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## Report on shopper travel behaviour in Dublin City Centre

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## SHOPPING TRAVEL BEHAVIOUR IN DUBLIN CITY CENTRE

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### Abstract

Traders on Dublin's two main shopping streets considerably over-estimate spending by shoppers travelling by car and Luas while significantly undervaluing the spend of bus passengers and pedestrians. A study interviewed 1,009 shoppers on Grafton and Henry streets seeking to identify differences (if any) between perceived and actual spending levels by travel mode.

Bus carried 35% of shoppers to Grafton St and 49% to Henry St; this compares with traders' perceptions of 31% and 40% respectively. Measured in value terms, bus proved the most lucrative mode to both streets, delivering 38% of the total spend on both streets, when outliers are excluded.

Pedestrian travel was similarly under-valued. Traders believed that 11% would walk to shop on Grafton St while on Henry St traders estimated that 6% of their customers came on foot. The actual figures are 20% and 19%, according to the survey.

Car transport was overvalued by traders. On Grafton St traders perceived that car would account for 13% of customers whereas in reality car-borne shoppers made up 10%. Traders on Henry St believed car would carry 19% of shoppers but in fact only 9% came by car.

The situation is similar for Luas: traders perceived 28% of Grafton St shoppers would arrive by tram compared to 13% in reality, and again on Henry St, traders thought Luas would carry 19% but it served just 10%.

Bus priority and pedestrian enhancement may therefore warrant greater investment. The imbalance in cycling mode share between Grafton Street and Henry Street should also be investigated further.

### Introduction

The perception of many city centre retail businesses is that a significant share of their customer base arrives to the city centre by car. In support of this assumption many store owners frequently lobby for the provision of greater road access and more parking in the city centre. On the contrary, increasing car priority can restrict overall access as well as disrupting the environmental quality of the city centre. This is a sensitive issue as retailing is a business vulnerable to competition from other locations and channels.

DIT School of Spatial Planning undertook research in March 2011 to gauge both the perception of retailers and the actual travel behaviour of shoppers on Henry Street and Grafton Street. The survey queried both retail managers and shoppers on both streets to ascertain perceived and actual behaviour. This can hopefully lead to more accurate information and better city centre transport planning.

The survey itself was carried out by students of the BSc Spatial Planning and Environmental Management as part of the second year Survey Methods module. The survey was also done in conjunction with the DIT Community Links programme as part of the Students Learning with Communities initiative. The DIT Programme for Students Learning with Communities supports staff and students engaging in community-based learning and research and builds links with communities. The community becomes part of the teaching process and benefits from the students' work. Students' Learning with Communities ultimately aims to energise participants to work for social change. DIT's community partner, the Irish Environmental Network, assisted with the scoping and design of the survey.

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## Existing Research on Shopping Travel Behaviour

A number of studies exist which explore the perception of traders as regards shopper travel behaviour and also the relative value of various travel modes to retail environments. Evidence from research in Graz, Austria and a 2000 survey in Breda, the Netherlands [1] [2], suggests that retailer's perceptions of shopper travel behaviour is often skewed towards high-carbon transport modes both in terms of trip frequency and value of sales. The evidence from the studies shows that low-carbon transport modes, including cycling, walking and public transport comprise a higher share of trips than perceived by business-owners. The Breda study also shows that the turnover per shopper, taken over an extended period, is lowest for car-users. Evidence suggests that while value-per-trip may be lower for cyclists and pedestrians, the number of trips is higher, thereby pushing up the net modal value per shopper.

Research in 2007 by Alison Lee [3] sought to identify the economic value of replacing car parking with bike parking in shopping strips. The case study in Carlton, Melbourne showed that cycling generates 3.6 times more expenditure. Even though a car user spends more per hour on average compared to a bike rider, the small area of public space required for bike parking suggests that each square metre allocated to bike parking generates \$31 per hour, compared to \$6 generated for each square metre used for a car parking space, with food/drink and clothing retailers benefiting the most from bike riders. This suggests that cycling may receive too little priority and investment relative to its economic value in city centre traffic management policy and strategy.

