

Forecast Results: Employment, Production, Income, and Population Effects of Implementing HB 18-1001

Based on the modeling framework and assumptions described above, PI+ forecasts that irrespective of how the insurance fund is finances, the paid family and medical leave program would have a substantial detrimental impact on the Colorado economy as measured by employment, production, personal income, and state competitiveness. Tax reductions intended to offset the decrease in government spending when public sector employees bear some of the program's financing costs mitigate the negative impact the program would have on the state economy. However, the presence of reduced personal taxes proves insufficient to prevent substantial damage to the Colorado economy due to the paid family and medical leave program.

Setting aside any possible tax adjustments, a paid family and medical leave program that is employee-financed through reductions in wages and salary has the worst impact on the economy in terms of employment shortfalls relative to the baseline economic forecast. The peak employment gap occurs toward the middle of the forecast window for this scenario. The REMI model forecasts that Colorado employment will fall by nearly 23,000 jobs in 2023 if an employee-financed program is implemented (**Table 8**). The damage done by a strictly employer-financed program is forecast to be slightly less with the employment gap largest toward the end of the forecast window. The model forecasts that if an employer-financed program was implemented, there would be 19,600 fewer jobs in 2028 than if the program was not implemented. A program half-financed by employers and half-financed by employees produces fewer job losses, although the employment gap remains substantial. Throughout 2020 to 2029, the employment gap is projected to average 13,400 fewer jobs in the 50/50 split financing scenario. Naturally, tax reductions in cases where public sector employees shoulder some of the financing burden reduce the economic pain. The peak employment gap for a strictly employee-financed program with tax adjustments is forecast to be 18,100 fewer jobs. For a 50/50 employer/employee split financing scenario, tax adjustments reduce the peak employment gap to just over 12,600 jobs lost.

Table 8: Forecast Changes to CO Employment Due to Implementing a Paid Family and Medical Leave Policy: 2020 to 2029

Scenario	Variable	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Employer Payroll Tax	Total Employment	-4,481	-11,020	-14,565	-16,971	-18,408	-19,165	-19,534	-19,614	-19,634	-19,591
	Private Sector Employment	-2,344	-6,554	-9,784	-11,897	-13,101	-13,686	-13,915	-13,900	-13,853	-13,762
	Public Sector Employment	-2,137	-4,466	-4,781	-5,073	-5,307	-5,479	-5,619	-5,714	-5,781	-5,829
Reduce Wages and Salary (No Tax Reduction)	Total Employment	-9,956	-21,117	-22,674	-22,999	-22,379	-21,163	-19,878	-18,605	-17,547	-16,702
	Private Sector Employment	-7,686	-16,360	-17,601	-17,712	-16,977	-15,728	-14,445	-13,208	-12,203	-11,413
	Public Sector Employment	-2,269	-4,758	-5,073	-5,288	-5,402	-5,434	-5,433	-5,397	-5,344	-5,289
Reduce Wages and Salary (With Tax Reduction)	Total Employment	-7,990	-16,864	-17,967	-18,139	-17,592	-16,583	-15,522	-14,467	-13,577	-12,855
	Private Sector Employment	-5,818	-12,363	-13,258	-13,289	-12,674	-11,660	-10,614	-9,602	-8,768	-8,102
	Public Sector Employment	-2,173	-4,501	-4,709	-4,850	-4,918	-4,923	-4,908	-4,865	-4,809	-4,753
50-50 Employer-Employee Split (No Tax Reduction)	Total Employment	-5,040	-11,507	-13,820	-15,086	-15,527	-15,419	-15,103	-14,654	-14,258	-13,924
	Private Sector Employment	-3,867	-9,003	-11,052	-12,108	-12,401	-12,202	-11,824	-11,345	-10,936	-10,598
	Public Sector Employment	-1,172	-2,505	-2,768	-2,978	-3,126	-3,217	-3,278	-3,308	-3,322	-3,326
50-50 Employer-Employee Split (With Tax Reduction)	Total Employment	-4,059	-9,388	-11,476	-12,668	-13,146	-13,141	-12,937	-12,597	-12,285	-12,013
	Private Sector Employment	-2,935	-7,012	-8,890	-9,907	-10,260	-10,178	-9,920	-9,554	-9,229	-8,954
	Public Sector Employment	-1,124	-2,377	-2,586	-2,761	-2,885	-2,963	-3,017	-3,044	-3,056	-3,059

As with employment, both real gross domestic product and real output for the state are forecast to fall below the baseline trajectory.[12] The forecast changes to patterns of production mirror those of employment. In the case of program financed only by an employee-side payroll tax, the real GDP and real output gaps are forecast to grow as large as $2.2 billion and $3.7 billion, respectively, in 2023 (**Table 9**). For a strictly employer-financed program with no tax adjustments, the real GDP gap would peak in 2028 with a $1.9 billion shortfall, while the real output gap would peak at $3.2 billion in 2027. The 50/50 employer/employee split financing scenario again results in reduced, yet still substantial, production losses. Absent tax adjustments, the real GDP gap is forecast to peak at $1.5 billion in 2025. The real output gap is forecast to peak at $2.6 billion that same year.

Cumulatively, the real GDP loss from implementing a paid family and medical leave program could exceed $19 billion from 2020 to 2029. This loss is forecast to occur in the case of an employee-financed program with no tax adjustments. In the fully employer-financed scenario, the cumulative real GDP loss if forecast to be $15 billion, while the cumulative real GDP loss in the 50/50 employer-employee split scenario (with no tax adjustments) is forecast to be $13.5 billion. Tax cuts that complement the reductions in state government spending and maintain revenue neutrality in cases where employees at least partially finance the program limit the negative impact on production. Still, the least worst outcome among these scenarios is a cumulative real GDP loss of $11.5 billion over the ten-year window in the case of a 50/50 employer/employee split with tax adjustments. The forecast outcomes for cumulative real output lost mirror those for real GDP and range from a low of $19.7 billion (50/50 employer/employee split with tax adjustments) over the ten-year period to a high of $32.1 billion (100 percent employee-financed).

