SFU

Executive summary–July 2020

Employer Transit Subsidy Study

Introduction

This study found that the larger the transit subsidy offered, the more employees were induced to become transit riders and the more transit-only commuting increased. The increase in transit-only commuting came from a reduction in auto-only and auto-and-transit commuting. Transit subsidy acceptance and effectiveness can be dampened by factors such as the availability of cheap parking, or greater distance between the workplace and rapid transit, leading to some variability in outcomes. Transit ridership and subsidy acceptance were associated with various positive self-reported improvements to workers' quality of life, including their health, stress levels and commute predictability. These positive quality of life outcomes were achieved without the transit subsidy having any observed effects on work schedules, turnover and performance.

Study background

The study was made possible by a partnership of the Simon Fraser University Urban Studies Program, the City of Vancouver, TransLink, Unite Here Local 40, the seven study hotels and the many individual hotel employees who participated in the study. This partnership provided a rare opportunity to conduct experimental research on the effects of varying levels of transit subsidy on the commuting behaviours of workers in the hotel industry. At four of seven participating hotels, the members of the Greater Vancouver Hotel Employers Association and Unite Here Local 40 had negotiated a 15% transit subsidy a few years before the study began. Both the union and management, as well as the city and TransLink, wanted to understand the effects of that subsidy on a variety of outcomes.

The study is important because workers in the tourism industry and hotels play an important role in Vancouver's city and regional economies. Hotel occupations encompass a full range of service sector jobs, including housekeeping, cleaning, food preparation and service, customer service, and management and administration. Although about half of workers at the study hotels lived in the City of Vancouver, on average hotel workers in the study had commutes of a longer duration than those reported by City of Vancouver and Metro Vancouver residents in the 2016 Census. A quarter of the hotel workers did not have regular shift start and end times, which could make it difficult to commit to a monthly transit pass.

Workers in other industries face similar commuting challenges to these, and we hope this study will support a focus on equity—making transit affordable and accessible to those who most depend on it—in the ongoing implementation and updating of the City of Vancouver's transportation, land use and sustainability strategies, as well as to TransLink's efforts to expand and improve regional transit services.

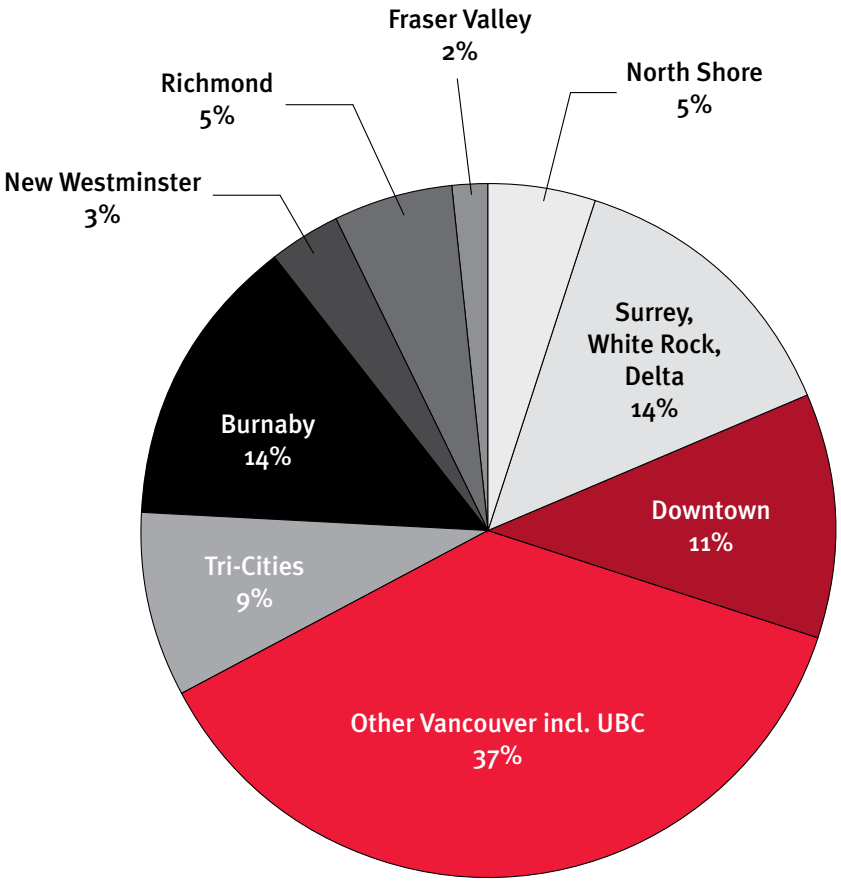
Study goal and design

The goal of this study was to understand the impacts of employer-paid transit subsidies for downtown hotel workers in Vancouver, British Columbia. Specifically, we sought to understand how