The above studies focus on the direct economic value of various transport modes. Rapid advances have been made in valuing the wider public health benefits as well as environmental benefits to low-carbon forms of transport [4] [5]. However, this study is confined to measuring the direct financial value of travel modes to Dublin City Centre.

## Survey

The survey was undertaken by second year planning and environmental management students at the DIT School of Spatial Planning under supervision by DIT staff and tutors. The survey was a part of student assessment and carried out under the Students Learning with Communities banner, as mentioned above.

The survey was carried out on Tuesday 29<sup>th</sup> and Thursday 31<sup>st</sup> March 2011, between 3PM and 6PM on both days. This was considered a relatively optimal target survey time as March is not normally associated with major peaks or troughs in shopping behaviour. The end-of-month time period was useful in allowing respondents to answer questions about their behaviour in that particular month. Conditions on both survey days were fair.

The survey locations were Grafton Street and Henry Street, both top-tier high street shopping environments in Dublin City Centre. Grafton Street is located on the southside of Dublin city centre and Henry Street on the northside. The streets are considered prime comparison retail locations and, while together they comprise the heart of Dublin's city centre high-end shopping environment, they are generally considered to perform independently of each other.

Both streets are pedestrianised and are served by a variety of public transport modes as well as having plentiful off-street parking facilities nearby.

Three survey stations were designated on either street: generally being labelled *top*, *middle* and *bottom*. A target of 500 surveys was established for both streets. Each questionnaire was short, comprising a small number of closed, coded questions and took approximately 2-3 minutes to complete including time to familiarise with shoppers, fielding any background queries, and to express thanks afterwards. The sample target was more-or-less reached, allowing for a small number of spoiled records in the Henry Street sample.

The final sample size was 1009 shoppers, made up of 513 Grafton Street shoppers and 496 Henry Street shoppers.

A corresponding Manager Survey was also carried out on both streets. A sample of 30 managers for each street was established. Enumerators approached stores at random and

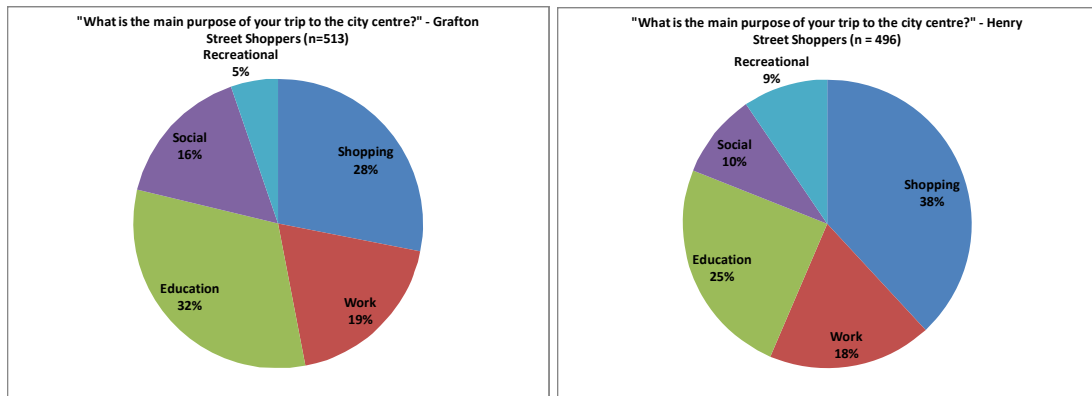
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requested to survey the opinions of the store manager in charge at that time. This involved asking them to estimate what percentage of their custom they thought arrived to the city centre by each mode. If refusals were received enumerators proceeded to the next available store. A record of the store type was maintained. Each questionnaire took approximately 1-2 minutes. The final sample size was 60 store manager questionnaires comprising of a reasonable mix of store types and sizes.

### Profile of respondents

The shopper survey included a number of profiling questions, including trip purpose, gender and age profile.