[12] Gross domestic product refers to the market value of final goods and services produced in an economy during a given period. It differs from output which includes not just the value of final goods and services, but also the value of intermediate goods and raw materials that are produced or sourced earlier in the production process. Output serves as a proxy for sales.

Table 9: Forecast Changes to CO Real Gross Domestic Product and Real Output Due to Implementing a Paid Family and Medical Leave Policy (Billions of 2015 Dollars): 2020 to 2029

Scenario	Variable	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Employer Payroll Tax	Real GDP	-$0.36B	-$0.91B	-$1.25B	-$1.50B	-$1.67B	-$1.77B	-$1.84B	-$1.88B	-$1.91B	-$1.95B
	Real Output	-$0.62B	-$1.57B	-$2.15B	-$2.58B	-$2.85B	-$3.03B	-$3.15B	-$3.22B	-$3.10B	-$3.01B
Reduce Wages and Salary (No Tax Reduction)	Real GDP	-$0.92B	-$1.98B	-$2.16B	-$2.23B	-$2.21B	-$2.13B	-$2.03B	-$1.94B	-$1.86B	-$1.80B
	Real Output	-$1.54B	-$3.32B	-$3.62B	-$3.72B	-$3.68B	-$2.63B	-$3.38B	-$3.22B	-$3.10B	-$3.01B
Reduce Wages and Salary (With Tax Reduction)	Real GDP	-$0.75B	-$1.61B	-$1.74B	-$1.79B	-$1.76B	-$1.70B	-$1.62B	-$1.54B	-$1.48B	-$1.43B
	Real Output	-$1.26B	-$2.69B	-$2.92B	-$2.99B	-$2.95B	-$2.84B	-$2.71B	-$2.58B	-$2.47B	-$2.40B
50-50 Employer-Employee Split (No Tax Reduction)	Real GDP	-$0.47B	-$1.08B	-$1.31B	-$1.46B	-$1.53B	-$1.54B	-$1.54B	-$1.52B	-$1.51B	-$1.50B
	Real Output	-$0.79B	-$1.83B	-$2.23B	-$2.47B	-$2.59B	-$2.62B	-$2.61B	-$2.59B	-$2.57B	-$2.56B
50-50 Employer-Employee Split (With Tax Reduction)	Real GDP	-$0.38B	-$0.89B	-$1.10B	-$1.23B	-$1.30B	-$1.33B	-$1.33B	-$1.32B	-$1.32B	-$1.32B
	Real Output	-$0.65B	-$1.52B	-$1.88B	-$2.11B	-$2.22B	-$2.27B	-$2.28B	-$2.26B	-$2.26B	-$2.26B

The forecast reductions in employment and worse performance by firms go together with projected reductions in personal income since there are fewer workers on payroll and the change in the ratio of labor supply to labor demand places downward pressure on wages. The decreases in aggregate personal income and real disposable income are given below in **Table 10**. As with the tables showing forecasts for employment, GDP, and output, the figures in the table should be read as "gaps" between a path of the economy in which the paid family and medical leave program is implemented and the REMI model's baseline forecast. Barring any tax adjustments, the personal income gap at the end of ten years ranges from $2.2 billion below the baseline forecast (in the case of a 50/50 employer/employee split) to $3.7 billion below the baseline forecast (in the case of a fully employee-financed program). Again, tax adjustments help abate some of the loss in personal income with the least worst scenario being the case of a paid leave program completely financed by employers.

Table 10: Forecast Changes to CO Personal Income Due to Implementing a Paid Family and Medical Leave Policy (Billions of Current Dollars): 2020 to 2029

Scenario	Variable	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Employer Payroll Tax	Personal Income	-$0.24B	-$0.67B	-$1.01B	-$1.28B	-$1.50B	-$1.67B	-$1.80B	-$1.91B	-$2.01B	-$2.11B
	Real Disposable Personal Income	-$0.59B	-$1.28B	-$1.49B	-$1.66B	-$1.77B	-$1.86B	-$1.93B	-$1.97B	-$2.02B	-$2.06B
Reduce Wages and Salary (No Tax Reduction)	Personal Income	-$1.23B	-$2.69B	-$3.01B	-$3.24B	-$3.40B	-$3.48B	-$3.54B	-$3.59B	-$3.65B	-$3.71B
	Real Disposable Personal Income	-$0.91B	-$1.89B	-$2.02B	-$2.10B	-$2.14B	-$2.13B	-$2.11B	-$2.08B	-$2.06B	-$2.05B
Reduce Wages and Salary (With Tax Reduction)	Personal Income	-$1.10B	-$2.40B	-$2.65B	-$2.84B	-$2.96B	-$3.04B	-$3.10B	-$3.14B	-$3.20B	-$3.26B
	Real Disposable Personal Income	-$0.68B	-$1.42B	-$1.51B	-$1.57B	-$1.59B	-$1.58B	-$1.56B	-$1.54B	-$1.52B	-$1.51B
50-50 Employer-Employee Split (No Tax Reduction)	Personal Income	-$0.59B	-$1.36B	-$1.64B	-$1.86B	-$2.01B	-$2.12B	-$2.21B	-$2.28B	-$2.35B	-$2.42B
	Real Disposable Personal Income	-$0.64B	-$1.37B	-$1.51B	-$1.62B	-$1.69B	-$1.73B	-$1.75B	-$1.77B	-$1.78B	-$1.80B
50-50 Employer-Employee Split (With Tax Reduction)	Personal Income	-$0.53B	-$1.22B	-$1.46B	-$1.65B	-$1.80B	-$1.90B	-$1.99B	-$2.06B	-$2.12B	-$2.19B
	Real Disposable Personal Income	-$0.53B	-$1.13B	-$1.26B	-$1.36B	-$1.42B	-$1.46B	-$1.48B	-$1.50B	-$1.51B	-$1.53B

*Personal income figures are in billions of current dollars. Real income figures are in billions of 2015 dollars.