different levels of transit subsidy affected these workers' commuting patterns, mode choices, transit ridership and quality of life, as well as how the subsidies affected work schedules, turnover and performance at the seven participating hotels.

In designing the study, we grouped six of the hotels into three similarly located pairs, with the seventh, unpaired, hotel providing another point of comparison (see Table i). We conducted representative surveys of hotel workers at all seven hotels at three points in time. The baseline survey in March 2018 (Wave 1) was conducted before any experimental subsidies were offered. Our follow-up surveys, conducted in September 2018 (Wave 2) and March 2019 (Wave 3), examined what happened to workers' travel behaviour after the transit subsidy changes[1]. The response rate to the paper-based questionnaire used to conduct the surveys was more than 40% in each of the three waves. Table i summarizes the characteristics of each hotel and its subsidy levels over the course of the study.

Half of hotel workers live in Vancouver, March 2018



[1] Data collection was unaffected by the Vancouver hotel strike of late 2019 and the COVID-19 pandemic.

Table i: Summary of hotel characteristics and subsidy treatment (Table 1 in main report)

Hotel	Relative size	Location relative to downtown SkyTrain stations	Comparable hotel(s)	Pre-study transit subsidy	Study treatment transit subsidy	
					May–Oct. 2018	Nov. 2018–Apr. 2019
A	Larger	Adjacent to SkyTrain	B	15%	25%	25%
B	Larger	Adjacent to SkyTrain	A	15%	None, stayed at 15%	None, stayed at 15%
C	Larger	West of SkyTrain, 5-min. walk	D, E	15%	None, stayed at 15%	None, stayed at 15%
D	Larger	West of SkyTrain, 15-min. walk	C, E	15%	25%	50%
E	Smaller	West of SkyTrain, 10-min. walk	C, D	None	15%	15%
F	Smaller	South of SkyTrain, 10-min. walk	G	None	25%	50%
G	Smaller	South of SkyTrain, 10-min. walk	F	None	None, stayed at 0%	None, stayed at 0%

Note: the three shaded row pairs highlight comparable hotel pairs, as per the study design.

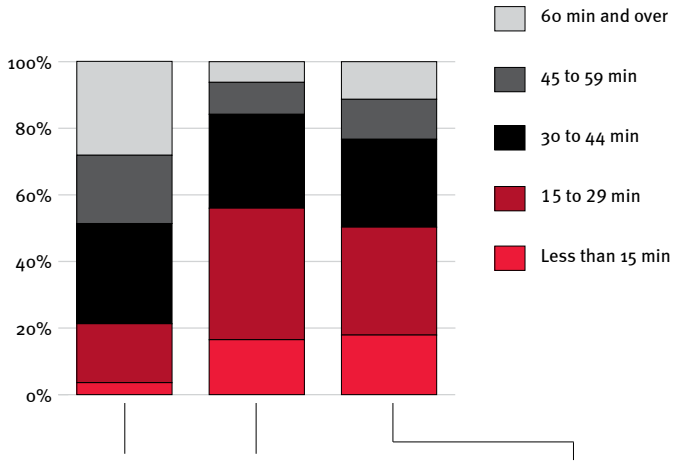
After we conducted the baseline survey, we offered workers at one hotel in each pair a new or enhanced subsidy, while leaving the subsidy level at the other hotel unchanged. For example, at the two hotels adjacent to a SkyTrain station, one (Hotel A) had a 15% transit subsidy before the study, and we increased it to 25% after the baseline survey. At the other hotel in this pair (Hotel B), we left the subsidy at a constant 15% throughout the study. To gain insight into the impact of even higher transit subsidy levels, we further increased the subsidy to 50% at two hotels (hotels D and F) after the Wave 2 survey, while their paired hotels (hotels C and G respectively) remained unchanged.