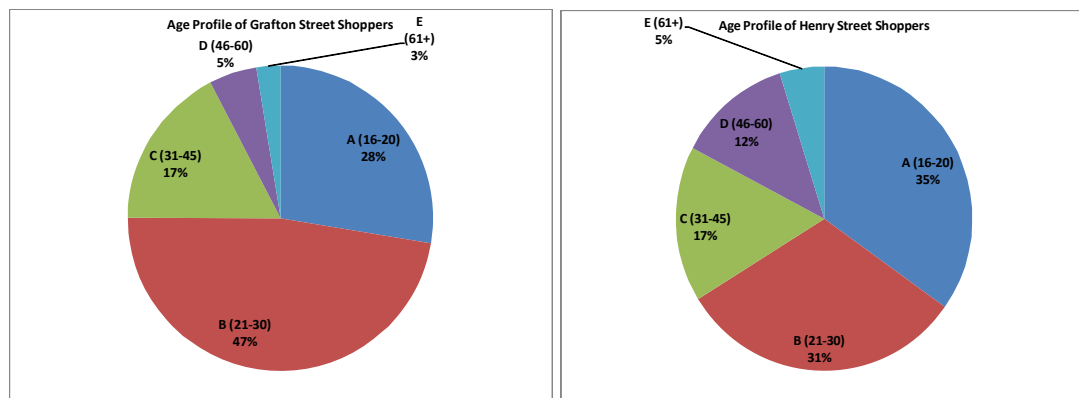
**Figure 1a & 1b: Purpose of Trip**



Shopping, education and work were the main reasons stated as the purpose of trips to the city centre. While education seems high, especially for Grafton Street, this reflects the presence of large colleges close to the city centre, the fact that it was a mid-week survey (Tuesday and Thursday 3pm – 6pm) and also the young profile of the survey sample.

The survey achieved a reasonable gender balance on both streets. Across the survey period the gender balance was 45:55 and 49:51 female / male for Grafton Street and Henry Street respectively.

**Figure 2a & 2b: Age Profile**

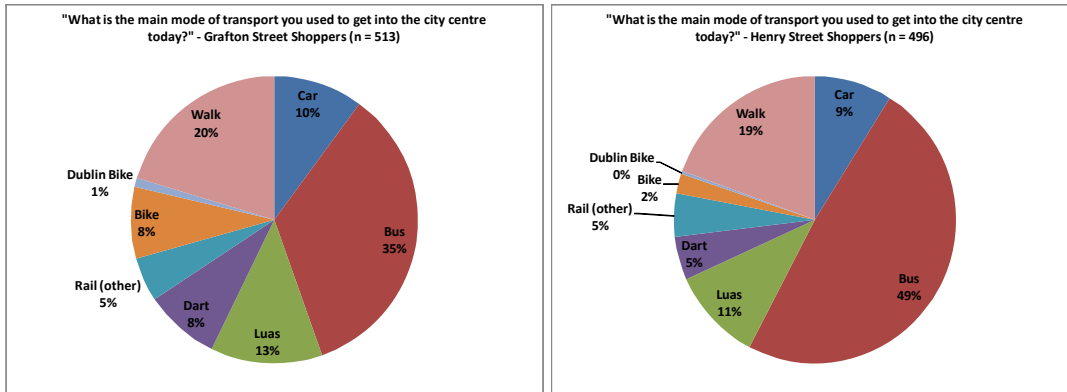


The overall age profile was relatively low for both shopping environments. 75% and 66% respectively were in the 16 – 30 age groups for Grafton Street and Henry Street. While both streets have a strong youth demographic (with a high proportion of fashion and entertainment goods outlets on both streets), a limitation of the survey in both streets was that enumerators found it more difficult to stop and interview older people. While older age groups are represented, there may be a slight skew towards younger age groups in the survey sample. However, whether there is in fact a skew depends on the target market of the store profile on both streets