The above negative impacts to employment, production, and income in Colorado due to a statewide paid family and medical leave program naturally makes Colorado, all else equal, less competitive economically and a less attractive place to do business relative to other states. This fact is reflected in forecast trends to the state's labor force and population (**Table 11**). The model forecasts substantial out-migration from the state ranging from 9,830 net fewer residents who would have left the state by 2029 to a high of 34,255 net fewer residents in 2029. Thousands of individuals are also forecast to exit the labor force whether due to failing to seek employment because of worse economic conditions (even though they may remain Colorado residents) or because they leave the state entirely, lured by better employment prospects in other parts of the country.

Table 11: Forecast Changes to CO Population and Labor Force Due to Implementing a Paid Family and Medical Leave Policy: 2020 to 2029

Scenario	Variable	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Employer Payroll Tax	Population	-2,390	-7,096	-11,697	-16,120	-20,180	-23,811	-27,001	-29,756	-32,180	-34,255
	Labor Force	-2,039	-5,567	-8,455	-11,095	-13,410	-15,307	-16,870	-18,183	-19,125	-19,977
Reduce Wages and Salary (No Tax Reduction)	Population	-2,074	-5,953	-9,405	-12,470	-14,971	-16,873	-18,260	-19,205	-19,839	-20,210
	Labor Force	-1,842	-5,052	-7,537	-9,483	-10,935	-11,818	-12,277	-12,466	-12,396	-12,280
Reduce Wages and Salary (With Tax Reduction)	Population	-1,072	-3,082	-4,910	-6,556	-7,865	-8,792	-9,394	-9,717	-9,853	-9,830
	Labor Force	-1,011	-2,858	-4,391	-5,567	-6,426	-6,896	-7,054	-7,009	-6,803	-6,574
50-50 Employer-Employee Split (No Tax Reduction)	Population	-1,750	-5,125	-8,337	-11,356	-14,022	-16,282	-18,161	-19,685	-20,946	-21,959
	Labor Force	-1,513	-4,135	-6,249	-8,096	-9,623	-10,764	-11,602	-12,236	-12,610	-12,931
50-50 Employer-Employee Split (With Tax Reduction)	Population	-1,249	-3,694	-6,099	-8,412	-10,484	-12,260	-13,749	-14,965	-15,979	-16,798
	Labor Force	-1,098	-3,042	-4,682	-6,146	-7,378	-8,312	-8,997	-9,517	-9,823	-10,088

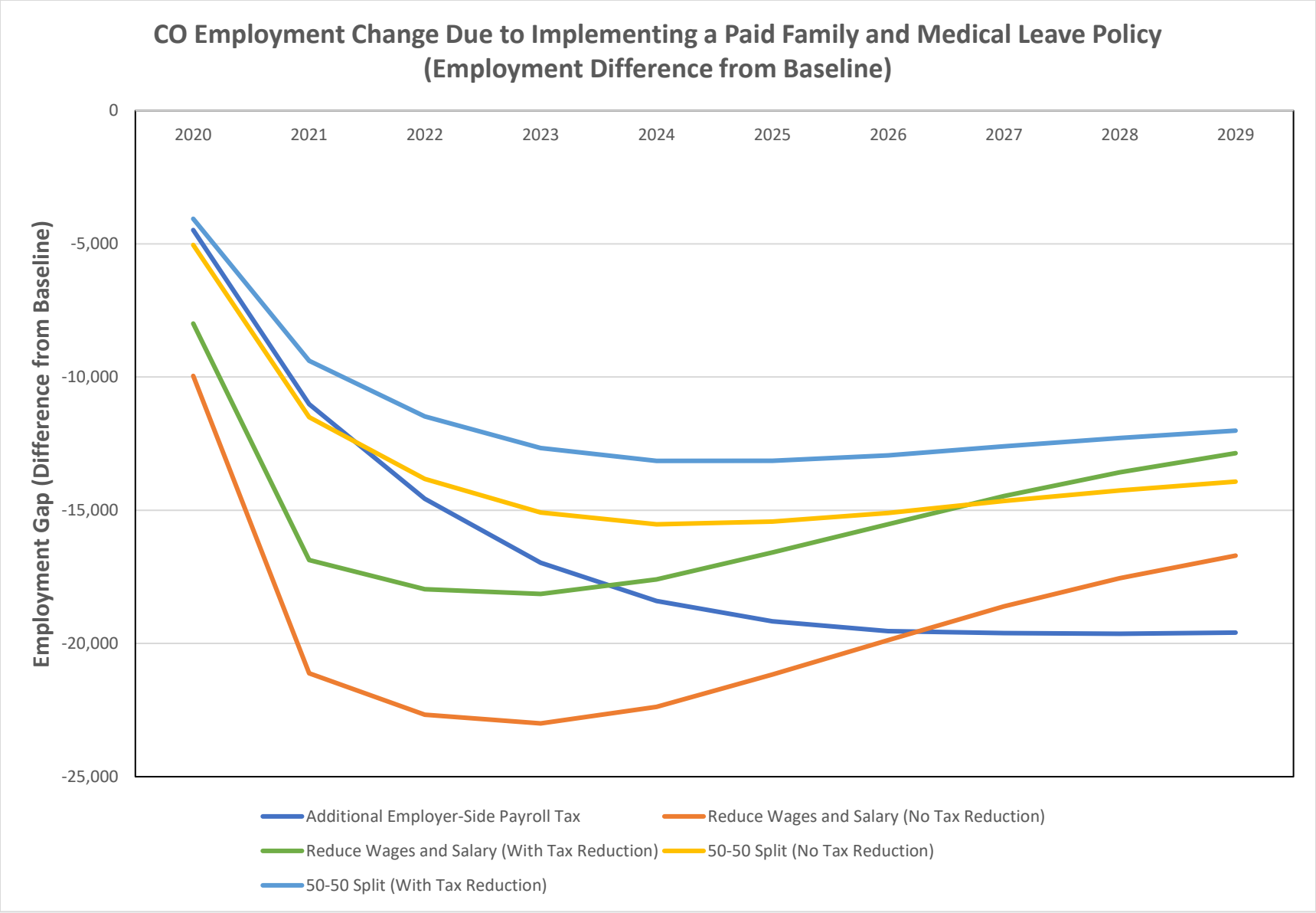
CO Employment Change Due to Implementing a Paid Family and Medical Leave Policy
(Employment Difference from Baseline)
Employment Gap (Difference from Baseline)
0
-5,000
-10,000
-15,000
-20,000
-25,000
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
Additional Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)