We supplemented the survey data with organizational interviews, aggregated TransLink ridership data for Compass monthly pass holders from participants in the study, distance mapping, and a scan of parking availability and pricing. As this was an experimental study conducted in actual workplaces, we could not and did not attempt to control all the other factors that affect commute patterns, such as subsidy administration policies, employee parking policies and transit service levels. Instead, we have tried to describe and account for their influence throughout the analysis.

What we learned

Overall, the bigger the subsidy, the more uptake of transit. We found that the likelihood of a hotel worker changing from not using transit for any purpose to becoming a transit user between survey waves 1 and 3 increased by 4.4% with every percentage point increase in the subsidy level offered

Hotel workers have long commutes: duration of commute to work



to them. This means that **increasing a transit subsidy by 23 percentage points doubles the chances that someone will become a transit user**, although the chances that any individual will make such a change in any given year are low. This finding accounts for demographic, residential and other factors that may influence transit usage, and is statistically significant at the 95% confidence level.

We estimate that where a new 15% transit subsidy became available, it induced between 4% and 10% of employees to become new transit commuters. Where a higher transit subsidy of 50% became available, we estimate that it induced more employees—between 9% and 14%— to become new transit commuters.

This means that **about one-quarter of those who accepted the new or enhanced transit subsidies were new transit riders**. This is a larger percentage than was found in a study by Rivers and Plumptre on the effects of the Canadian Public Transit Tax Credit, which was available from 2006 to 2017[2]. They found that 3%–9% of those accepting the 15% tax credit were new transit riders. A higher rate of conversion to public transit commuting was to be expected in our study because downtown Vancouver hotels are better served by transit than almost all other parts of the country. Also, unlike tax benefits, which commuters had to wait up to a year to receive, the financial benefits of these employer transit subsidies were available to the hotel workers immediately.

This study clearly demonstrates the positive effect of transit subsidies on transit usage, but we also note that the relationship between commuting choices, transit subsidies and hotel employment is complicated. The size of the effect of the transit subsidy depended on a variety of factors, such as the location of the workplace relative to a rapid transit station. The effects of the transit subsidies were also subject to diminishing returns, and it is unlikely that even free transit will induce all commuters to take transit. Some will rely exclusively on active modes, such as walking or cycling, while those with cars who live in places poorly served by frequent transit, or who have multi-destination commutes, will drive. At the same time, transit use is associated with some degree of walking.

The effectiveness of transit subsidies is also mediated by factors such as the design and administration of the subsidy. Higher transit service levels, longer operating time span of transit service and higher parking prices all support transit commuting. Depending on how these factors combine, some workplaces will be more conducive to subsidy acceptance and transit commuting.

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[2] Nicholas Rivers and Bora Plumptre, "The Effectiveness of Public Transit Tax Credits on Commuting Behaviour and the Environment: Evidence from Canada," *Case Studies on Transport Policy* 6, no. 4 (2018): 651–62, https://doi.org/10.1016/j.cstp.2018.08.004.

We expand on these observations as well as other key findings below.

Our 12 key findings

Transit engagement:
Refers to the behaviours that range from having a Compass Card, to including some transit in one's commute, to purchasing a monthly transit pass, to accepting a transit subsidy, to commuting only by transit.