## Results of Survey

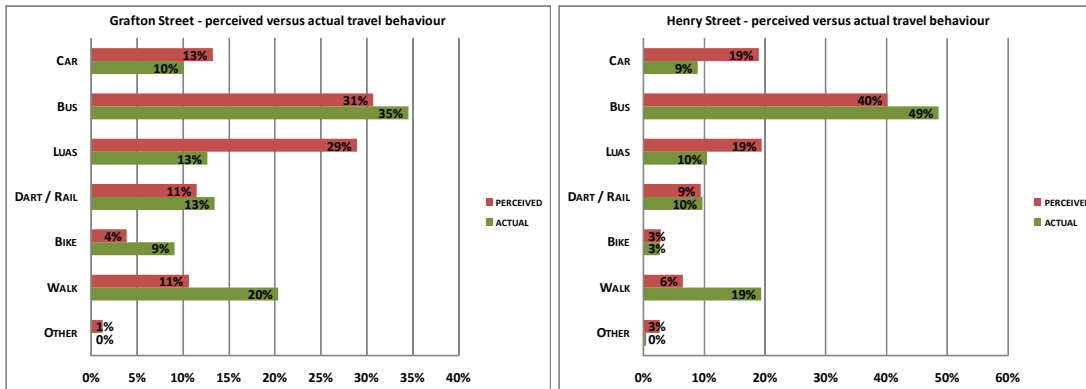
The purpose of the survey was to identify what differences, if any, exist between the perceptions of traders as to how shoppers travel to Dublin's city centre and their actual behaviour. A further purpose was to establish the relative value of each transport mode cohort.

**Figure 3a & 3b: Actual Travel Behaviour**



Figures 3a & 3b show the actual main mode of transport used by shoppers. The dominant transport mode for both streets is bus and the second most important mode is walking. Car represents approximately one in ten trips. A difference exists between the level of cycle access on Grafton Street (9%) and Henry Street (3%).

**Figure 4a & 4b: Perceived versus Actual Travel Behaviour**



Figures 4a and 4b show that differences do exist between trader perception and shopper reality. For both Grafton Street and Henry Street, traders tend to overestimate the importance of private cars as a mode, by 30% in the case of Grafton Street and over 100% in the case of Henry Street.

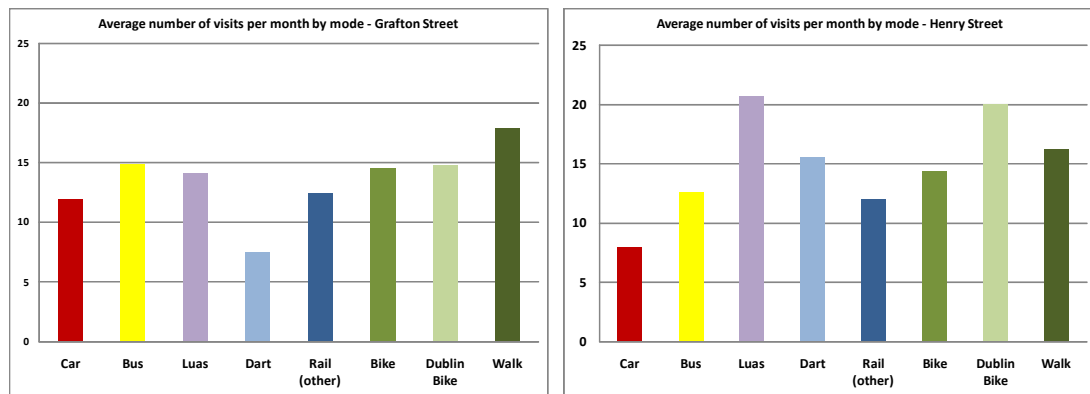
The significance of LUAS as a mode was also strongly overestimated by shop managers on both streets (123% and 90% respectively).

For both streets, the mode share of bus and walking was underestimated by managers. Bus usage was underestimated by a small amount but it is the biggest overall mode, carrying 35% and 49% of travellers to Grafton Street and Henry Street respectively.

The role of walking was underestimated by half in the case of Grafton Street and two-thirds in the case of Henry Street.

Interestingly, traders' estimates for bike and rail (other) were accurate for Henry Street, where especially bike has a very low mode share (3%). On Grafton Street, where bike has a higher mode share (9%), traders' expectations are much lower than reality.