Figure 1

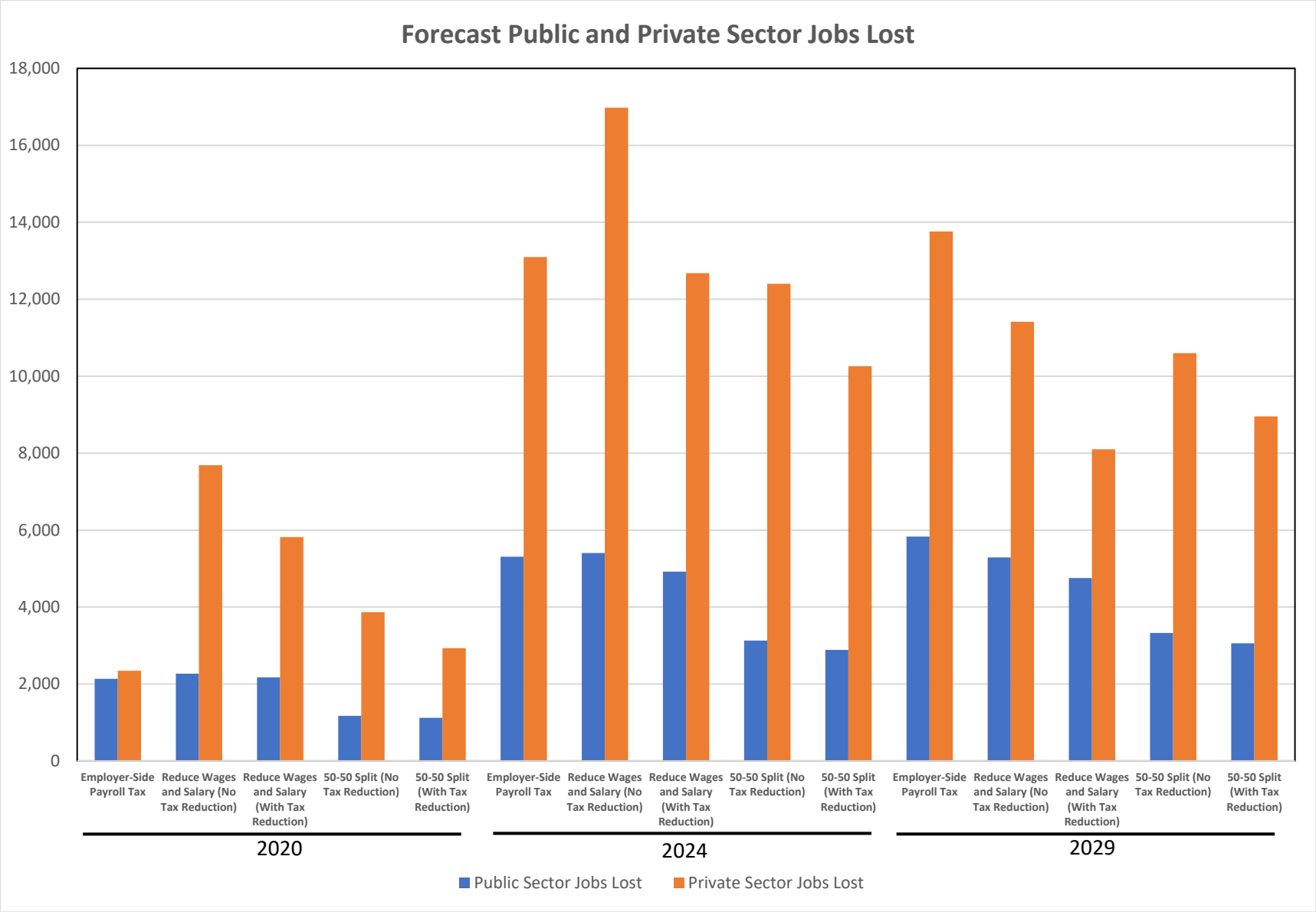
Forecast Public and Private Sector Jobs Lost
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)
Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)
Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)
2020
2024
2029
Public Sector Jobs Lost
Private Sector Jobs Lost