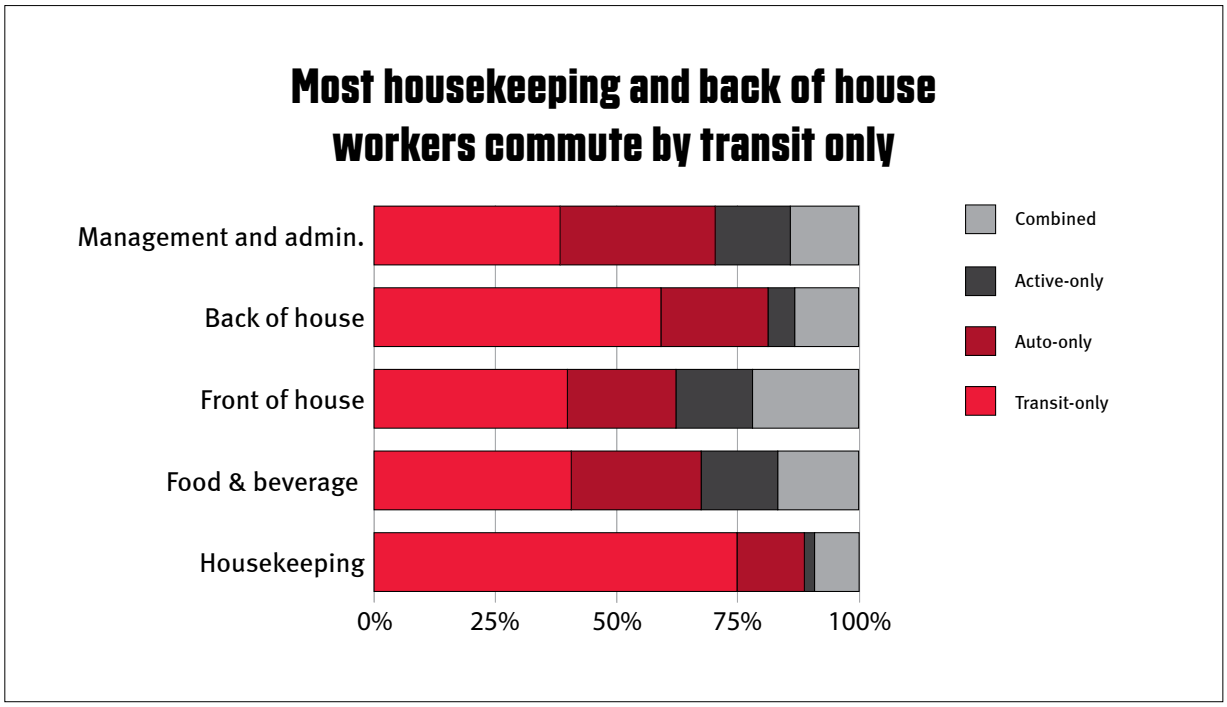
1. **These hotel workers were highly engaged with the transit system.** At the time of the baseline (Wave 1) survey, over 90% of these hotel workers had a Compass Card, two-thirds had commutes that involved some transit and over half were transit-only commuters (transit-only commuting almost always includes some walking). These baseline conditions are important to bear in mind when interpreting the findings of this study. At the same time, workplace factors and proximity to transit at both place of residence and work play a significant role in shaping that engagement.

   Housekeepers, who have work hours conducive to transit commuting and lower earnings than other groups of hotel workers, had the highest share of transit-only commuting at 75%. Only 38% of managers and administrators made transit-only commutes. Considerable differences in commute mode by hotel were also apparent. The hotel that was the farthest away from a SkyTrain station had a correspondingly low transit-only commute percentage (34%) and the highest percentage of auto-only commuters (48%), despite the availability of a 15% transit subsidy.

   These baseline findings underscore the importance of transit to hotel workers, and likely also to other tourism and service workers, in the metropolitan core. Transit usage among these hotel workers was high before the study introduced new and enhanced transit subsidies.

2. **Some workers remained unaware of the transit subsidies throughout the study period.** The goal of the study was to understand the implications of a transit subsidy under real-life conditions, including the possibility that some workers might be unaware of those subsidies. For this reason, our survey teams avoided informing employees that a subsidy existed during the baseline survey (Wave 1).

   We found that even after the enhanced or new subsidies were announced at the six hotels that offered a subsidy during the study, between 12% and 54% of the respondents at those hotels still stated that their employer did not offer a subsidy. It's true that not all employees were eligible for the subsidy at these hotels—for example, new employees may have been ineligible for a certain time period after their start of employment—but this does not account for such a low level of awareness. One implication of this finding is that employees' transit engagement could be even higher if employers and unions, with the assistance of transit authorities, were able to increase communication about the subsidies.