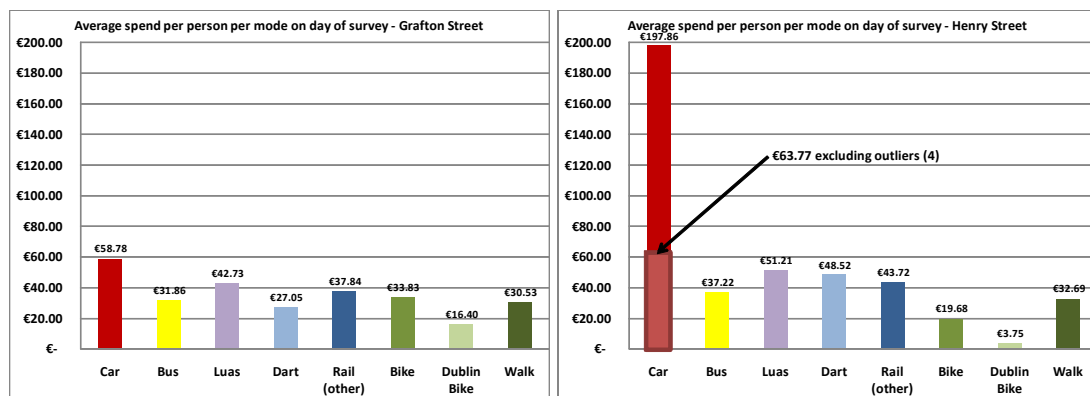
Figure 5a & 5b: Average Number of Visitors per Month



Shoppers were asked how often they travelled to the city centre per month. Different frequency profiles existed for each street. However, the most common average response rate was between 12 and 16 visits per month for each mode. On Grafton Street the most frequent visitors were walkers and the least frequent were by DART.

On Henry Street the most frequent visitors were LUAS-users, closely followed by DublinBike-users (albeit from a very low sample) and the least frequent visitors were by car. The car had the lowest and second lowest monthly visit frequency on each street.

Figure 6a & 6b: Average Spend per Person per Mode on Day of Survey



Shoppers were asked how much they were likely to spend on the current trip. The average trip spend per shopper was €36 for Grafton Street and €40 for Henry Street.

On both streets, car users were the highest spending visitors and DublinBike users the lowest. However, on Henry Street, a small number of outliers skewed the data sharply. Four individual car travellers (out of a total of 44) spent over €1,000 each, one spending up to €2,300. When these outliers are removed, car is still the highest trip spend for both streets with €58.78 in Grafton Street and €63.77 for Henry Street, a much lower rate than illustrated in Figure 6b.

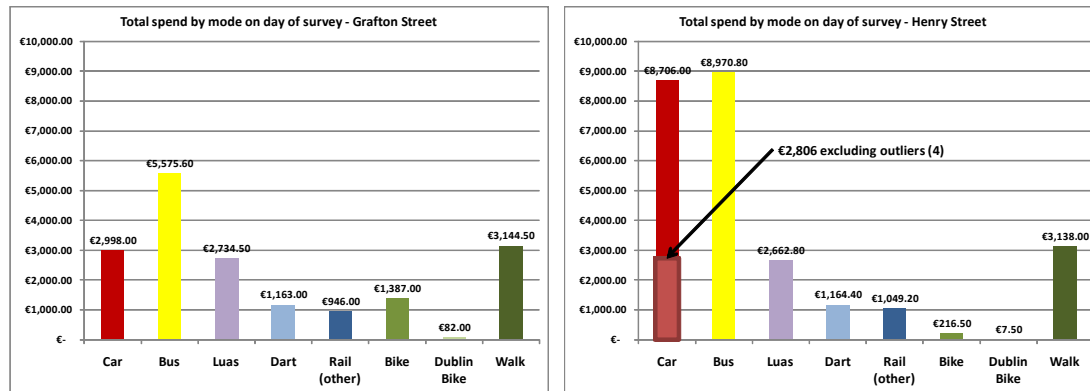
Overall, once the Henry Street car outliers were removed no huge variance in spend rate exists between modes. When prompted by the enumerators, these were once-off, non-typical trips for the shoppers in question. It may be representative, however, that such outliers are part of the Henry Street shopping profile, particularly with the presence of two large department stores - both selling bulky items - and that people make special car trips to make these purchases.

LUAS and rail users were above average spenders on Grafton Street. On Henry Street, LUAS, DART, rail and bus users were above average spenders.

The total spend of all shoppers was calculated (figure 7a & 7b). The most valuable shopping group for both streets were bus users, at €5,576 and €8,971 for Grafton Street and Henry Street respectively. On Henry Street these were closely matched by car users at €8,706.