Figure 2

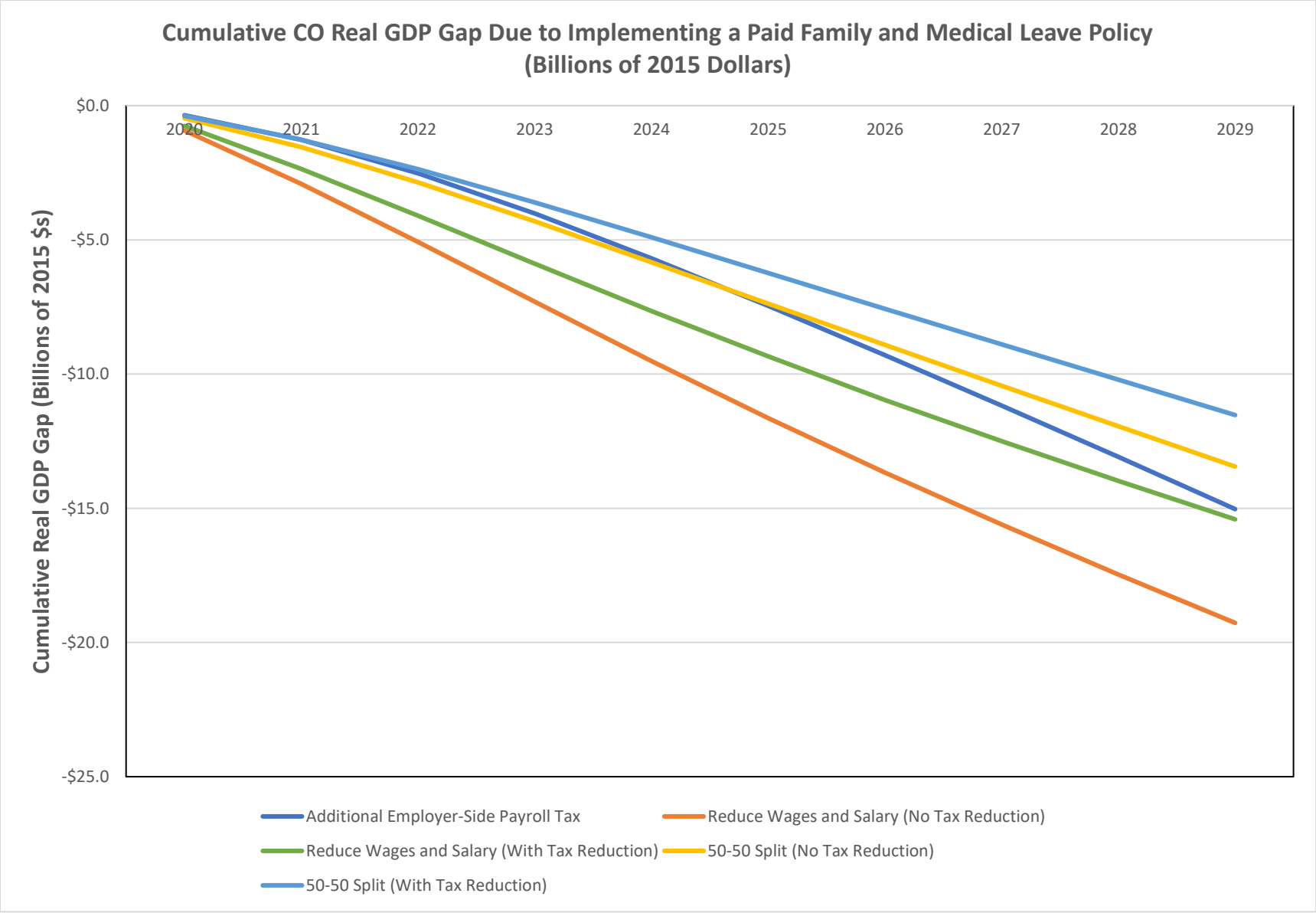
Cumulative CO Real GDP Gap Due to Implementing a Paid Family and Medical Leave Policy
(Billions of 2015 Dollars)
Cumulative Real GDP Gap (Billions of 2015 $s)
$0.0
-$5.0
-$10.0
-$15.0
-$20.0
-$25.0
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
Additional Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)

Figure 3

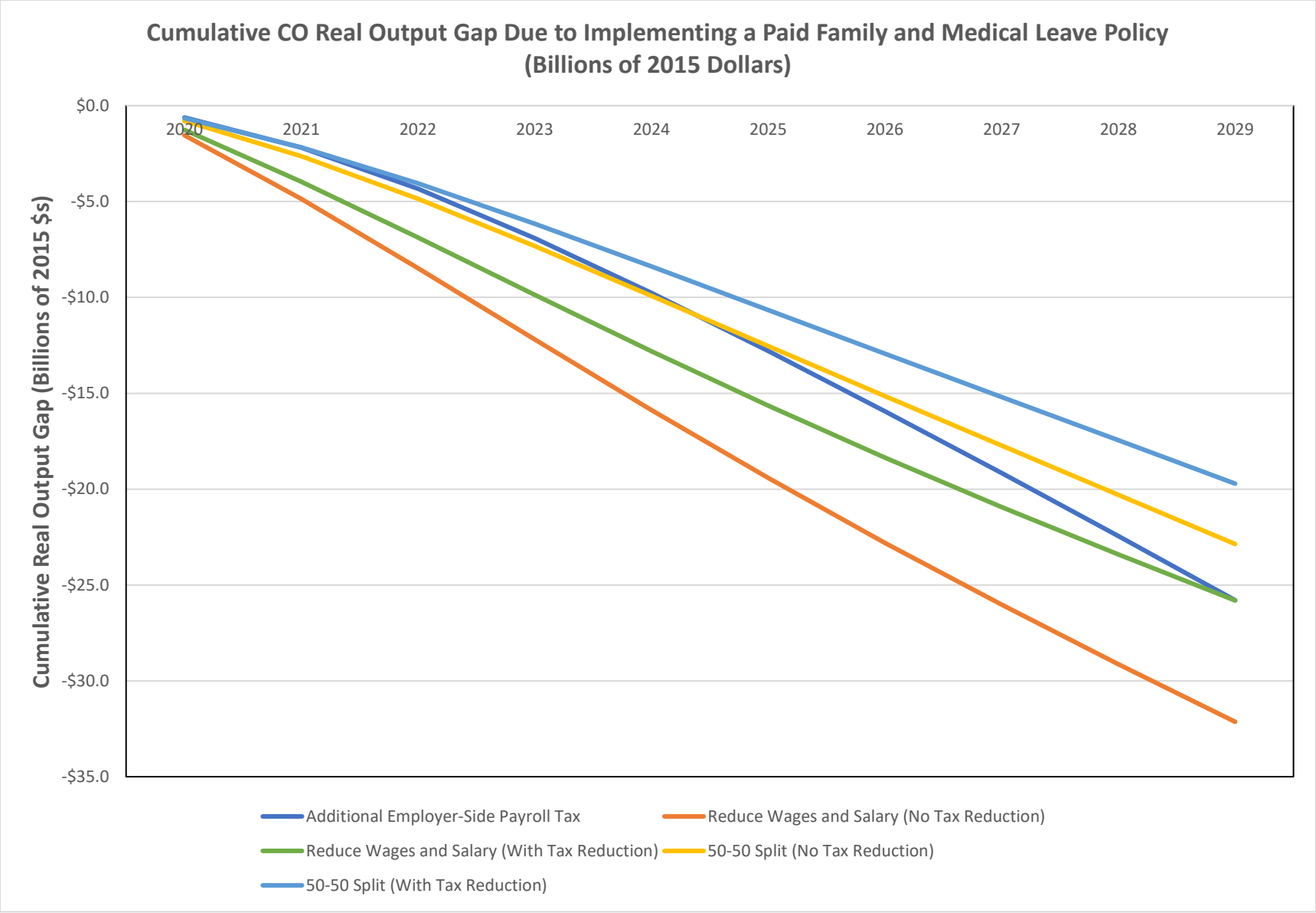
Cumulative CO Real Output Gap Due to Implementing a Paid Family and Medical Leave Policy
(Billions of 2015 Dollars)
Cumulative Real Output Gap (Billions of 2015 $s)
$0.0
-$5.0
-$10.0
-$15.0
-$20.0
-$25.0
-$30.0
-$35.0
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
Additional Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)

