

# Methodology

## Estimating the Number of Beneficiaries of the Commuter Tax Benefits

A survey was conducted in the mid-1990s by Elrick & Lavidge for the Barents Group of KPMG Peat Marwick as a subcontractor to the Association for Commuter Transportation (ACT), which was working on a project for the U.S. Department of Transportation and the U.S. Environmental Protection Agency. The results of that survey (which we will henceforth call the “ACT Study”) have been used ever since by transportation researchers and analysts to estimate the value of employer-provided parking.<sup>92</sup>

To estimate the number of beneficiaries of the parking benefit, we used Table C of the Appendix to the study and divided the annual value of parking under the “reported tax value,” “amount charged,” and “nearby commercial rates” categories by the average annual cost of parking in each category to arrive at an estimate of the number of employee parking spaces with a non-zero value. The number of employee parking spaces with a market value of zero was estimated by dividing the annual value of parking in the “cost (zero value reported)” category by the annual cost of parking imputed by ACT for these spaces. The number of spaces with a non-zero value was divided by the total of zero-value and non-zero value spaces to arrive at the 37 percent estimate of the number of spaces with a non-zero value. Parking spaces for which ACT imputed a value due to a lack of response to the survey were excluded from this calculation. We assumed that the 37 percent figure was also representative of the share of automobile commuters (solo and in carpools) who had access to parking spaces of non-zero value at work and, therefore, multiplied the 37 percent figure by the number of U.S. workers who drive to work (from the U.S. Census Bureau’s 2012 American Community Survey, 1-year data) to arrive at the estimated number of workers who park at spaces with a market value.

To arrive at the total number of beneficiaries, we multiplied this figure by 94 percent, which is

the share of workers assumed to receive parking benefits from their employers (as opposed to paying for unreimbursed parking themselves). This figure was arrived at by multiplying the percentage of employers of various sizes offering parking benefits (from the ACT study) by the number of workers in firms of those size categories in 2011 (a number from the U.S. Census Bureau, *Statistics of U.S. Businesses: U.S. & states, totals*, an Excel file downloaded from [www.census.gov/econ/susb/](http://www.census.gov/econ/susb/) on June 25, 2014). The percentage of employers in the “5–25 employees” category in the ACT study was applied to the “5–20 employees” category in the Census Bureau data.

The number of recipients of transit tax credits was assumed to be 2.7 million, per *Commuter Benefits Work for Us* (2011), an online report prepared by Commuter Benefits Work for Us, a coalition of transit advocates.

## Estimating the Cost of the Commuter Tax Benefits

The \$7.3 billion cost of the parking tax benefit was estimated as follows:

### PARKING

The ACT Study concluded that the value of employer-provided parking (in 1996 dollars) was \$48 billion, of which \$35.8 billion was absorbed by employers, with employees paying the balance of the cost. The study further estimated that \$31.5 billion of the value of employer-provided parking was excluded from income taxation. Of the total value of employer-provided parking, however, \$16.6 billion represented the value of parking for which a zero tax value had been reported (but to which the researchers assigned a cost-based valuation), while an additional \$9.9 billion in value was imputed to firms that did not respond to the survey.

To align the value of tax-free parking in the ACT Study with the IRS definition of the market value of parking, we subtracted \$20.3 billion from the value of tax-free parking reported in the study, representing the \$16.6 billion of zero-tax-value parking plus a proportional share of the \$9.9 billion

in imputed value believed to represent parking that had zero tax value. These calculations resulted in an estimate of \$11.2 billion (in 1996 dollars) of tax-free employer-provided parking. We then applied adjustment factors for inflation (based on the Bureau of Labor Statistics’s Consumer Price Index Calculator) and growth in civilian employment between 1996 and 2012 (again from the Bureau of Labor Statistics) to arrive at a 2012 estimate of \$18.4 billion in employer-provided, tax-free parking.