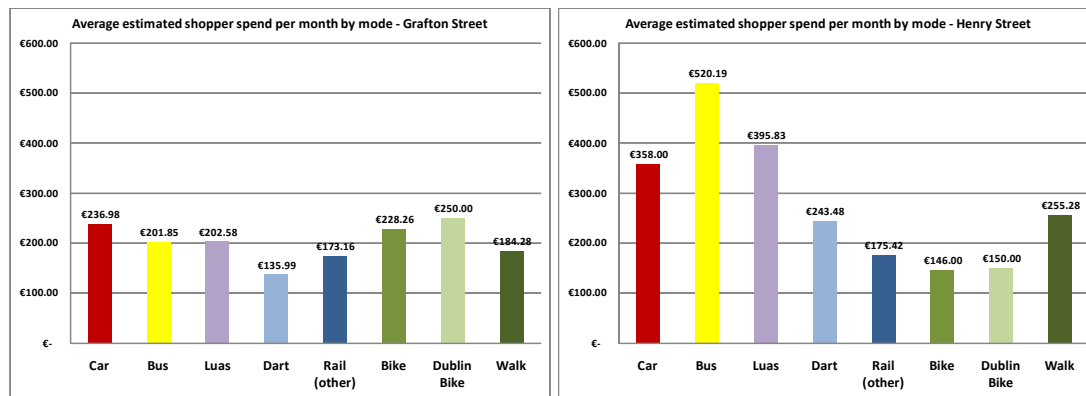
However, when the four outliers were removed the total spend from car shoppers reduced to €2,806, making bus the most valuable mode by some distance in both environments.

**Figure 7a & 7b: Aggregate Spend by Mode on Day of Survey (all 1,009 shoppers)**



Isolating the car outlier group also moves car users into third place behind walkers as a value group on both streets. LUAS users are also a valuable shopping cohort for both streets. Bike is ahead of DART and rail on Grafton Street but behind on Henry Street, where overall numbers of cyclists are low (13, including DublinBike users).

**Figure 8a & 8b: Average Estimated Shopper Spend per Month by Mode**



Shoppers were asked how much they were likely to spend in total in the city centre during the current month (the survey was taken on the third-last and final day of the month of March). This was a difficult calculation for a lot of respondents and answers did not necessarily correspond to current-trip-spend times number-of-visits. This question prompted shoppers to remove themselves from their day-based experience and make a personal estimate for the month.

According to this data, both streets had their own unique profile. Bus was the highest monthly-spend cohort for Henry Street, DublinBikes for Grafton Street. Car was the second highest-spend group for Grafton Street, LUAS for Henry Street. Bikes was the third highest spend group for Grafton Street, car for Henry Street.

### Analysis

Comparing the results of the *shopper travel behaviour survey* and the *manager perceptions survey*, a degree of bias towards the car can be seen in trader perceptions. The managers' estimation of car as a mode is relatively low but is still double the actual mode share on Henry Street (9% of trips in reality as against 19% perceived) and around one-third higher than the actual mode share on Grafton Street (10% of trips in reality as against 13% perceived).

Similarly, a pro-LUAS bias is evident, with manager's expectations being approximately double the reality on both streets.

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Countering this is an anti-bus perception and also a very material anti-walking bias of perception. Bus turns out to be the largest transport mode for shoppers on both streets (35% for Grafton Street and 49% for Henry Street, with Henry St outliers excluded).

Approximately one-in-five trips to both streets are by foot and this is perhaps the most significant gap in trader's perceptions. Traders on Grafton St assumed 11% of shoppers arrived on foot while traders on Henry St assumed 6% of customers are pedestrians. The true figures are 20% and 19% respectively, according to the survey.

The results for cycling are of interest. As a mode, it appears to be significant for Grafton Street (9% of trips) but far less so for Henry Street (3% of trips), asking questions about the quality of infrastructure and possibly other factors. The frequency of trips is far higher for public transport and the non-motorised transport modes of walking and cycling. Based on value, the car plays a substantial role. However, the car's influence is highly exacerbated by a number of outlier trips on Henry Street. Four out of 44 trips spent more than two thirds of the total spend by mode. The sample size of 1,000 shoppers seems significant; yet this question must be asked: how often would such outlying datapoints be repeated in every such sample population? There is a strong case for a further such survey in 2012.