Figure 4

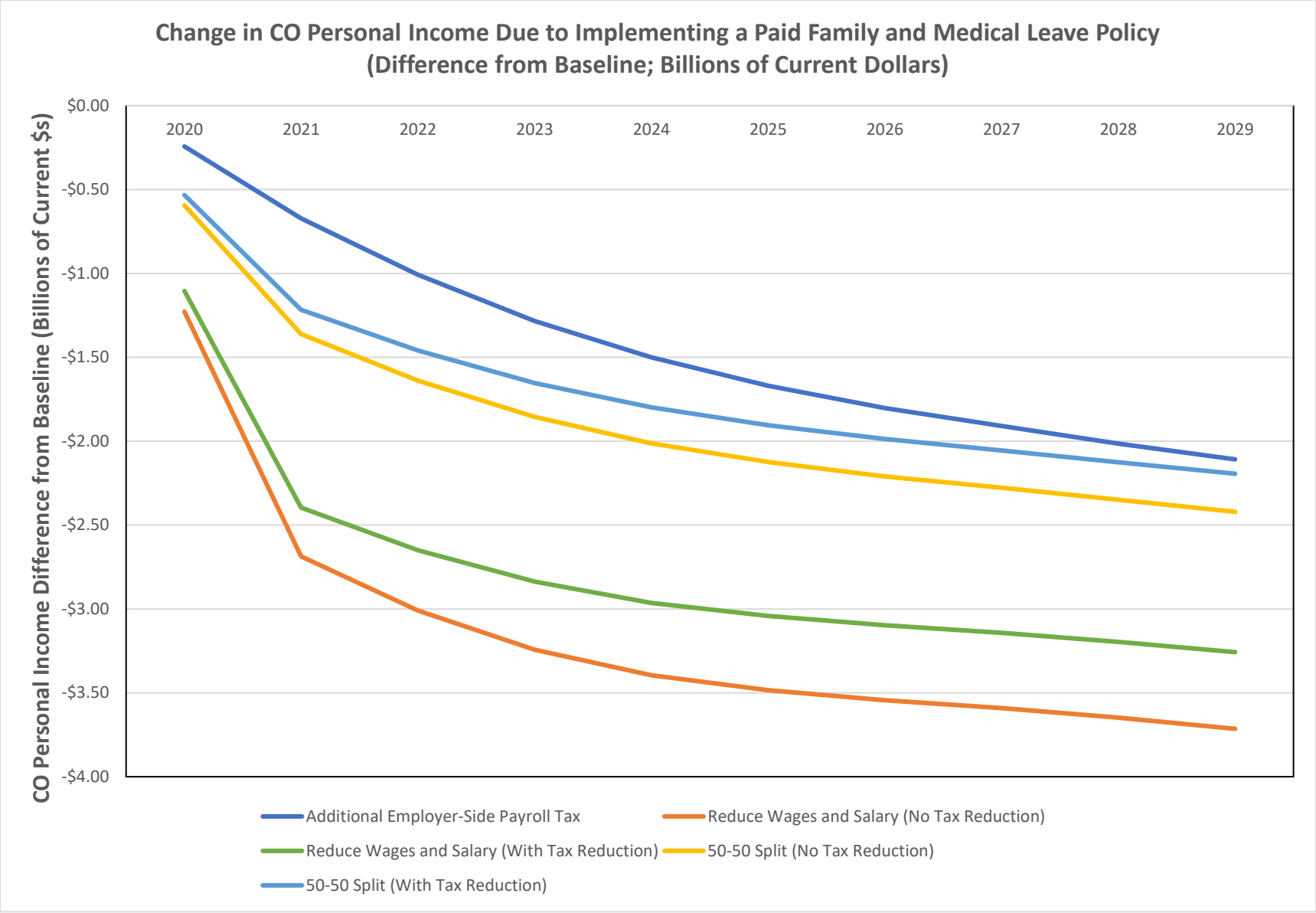
Change in CO Personal Income Due to Implementing a Paid Family and Medical Leave Policy
(Difference from Baseline; Billions of Current Dollars)
CO Personal Income Difference from Baseline (Billions of Current $s)
$0.00
-$0.50
-$1.00
-$1.50
-$2.00
-$2.50
-$3.00
-$3.50
-$4.00
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
Additional Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)