To estimate the cost of the parking tax benefit in forgone federal income tax revenue, we multiplied this figure by the average marginal federal income tax rate for wage income of 21.43 percent in 2012 (from the National Bureau of Economic Research, *Average Marginal US Tax Rates by Income Type*, accessed at [users.nber.org/~taxsim/marginal-tax-rates/](http://users.nber.org/~taxsim/marginal-tax-rates/) on May 20, 2014). Forgone state income tax revenue was calculated based on the average marginal state income tax rate for wage income from the same source. The estimated state income tax revenue impact is based on the assumptions that a) all states define taxable income for these purposes in the same way as does the federal government and b) that the benefits are evenly distributed across the states such that the national average marginal tax rate is representative of the rate faced by those benefiting from the parking tax exclusion. To the extent that states where parking benefits are most valuable have higher state income tax rates, this method may undercount the state income tax impact. Avoided federal payroll taxes were assumed to be 7.65 percent for both employers and employees based on Federal Insurance Contributions Act (FICA) rates for 2013. We assumed that 86 percent of income is subject to the Social Security portion of FICA, per the Social Security Administration (*The Evolution of Social Security’s Taxable Maximum*, accessed at [www.ssa.gov/policy/docs/policybriefs/pb2011-02.html](http://www.ssa.gov/policy/docs/policybriefs/pb2011-02.html) on June 16, 2014).

### TRANSIT

The federal income tax savings created by the transit benefit was assumed to be \$710 million per U.S. Treasury Department data in the U.S. Office of Management and Budget’s *Analytical Perspectives*,

*Budget of the U.S. Government, Fiscal Year 2015* (March 4, 2014). These savings were divided by the average marginal federal income tax rate (from the National Bureau of Economic Research) to arrive at an estimated value of tax-free transit benefits. This figure was then multiplied by the average marginal state income tax rate and the payroll tax rates, as described above, to arrive at a total cost of the transit benefit.

## Estimating the Effects of Commuter Tax Benefits on Transportation

In evaluating the impact of the parking benefit on automobile commuting and transit use, the number of workers who benefit from the parking benefit was estimated to be approximately 42 million, derived as previously described. We assumed that all U.S. transit commuters (7 million, based on the U.S. Census Bureau’s American Community Survey 2012, 5-year data) travel to workplaces where parking would have a non-zero value and that 94 percent work in facilities that offer parking benefits. This assumption is based on the notion that transit is generally available only in areas with sufficient residential and commercial density to support it and that these locations also tend to be those where parking has a market value.

The number of workers receiving the transit benefit was estimated to be 2.7 million, using the sources previously described. The number of workers by Census division (from the 2009 National Household Travel Survey) was multiplied by the percentage of workers by Census division who reported having access to subsidized transit benefits (in the U.S. Bureau of Labor Statistics’s 2010 National Compensation Survey) to arrive at the total number of commuters at workplaces where transit benefits are available. This figure was estimated to be 9.8 million. To determine the number of driving commuters at workplaces where transit benefits are used, we subtracted 2.7 million from 9.8 million and then multiplied the remaining value by 92.4 percent, which is the share of workers who either drive alone or carpool and live and work within the same metropolitan area as reported by the U.S.

# Appendix A

## Effects of Parking and Transit Benefits under Alternative Elasticity Assumptions

Census Bureau in *Commuting in the United States: 2009* (September 2011).

We applied generic estimates of elasticity of demand with respect to price to these estimates of the number of people receiving or eligible for each subsidy. For both the transit and parking benefits, we assumed that the combined tax benefit (federal + state + the employee share of payroll) would be represented as a discount to the putative cost of the parking or transit service, plus taxes. In other words, if the combined marginal tax rate was 32.7 percent, we assumed that the benefit would be translated into a 24.6 percent reduction in the cost of parking or transit (based on avoided taxes of 32.7 percent of the cost of parking or transit divided by the sum of the avoided taxes plus the cost of parking or transit  $- 0.327 / (1 + 0.327) = 0.246$ ). In a few cities and for some transit commutes, the percentage “discount” represented by the tax subsidy will be lower than is assumed here, due to the fact that parking or transit costs exceed the maximum amount of the tax exclusion. The lack of available data about the distribution of commuter benefits across metropolitan areas, however, makes it impossible to determine the number of commuters whose employer-provided parking or transit benefits have values exceeding the statutory limit, and as a result, this factor could not be reflected in our analysis.

For the parking benefit, we used an estimate of the elasticity of commuter car trips with respect to parking price of -0.08 from Hague Consulting Group’s *TRACE Final Report* (June 30, 1999, Table 32) and a cross-elasticity of demand for public transportation trips with respect to parking price of +0.02 from the same source. Other models assume somewhat greater elasticity; the Trip Reduction Impacts of Mobility Management Strategies (TRIMMS) model developed by the Center for Urban Transportation Research at the University of South Florida estimates the elasticity of solo commuting trips with respect to parking price to be -0.158, which would result in roughly double the response to parking pricing changes compared with the value used in this report. (See Center for Urban Transportation Research, *TRIMMS User Manual v. 3.0*, undated.)