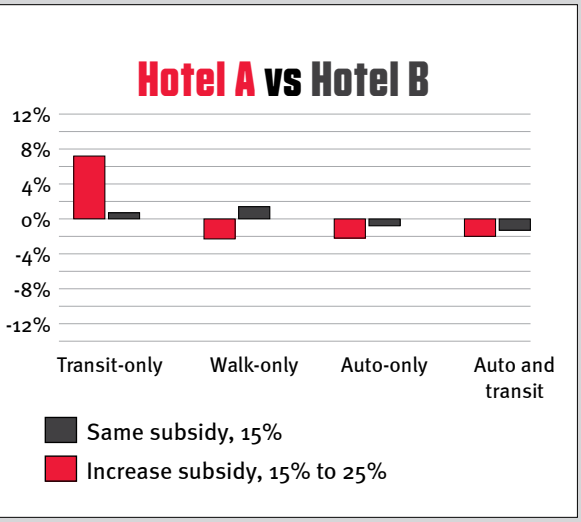
3. **As the level of the transit subsidy increased, subsidy acceptance increased overall and was also higher among specific groups of workers.** Through our multivariate analysis, we found that an increase of one percentage point in the subsidy level increased the likelihood of someone changing to accept the subsidy by 3.5%. This means that increasing the dollar value of a transit subsidy by 10 percentage points will increase the chances that someone will adopt the subsidy by about a third. This finding is statistically significant at the 99% level, meaning that we are very confident in our finding that a higher subsidy level increases the likelihood that a subsidy will be accepted.

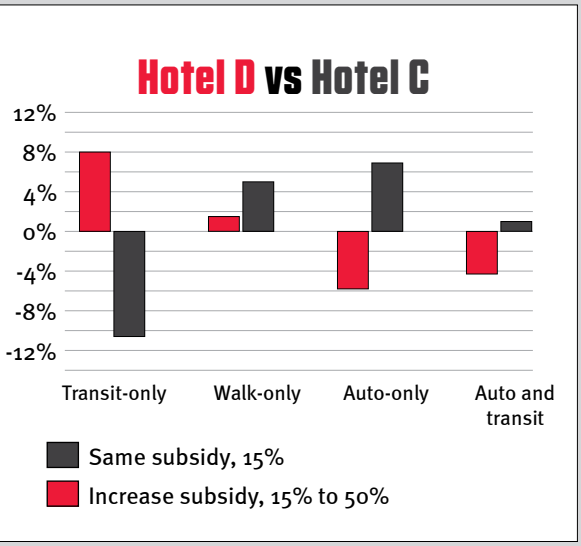
   The specific groups of hotel workers that were more likely to accept the subsidy had regular shift start and end times, lived farther from downtown or were immigrants. The equity-enhancing benefits of the transit subsidy are further indicated by the fact that those living in households with children and those who are renters were more likely to accept the subsidy.

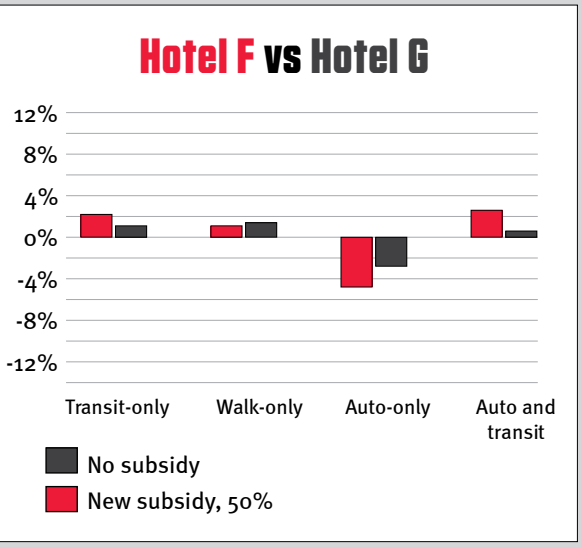
4. **Eligibility, together with financial and administrative barriers, prevented some workers who were regular transit users from accessing and accepting the subsidy.** In Wave 2, 32% of respondents reported that they had accepted the transit subsidy, but a considerably larger percentage—62%—indicated that they had some type of monthly pass product. This gap between those who already had some type of monthly pass product and those who accepted the subsidy suggests that subsidy uptake, and hence transit use, could be increased by modifying eligibility, qualification and enrolment rules.