Figure 5

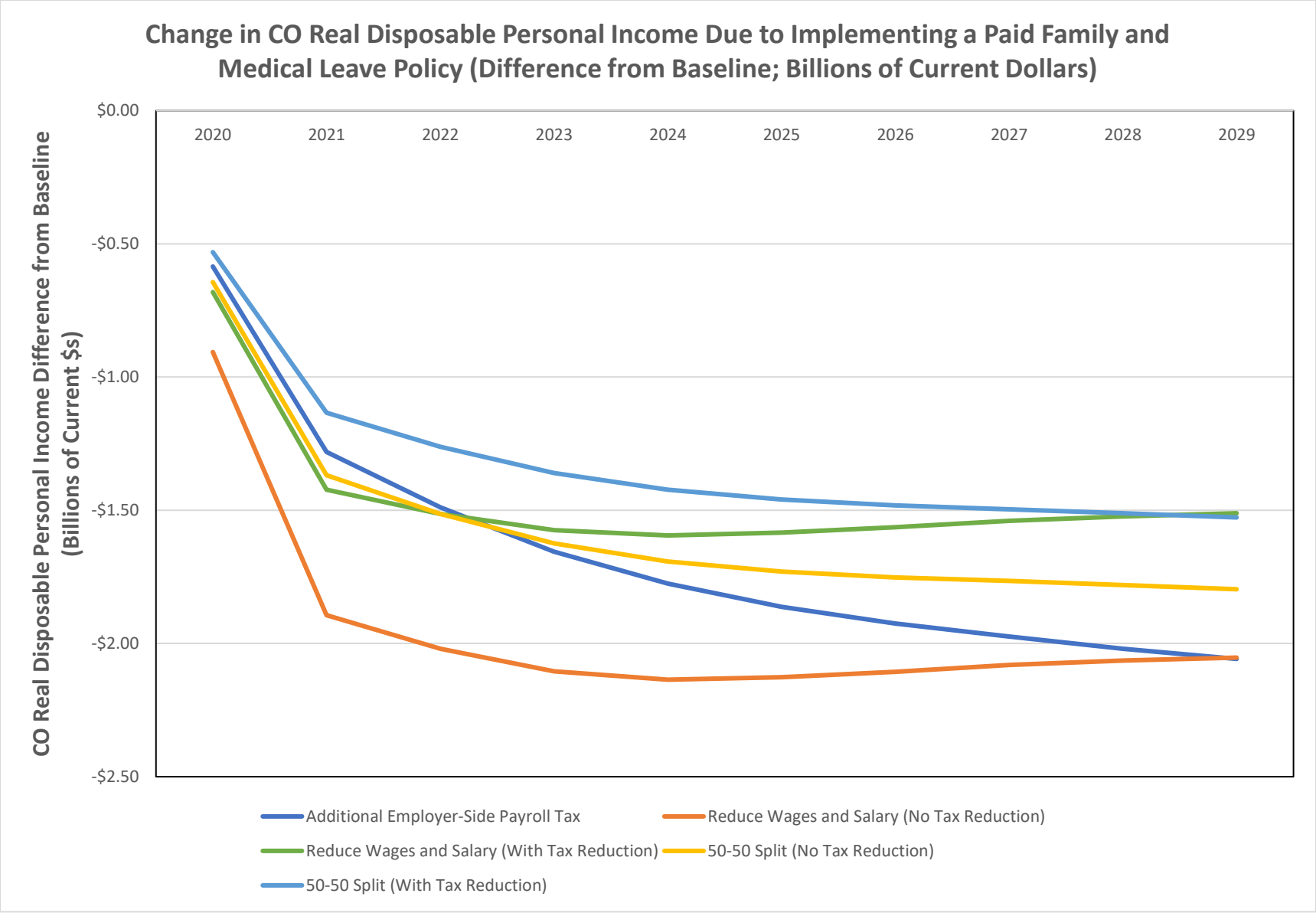
Change in CO Real Disposable Personal Income Due to Implementing a Paid Family and Medical Leave Policy (Difference from Baseline; Billions of Current Dollars)
CO Real Disposable Personal Income Difference from Baseline (Billions of Current $s)
$0.00
-$0.50
-$1.00
-$1.50
-$2.00
-$2.50
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
Additional Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)

Figure 6

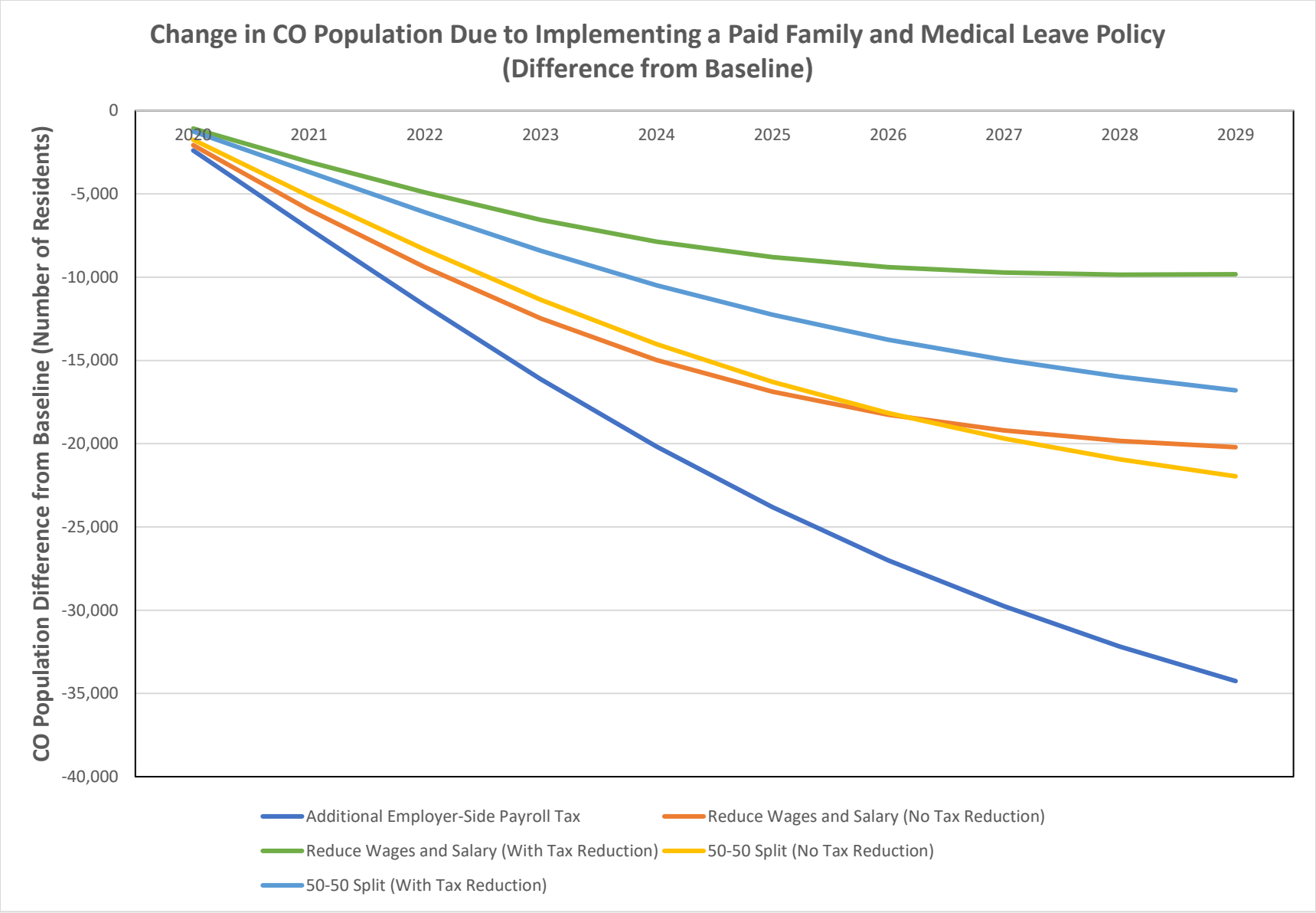
Change in CO Population Due to Implementing a Paid Family and Medical Leave Policy
(Difference from Baseline)
CO Population Difference from Baseline (Number of Residents)
0
-5,000
-10,000
-15,000
-20,000
-25,000
-30,000
-35,000
-40,000
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
Additional Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)