For the transit benefit, we used a value of -0.225 for the elasticity of transit ridership with regard to transit fares for rush-hour commuters, which is in the mid-range of the short-term elasticity values presented by Todd Litman in the Victoria Transport Policy Institute’s *Transit Price Elasticities and Cross-Elasticities* (Table 15, April 3, 2014). The cross-elasticity of solo travel by automobile relative to transit fares is assumed to be +0.05, based on the Center for Urban Transportation Research’s *TRIMMS User Manual v. 3.0* (Table 3, undated, citing Litman). Both represent short-term elasticity values and should be considered very conservative.

For both the parking and transit benefit, the 24.6 percent “discount” was multiplied by the appropriate elasticity values to estimate the portion of current transit or automobile commuting trips that could be attributed to the tax benefits. This was done according to the formula:  $x = y - (y / (1 + z))$ , where  $x$  is the number of commuters using that mode due to the subsidy,  $y$  is the total number of commuters currently using the mode, and  $z$  is the percentage increase or decrease in use of the mode caused by the subsidy, derived as previously described.

The estimated changes in commuter behavior resulting from the commuter tax benefits that are presented in this report are based on conservative assumptions about the degree to which changes in the price of parking and transit affect commuter mode choice. These conservative values were chosen for two reasons. First, commuting is relatively “inelastic” with respect to price, particularly in the short run—in other words, commuters tend to be “locked in” to their method of commuting to work and are not able to adjust their behavior quickly in response to changes in price. Second, the type of price change being evaluated in this report—a change in income tax liability resulting from the classification of certain commuting expenses as pre-tax income—is indirect and often barely perceptible to the recipient. It is safe to surmise that many Americans who receive valuable pre-tax parking from their employers for free are unaware that they are receiving a tax benefit at all. As a result, commuters may not be aware of how changes in their commuting behavior affect the tax savings they receive and, therefore, may be unable or unwilling to adjust their behavior in order to reap those savings.

As described earlier in the report (see pages 14 and 25), there have, however, been many cases in which changes in parking pricing and transit benefits have yielded shifts in commuter behavior well in excess of the changes estimated in this report. What would the results look like if we supposed that drivers and transit users were more sensitive to changes in price than the elasticity values used in this report assume?

To answer this question, we ran a sensitivity analysis using alternative elasticity values from transportation literature.

In evaluating the parking benefit, we used an elasticity value of -0.158, obtained from the TRIMMS model developed by the Center for Urban Transportation Research at the University of South Florida. This value reflects a near-doubling of the response to price changes compared with the value used elsewhere in this analysis (-0.08). For the transit benefit, we used an elasticity value of -0.45, which is the mid-point of suggested values for short-term elasticity of transit use with respect to price for suburban commuters from Todd Litman of the Victoria Transport Policy Institute in *Transit Price Elasticities and Cross-Elasticities* (April 3, 2014). This is approximately double the response assumed in this report, which is based on the midpoint of values for peak-period travel presented in this same source.

Litman’s *Transit Price Elasticities and Cross-Elasticities* also suggests possible alternative values for cross-elasticities. For the purposes of this sensitivity analysis, we use a cross-elasticity value for transit use with respect to automobile operating costs of +0.1 (compared with the +0.02 value used in the main analysis) and a cross-elasticity estimate for automobile travel with respect to transit costs of +0.065 (compared with the value of +0.05 used in the main analysis).

The figures presented in Table A-1, as with those presented in the body of the report, represent only the response of employees to changes in the tax treatment of parking and transit use; they do



# Appendix B

## A Brief History of Commuter Tax Benefits

not reflect changes that employers might make to expand or contract access to parking or transit benefits following a change in the tax treatment of commuter expenses.

Elasticity of demand with respect to price varies depending on the specific circumstances at play. The lack of rigorous analysis of commuter tax benefits and accurate, up-to-date data about the number of workers who benefit renders any attempt to quantify the impact of the subsidies a rough estimate.

The results of this sensitivity analysis suggest that, under any plausible assumptions of elasticity, the current parking tax benefit puts many more cars on the road than the current transit benefit removes. Further, it shows that the contribution that the parking tax benefit makes to congestion in major American cities may be even greater than is estimated in this report. Table A-1 below compares the results of the sensitivity case with the main analysis.