   One such barrier to subsidy acceptance could be the one-year qualifying period for the subsidy that existed at the hotels at the time of the baseline survey (March 2018). Starting a new job often entails creating new work-related routines. It's more likely that transit commuting would be one of those new routines if the subsidy were available from

In all hotel pairs, the hotel with increased subsidy had more transit-only and less auto-only commuting than the hotel with unchanged or no subsidy







Change in commute mode, March 2018 to March 2019

the start of employment or after a short probationary period. After a full year, new commuting routines and changes made in response to a new job are likely to be well established.

Another factor affecting subsidy acceptance is how easily employees are allowed to join or leave the transit subsidy program. Allowing employees to join on a monthly basis instead of having to commit to a longer period of enrolment may increase subsidy acceptance. Allowing employees to sign up for a subsidized monthly pass for fewer zones than required by their fare zone of residence (as was the practice at some, but not all, of the hotels) would further reduce barriers to acceptance.

5. **Transit commuting increased overall, and it increased more at the hotels where the experimental transit subsidies were available than at the hotels where they weren't.** We found that overall, transit-only commuting increased by 2% over the study period. This is a significant increase given the high baseline level of transit commuting among the study population. The share of transit-only and walk-only commuting increased, and the share of auto-only and auto-and-transit commuting decreased from Wave 1 to Wave 3.

Further, transit-only commuting increased more at hotels where the experimental subsidies were available. Looking at only those respondents who participated in both waves 1 and 3 of the survey (see Table 66 in the main report), we found:

- An increase of 4.2% in transit-only commuting at the hotel where the subsidy increased from 15% to 25% versus an increase of only 2.2% at the paired hotel where the subsidy stayed at 15%.
- An increase of 3.0% in transit-only commuting at the hotel where the subsidy increased from 15% to 50% versus a 1.6% decrease in transit-only commuting at the paired hotel where the subsidy stayed at 15%.
- An increase of 2.9% in transit-only commuting at the hotel where a new subsidy of 50% was introduced versus a 7.1% decrease in transit-only commuting at the paired hotel where there was no subsidy.

For unknown reasons, the share of transit-only commuting decreased by 3.1% at the one unpaired hotel in the study where we offered a new 15% transit subsidy.

6. **Specific subgroups of workers were more likely to commute by transit and were more likely to change their commute with the subsidy.** The following types of workers were more likely to commute either partly or completely by transit: workers at hotels adjacent to SkyTrain stations; housekeepers; those with no stops on their commutes for shopping, drop-offs or other purposes; and those not born in Canada. Residents of TransLink's fare Zone 2 were more likely to commute by transit than those living in either Zone 1 or Zone 3[3]. Zone 1 and 2 residents are well served by transit, but Zone 2 residents are more likely to have commutes involving transit than those in Zone 1, some of whom live close enough to work to use active commute modes. Zone 3 commuters live farther from their downtown workplaces and in many cases, have longer distances from their homes to the SkyTrain or to places where frequent bus service is available. This make them less likely to use transit as part of their commute.

We found that the following subgroups were more likely to switch from some other mode to transit-only commuting between waves 1 and 3:

- residents of Richmond, Burnaby and the Tri-Cities,
- workers who started in their jobs more recently,
- visible minorities, and
- housekeepers, food and beverage workers, and front of house workers.

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[3] The City of Vancouver comprises Zone 1. The inner suburban municipalities to the south, north and west of the city comprise Zone 2. The outer suburban municipalities farther to the east and south of the city comprise Zone 3. The fare for a journey depends on the mode and on the zone boundaries crossed. All journeys by bus are priced as one-zone fares. Journeys by rapid transit (SkyTrain and SeaBus) start as one-zone fares and increase each time a zone boundary is crossed. All transit travel is a one-zone fare after 6:30 p.m. on weekdays and on weekends and holidays.

Hotel employee demographics:

Three-quarters are visible minority.

Just over half of hotel workers are women.

More than half started working at their current hotel before 2010.

Four-fifths are immigrants.

Over half of hotel workers own their home.

7. **Perceived inconvenience of transit relative to auto and active transport modes was a major barrier to subsidy acceptance and to switching to transit commuting.** In survey waves 2 and 3 we asked respondents who declined an available subsidy why they made that choice. In Wave 2, 11% stated (without prompting) that transit was inconvenient and 8% stated that the transit schedule did not work for them. Twenty-five percent stated that they drove, and 9% stated that they walked or cycled. None who gave this response were transit-only commuters. These reasons for not accepting the subsidy remained the same in Wave 3. Since these respondents didn't cite the subsidy level or terms as reasons for not accepting an available subsidy, we don't believe changes to the subsidy level or terms (alone) will be effective in encouraging these respondents to accept a transit subsidy and switch to transit commuting.