Figure 7

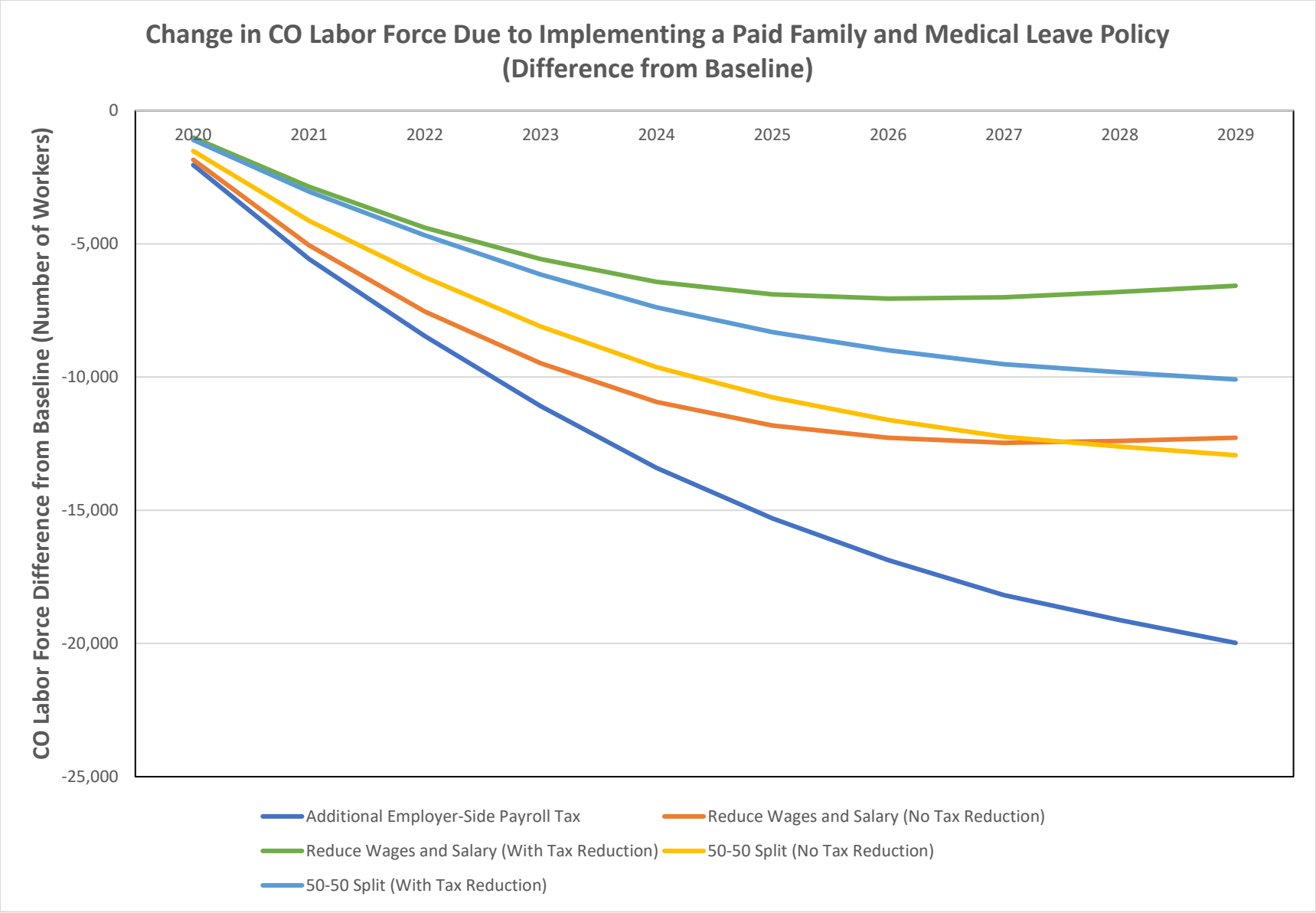
Change in CO Labor Force Due to Implementing a Paid Family and Medical Leave Policy
(Difference from Baseline)
CO Labor Force Difference from Baseline (Number of Workers)
0
-5,000
-10,000
-15,000
-20,000
-25,000
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
Additional Employer-Side Payroll Tax
Reduce Wages and Salary (No Tax Reduction)
Reduce Wages and Salary (With Tax Reduction)
50-50 Split (No Tax Reduction)
50-50 Split (With Tax Reduction)

Figure 8

Summary

This report has quantified the economic impact that implementing a payroll tax-financed paid family and medical leave program would have on the Colorado economy. Three ways in which the payroll tax could be financed were examined: (1) a strictly employer-side payroll tax, (2) a strictly employee-side payroll tax, and (3) a scenario in which employers and employees evenly split the cost of the tax. For the cases in which employees shoulder some of the financial burden, scenarios that allowed for tax reductions so that the program is revenue neutral were also modeled. In all cases, the paid family and medical leave program is forecast to do substantial harm to the Colorado economy. Economic impacts vary depending on the exact funding details, but the PI+ model forecasts that a program financed by an employee-side payroll tax as stipulated in House Bill 18-1001 could result in nearly 23,000 lost jobs in Colorado, a cumulative loss of $19.3 billion in real state gross domestic product, a reduction of $3.7 billion in personal income of Colorado residents, and out-migration from the state in excess of 20,000 people.