	Parking Benefit Main Analysis	Sensitivity Case	Transit Benefit Main Analysis	Sensitivity Case
Change in automobile commute trips (thousand)	820	1,494	-82	-107
Change in transit commute trips (thousand)	-32	-165	142	270
Change in automobile VMT (million)	4,600	8,383	-459	-599
Percentage increase in auto commutes	2.0%	3.9%		
Percentage increase in transit commutes			5.5%	11.1%

TABLE A-1:  
EFFECT OF TRANSIT AND  
PARKING UNDER ALTERNATIVE  
ESTIMATES OF RESPONSE TO  
CHANGES IN PRICE

### THE IRS MOVES TO TAX FRINGE BENEFITS AND CONGRESS REACTS

Until the mid-1970s, employer-provided parking located at a workplace had not been considered taxable compensation.<sup>93</sup> On November 22, 1976, however, the Internal Revenue Service (IRS) issued Revenue Ruling 76-453, which drew on precedent established in a series of United States Tax Court rulings to propose the taxation of employer-provided transportation benefits of all types.<sup>94</sup> The IRS's move was a reaction to the rapid expansion in the number and value of employer-provided fringe benefits in the decades following World War II.<sup>95</sup> The IRS and, later, Congress grew concerned that, according to the Congressional Research Service, "without clear boundaries on the use of these fringe benefits, new approaches could emerge that would further erode the tax base and increase inequities among employees in different businesses and industries."<sup>96</sup>

Transportation benefits were a key element of the IRS ruling. "Where a taxpayer incurs transportation expenses in going between the taxpayer's residence and place of work," ruled the IRS, "such expenses are nondeductible commuting expenses, regardless of the nature of the work engaged in, the distance traveled, the mode of transportation used, or the degree of necessity."<sup>97</sup> One hypothetical example described the treatment of Employee E, who "drives to only one place of work and then returns home." In that situation, the IRS noted, "no deduction is allowable for the cost of such transportation, including any parking costs incurred" (emphasis added).

The IRS ruling for the first time raised the possibility that the value of employer-provided parking as a "fringe benefit," or job perk not delivered in the form of cash wages, would become subject to IRS taxation as employee income.

The ruling was originally to take effect December 31, 1976, but its effective date was postponed, and on September 23, 1977, its implementation suspended indefinitely.<sup>98</sup> In 1978, 1979, and 1981, Congress passed a series of

moratoriums effectively stalling the enforcement of the IRS's new interpretation of U.S. tax law.<sup>99</sup>

During congressional debates over the various moratorium bills, members of Congress expressed outrage over perceived IRS overreach, an urgent desire for congressional action to formalize treatment of fringe benefits, and concerns about the fairness of the tax system.

Senator Bob Dole of Kansas observed in 1978 that "there is a lack of uniform treatment of taxpayers who receive different types of benefits, even though the benefits may have approximately the same economic value"<sup>100</sup> Representative Robert Boland of Massachusetts concurred, stating that "[i]f we are to include fringe benefits in taxable income, let us at least adopt a uniform policy."<sup>101</sup>

Establishing a level playing field for all taxpayers was also a concern. Representative Garry Brown of Michigan noted that workers with negotiated contracts often received fringe benefits such as medical and legal services "without having them be treated as income, whereas the non-negotiated contract person, who has the same expenses, is unable to take them as deductions . . . I think there are gross inequities in this area."<sup>102</sup>

With regard to the exclusion for employer-provided parking, some members of Congress worried that including such commuter benefits in the definition of income would place a disproportionate burden on working Americans. "In my own area," said Representative William Cotter of Connecticut during debate on the 1978 moratorium, "every major company provides parking facilities for its workers and under the IRS proposal these individuals would have increased tax liability for this benefit which has never been taxed in the past."<sup>103</sup>

"[T]his practice on the part of the IRS," said Representative Barber Conable of New York, "is potentially a way of raising substantial additional taxes, not at the expense of the wealthy, but at the expense of the working class American."<sup>104</sup> "Consider the value of an employer-furnished parking space," he continued. "Percentage wise it

does not add much to a high-paid administrator's wage. It may add 10 percent to the wage of a janitor. . . . The effect of what the IRS has been trying to do is to increase by greater measure the taxable income of working Americans rather than that of the very wealthy."<sup>105</sup>

Not all members of Congress agreed that the IRS's efforts to limit tax-free fringe benefits disproportionately affected working Americans. "Too often," argued Representative Glenn Anderson of California, "special interests are the beneficiaries of special privileges in our tax codes . . . I would doubt that too many people trying to get by on \$4 an hour benefit from extraordinary fringe benefit packages."<sup>106</sup>

There was little to no discussion in these congressional debates about the relevance of the tax treatment of employer-provided commuter benefits to the transportation system.