8. **Those who were unlikely to shift commute modes in response to a transit subsidy had specific characteristic**s. Our analysis showed that the likelihood of having a commute that involved transit decreased for those who lived downtown, those who had a driver's licence or access to an automobile, and those who had a longer transit commute or one that required more transfers. It makes sense that those who live close to work (such as downtown residents) and are able to walk or cycle there would prefer using active modes to taking transit, which costs more, may take the same or more time, and is less flexible than active modes. Similarly, the longer and less convenient a commute is, the greater the time savings offered by auto commuting, especially when the worker is already qualified to drive or has access to an auto.

   One implication of this observation is that transit subsidies are subject to decreasing returns, since within any given community, there are some commuters—whether auto or active—who will not be induced to take transit regardless of price level. Based on our analysis, we estimate that if everything else stayed the same, no more than three-quarters of downtown Vancouver hotel workers would be willing to take transit to work, whatever the subsidy level. With 67% of all commutes in the study already involving transit, this suggests that the pre-existing subsidies had been effective at shifting transit commuting close to its likely upper limit. The experimental subsidies offered as part of the study were effective in moving transit commuting closer to that upper limit, even starting from a high baseline.

Transit learner:
Someone who, in accepting a transit subsidy and a monthly pass, becomes open to experimenting with new and additional ways of using transit.

Cost-effective transit rider:
Someone who already knows the transit system well enough to use their monthly pass to reach the break-even point.

Break-even point:
The point when the subsidized cost of a monthly pass plus any added fares purchased or incurred is less than or equal to the cost of the same journeys based on stored-value fare rates.

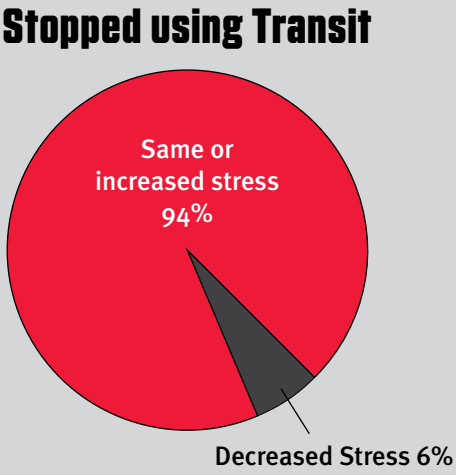
9. **Many new subsidy accepters were transit learners who used transit less intensively and somewhat less cost-effectively than existing transit users.** We found some evidence that the new subsidy accepters were less likely to break even on the cost of their monthly pass than existing subsidy accepters. This suggests that the new subsidy accepters were transit learners—that is, they were still working out how to use the transit system optimally and might in time use transit more. This type of transit user contrasts with a cost-effective transit rider, which is some one who already knows the transit system well enough to reach the break-even point on their monthly pass.

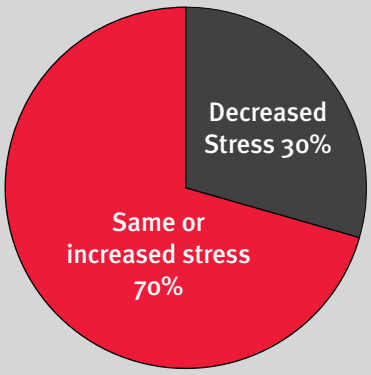
   This finding lends support to the idea of providing subsidies as a way of expanding transit mode share through behaviour change, with the caution that it will take time for the full benefits to manifest. The implication is that there is a ramp-up period for new subsidy accepters. During this time, it is important to provide information about the transit system and how to get the most benefit from it.