When outliers are excluded, bus is by far the highest-value mode, bringing in 38% of stated spend on both streets. This was followed by walking (17%), car (15%), LUAS (14%), rail (11%) and bike (4%).

Finally, it may be of some interest to retail analysts that Henry Street outperformed Grafton Street in terms of frequency of visits, spend-per-trip and monthly-spend.

### **Survey Limitations**

A number of areas of caution relate to the survey exercise. The project scope was restricted to undertaking a mid-week survey and, if the survey was being repeated or extended it may be desirable to also undertake a Saturday count. It is probable, for example, that a Saturday count would have a different trip purpose profile, with less people travelling to the city centre for work and education. Estimation of likely weekend behaviour is conjecture, however, without undertaking a proper survey.

The relative youth of the shopping profile is reflective of the shopping demographic on both streets. Enumerators were asked by supervisors to target a representative sample of age groups, and, while the achieved sample was satisfactory, some comparator data, would be helpful to further validate age group cohorts.

Shoppers were asked for trip spend, trip frequency and monthly spend. When trip spend was multiplied by trip frequency the results did not correspond to stated monthly spend and appeared, on examination, unrealistically high. This suggests that stated trip frequency included trips where the street may not have been visited or where no purchases were made. While no focus group research was done in this regard it appears to be a reasonable assumption. On this basis, the stated monthly spend was taken at face value.

### **Conclusions**

The survey of shoppers and managers on Grafton Street and Henry Street - both high-end shopping streets in Dublin's city centre - shows some disparity between what traders perceive to be important travel modes and what shoppers actually use. This is exacerbated when the value of particular modes is analysed. Less than one in ten mid-week shoppers travel to the city centre by car for example, whereas traders imagine this to be between 30% and 100% higher.

LUAS, similar to car, was overrated by traders. This may be reflective of a strong brand and also its physical presence in the city centre environment with high priority levels and well designed stops. Its impact, in value terms, was lower than bus, car or pedestrians.

Bus is revealed as critical and undervalued, transporting between a third and a half of all shoppers, and accounting for more than a third of all retail value into the city centre.

Of all modes, walking is to be the most under-rated. Yet it is the mode of choice for one fifth of shoppers and is similarly important measured by value. Since the mid 1990s the city

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centre population has increased and planning policies to promote the city centre as a vibrant lived-in place appear to be borne out by the survey findings.

The transport modes have broadly similar shares north and south of the river. The notable exception to this is cycling. Cycling south of the river plays a significant role, with almost one in ten Grafton Street shoppers arriving by bike. This is three times the amount on Henry Street where cycle use is just 3%. This questions the level of infrastructure provision for bikes and whether it is balanced on both sides of the city. Only 18 out of 44 Dublinbike stations are on the northside for example and there appears a relatively low level of cycle parking provision immediately proximate to the Henry St area. (For example there are large-scale cycle racks at both ends of Grafton St but no comparable provision regarding Henry St.) Other factors may also be at play but it would appear necessary to have a level playing field in terms of cycle parking and DublinBike provision before delving deeper.

As stated earlier, this study only investigates the direct economic value of each trip in terms of total retail spend per person. There are other environmental, social, health and “wider economic” factors which are implicit in the use of given transport modes. It is hoped that this survey can provide base information that could potentially serve such studies. Nevertheless the main investigation of this report remains direct economic value of certain travel modes to city centre business.

The private car plays a role in city centre shopping access but one that is over-rated by traders. The role of the LUAS was similarly overestimated. The role of the car may be influenced by the need for special trip access, as the spend per trip was relatively high for car, while the frequency of trips was low. The most underrated modes are bus and walking. Bus is the most popular and single most lucrative mode to both streets.

Shoppers may be attracted by, and benefit from, greater bus priority and a more attractive pedestrian realm, two objectives which are not normally incompatible, delivering benefits to traders given their respective importance.

The difference in the percentage of shoppers cycling north and southside is also relevant with measures to redress infrastructural imbalances an obvious first step.

### **Acknowledgements**

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