## CONGRESS ESTABLISHES THE RULES, GIVES PARKING SPECIAL TREATMENT

In 1984, Congress adopted the Deficit Reduction Act, which codified and preserved the tax exemption for employer-provided parking.<sup>107</sup> Under the act, Congress excluded the value of employer-provided parking from the calculation of taxable income. In the wake of that act,<sup>108</sup> the IRS ruled that employers could provide tax-free transit benefits not exceeding \$15 per month.<sup>109</sup> The transit exclusion was justified as a *de minimis*—that is, too small to be counted—fringe benefit.<sup>110</sup>

In debate over the bill, transportation policy concerns again took a distant backseat to concerns about maintaining existing practices while establishing simplicity and fairness in the tax code. "The inequities, confusion, and administrative difficulties for businesses, employees, and the IRS resulting from this situation," warned the House Ways and Means Committee report on the bill, "have increased substantially in recent years."<sup>111</sup>

While the congressional rhetoric surrounding the 1984 Act centered on consistency, employer-provided parking was singled out for special treatment.

First, employer-provided parking was specially categorized as a "working condition fringe benefit." Generally, to be classified as a working condition fringe benefit, an employer-provided benefit would have to have qualified as a deductible business expense *had the employee purchased the item or service him- or herself*. Employer-provided and employer-paid parking would not have met this condition, as employees must generally pay taxes on income used to pay the costs of getting to and from work, including parking. However, the 1984 Act specifically identified employer-provided parking as a working condition fringe benefit, enabling those expenses to be excluded from the calculation of taxable income.<sup>112</sup>

Second, as a working condition fringe benefit, parking was not subject to the nondiscrimination principle that typically applies to fringe benefits. Under nondiscrimination rules, tax-exempt fringe benefits cannot be given exclusively to a certain set of highly-paid employees and still remain tax exempt. "Most fringe benefits," explained the Ways and Means Committee, "may be made available tax-free to officers, owners, or highly compensated employees *only if* the benefits are also provided on substantially equal terms to other employees" (emphasis added). This rule does not apply, however, to working condition fringe benefits.<sup>113</sup> In other words, employers may opt to provide free or reimbursed parking or transit benefits *only* to certain classes of employees, such as executives, and still have that compensation remain exempt from taxation.<sup>114</sup>

## REVISIONS SWEETEN THE POT FOR TRANSIT COMMUTERS

Since that initial Act, there have been a few modifications to the commuter tax benefits. Several of these changes have increased benefits for transit users in order to create parity between the benefits provided to employees who drive to work and those who use other means of travel.

In July 1991, IRS regulations increased the income tax exclusion for transit benefits to \$21 a month.<sup>115</sup> The Energy Policy Act of 1992<sup>116</sup> created a class of benefits called "qualified transportation fringe benefits." The act capped the value of parking excluded from taxable income at \$150 per month and raised the transit exclusion to \$60 per month starting January 1, 1993,<sup>117</sup> "to encourage mass commuting, which would in turn reduce traffic congestion and pollution."<sup>118</sup> Both exclusions were to adjust with inflation.<sup>119</sup>

The Emergency Economic Stabilization Act of 2008<sup>120</sup> added an exclusion for a monthly bicycle commuting reimbursement of \$20 tax-free; this is not adjusted for inflation. An employee who elects this benefit for a given month is not eligible for parking or transit benefits in that month.

The American Recovery and Reinvestment Act of 2009<sup>121</sup> raised the limit on excludable transit benefits to parity with the parking benefit limit, which was at that time \$230 per month, for a period designated to last from March 2009 to January 1, 2011.<sup>122</sup>

The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010<sup>123</sup> extended transit-parking parity for an additional year.

The American Taxpayer Relief Act of 2012<sup>124</sup> extended the parity for another two years, starting on December 31, 2011.<sup>125</sup> Parity expired December 31, 2013,<sup>126</sup> causing the transit benefit cap to drop back to \$130 per month, while the parking benefit cap increased to \$250 as a result of a scheduled adjustment for inflation.<sup>127</sup>