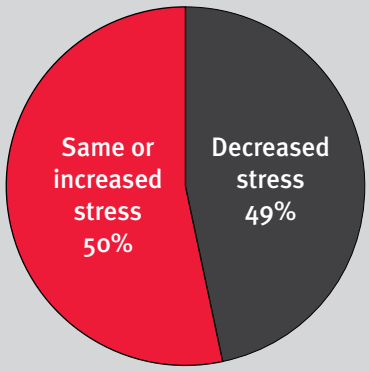
10. **Lower parking prices were associated with more auto commuting.** Monthly parking was considerably cheaper in the area around one of the seven hotels. At an average cost per space of $100.64 per month, parking near Hotel D cost less than half what it cost around comparable hotels. This hotel also had the largest percentage of auto-only commuters at the outset of the study. Complicating this finding is the fact that this hotel was also furthest from a SkyTrain station. Nevertheless, we did find that a larger subsidy was required to decrease the percentage of auto-only commuters than at other hotels. In the Wave 3 survey, 30% of respondents at that hotel gave “driving” as the reason why they didn’t accept the subsidy, or as a comment. This was more than twice the rate at the hotel with the next highest rate of “driving” reasons or comments. Employers may therefore wish to consider promoting more efficient use of any parking space they own or control, through, for example, providing carpooling information and incentives.

11. **Those who used transit or accepted the subsidy were more likely to report improvements in quality of life, including in their physical health, level of stress and commute predictability, in contrast with overall reports of small declines in quality of life.** Transit users, as well as the subset of those who were subsidy accepters, reported improvements in their physical

Hotel workers who added transit to their commute were more likely to report decreased stress, March 2018 to March 2019







health, stress levels and commute predictability. For example, among those respondents matched from waves 1 to 3, we found that 47% of those who added transit to their commutes reported reductions in their stress levels. While we may expect reported stress levels to go up and down randomly among any group of people over time, 47% is substantially higher than the 30% of those who did not add transit to their commutes and who reported reductions in their stress levels.

12. **TransLink's Compass for Organizations program was easy to implement for employers, which supported their participation in the program.** Once a month, participating employers send TransLink a list of the Compass Cards belonging to their employees that should be loaded with a monthly pass product. TransLink then invoices the employers for these passes, and they in turn deduct the cost (minus any subsidy) from the pay of participating employees. All employers in the study had to sign up for the Compass for Organizations (CFO) program to distribute the experimental transit subsidies, and they consistently reported favourably on the program. When a system like TransLink's CFO program is in place, it's easier for employers to provide transit subsidies because it adds only a small administrative load.

Conclusion

Overall, this study provides evidence that employer-paid transit subsidies result in a range of important benefits to participating employees and their employers, as well as to local governments, transit authorities and the surrounding region. Employer-paid transit subsidies promote equity and improve livability as well as providing various benefits to those employers and participating employees.

When effectively administered and provided at a level that offers sufficient financial incentive, employer-paid transit subsidies increase transit ridership and transit-only commuting, at the expense of auto commuting. When fewer employees drive to work, their employers have an opportunity to convert parking spaces for single-occupancy vehicles to other uses, including those that generate revenue.

Further, transit subsidies make commuting by transit more affordable for the employees who accept the subsidy. When those employees have low incomes and are part of various socially disadvantaged groups, this enhances equity. Decreasing financial stress in turn improves the quality of life for the employees who accept the subsidy.

Hotel employee work and commute patterns:

One-quarter have no regular shift start or end time.

Half work both weekdays and weekends.

Two-fifths commute before 6 a.m. or after 9 p.m.

Transit subsidies benefit transit authorities and the region more generally by helping to maintain and increase ridership levels. In the case of hotel workers, many commute on the weekends and at off-peak times, so this increased ridership is likely to be accommodated without stretching the capacity of existing transit infrastructure and routes. Transit subsidies also indirectly benefit drivers by reducing the number of drivers on the road, which may reduce congestion at peak times.

In the case of employer-paid transit subsidies, all these benefits are achieved without the need for financial contribution from governments. This is because the subsidies are paid for by re-allocating a portion of total employee compensation toward those employees who accept the transit subsidies.

Acknowledgements

Funding was provided by the City of Vancouver, with in-kind contributions from Unite Here Local 40; TransLink; and the seven participating downtown hotels, including members of the Greater Vancouver Hotel Employers Association (the Westin Bayshore, Pinnacle Harbourfront, and Hyatt Regency), Holiday Inn Downtown, and Blue Horizon.

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