PARKING CHARGES VERSUS ROAD USER CHARGING: THE CASE OF VALLETTA, MALTA

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ABSTRACT

Road user charging (RUC) is often thought of as a first best solution for dealing with the issue of congestion, when compared to the use of parking charges. The case for this is that parking charges are more likely to result in improvements in the situation rather than an optimal outcome. One of the reasons is that parking can be seen as a complement to vehicle travel impacting on the termination point of a journey as opposed to charging directly for the use of road space as in the case of RUC. In saying this parking charges are used extensively as a demand management measure and there are still only a few road user charging schemes world-wide. One city that has moved from a parking charge to a RUC is Valletta, Malta where a fixed annual charge (V-licence) for access into the city was replaced by a time-based RUC implemented in May 2007. The aim of this paper is to assess the relative merits of parking charges as opposed to RUC, using the case of Valletta. The paper is based on scheme documentation, semi-structured interviews with key stakeholders in Valletta, supplemented by personal observations of one of the authors directly involved in the process of developing and implementing the road user charging system and has subsequently continued to observe the scheme in operation.

Keywords: Road User Charging, Parking, Valletta

1.0 INTRODUCTION

Road user charging (RUC) is often thought of as a first best solution for dealing with the issue of congestion, when compared to the use of parking charges. For many years the view has been that the best way to optimally utilise the road transport infrastructure is through appropriate pricing, prevailed (Dupuit, 1844; Pigou, 1920; Ministry for Transport, 1964, Newbery 1990). Despite this, parking charges are used extensively as a demand management tool when compared to the few road user charging schemes that exist world-wide. Whilst road pricing schemes such as Singapore's ERP (1998), London's congestion charge (2003), and Stockholm's congestion charging (2006) are particularly successful, others have failed to even start with cases such as those of Cambridge and Edinburgh in the UK and New York in the US. One city that has moved from a parking charge to a road user charge is Valletta, Malta where a fixed annual charge (V-licence) for access and parking into the city was replaced by a time-based road user charge implemented in May 2007.

The aim of this paper is to assess the relative merits of parking charges as opposed to road user charging, using the case of Valletta. The paper is based on scheme documentation, semi-structured interviews with key stakeholders in Valletta, supplemented by personal observations by one of the authors directly involved in the process of developing and implementing the road user charging system and has subsequently continued to observe the scheme in operation.

The paper is divided into seven sections with the literature review (Section 2) discussing parking charges and road user charging as measures to manage transport demand. Section 3 presents an overview of the case study, the islands of Malta, whilst Section 4 details the development of transport policy in the islands over time. Section 5 discusses the methodology adopted for this study and Section 6 presents the findings. Section 7 concludes the paper.

2.0 LITERATURE REVIEW

Transport Demand Management (TDM) has been used extensively to influence individual travel behaviour. Meyer (1999) defines TDM as any action or set of actions aimed at influencing people's travel behaviour in such a way that alternative mobility options are presented and/or congestion is reduced. Parking has a significant impact on the urban environment. Brown, et al (2004) argue that although parking is often perceived as passive, its management and control can generate great impacts, particularly on trip generation and distribution, network assignment, convenience, safety,

travel time as well as the viability of modes that compete with the private car. Litman (2006) suggest that parking management could increase utilization of land and transport in urban areas, especially when supply and pricing are maximised.

Particular strategies aimed at reducing peak hour congestion and increasing parking turnover have been associated with effective pricing of long and short stay parking, so much so that increasing the price of long stay parking generally leads to a reduction of peak hour traffic and associated problems (Albert and Mahalel, 2006). On the other hand increasing short term parking and reducing its price is seen to support local retail economies (Shoup, 2005; Young, 2008).

Parking as a policy option may bring with it a number of difficulties. For example, parking controls may be ineffective if they merely encourage illegal parking, which requires monitoring. Controls may also encourage travelling round hunting for a vacant on-street space. This 'cruising for parking' can contribute to congestion, vehicle miles travelled and increased emissions (Shoup 2006). An increase in parking charges may cause motorists to park for a shorter period of time and while this allows more vehicles to park in a space each day, it can also increase traffic in a particular vicinity. For the same reason however motorists may prefer that parking is not free. Parking charges can also lead to displacement, with traffic parking in residential areas. In saying this parking pricing and controls are a commonly used strategy.

Road user charging on the other hand has had very specific applications. Despite being advocated by transport economists as an efficient means to reduce congestion and growing concerns over urban transport and air quality, there are very few systems in place around the world. According to Button and Vega (2008) the role of an economic price is to allocate what is available, indicate where capacity needs to be changed and provide the resources for financing. Many associate pricing with the last role, underestimating the importance of the first two roles.

The success of cities like Singapore, London and Stockholm has not been enough to persuade city authorities to adopt road user charging as a means of managing congestion. This has mainly been prevented by lack of public support (Ison and Rye, 2005), however road user charging goes further than parking policy and offers support for broad land use and transport policy objectives. Charging motorists for their external costs improves network efficiency and releases funds for investment elsewhere. Ison (2004) states that in addition to raising revenue, urban road charging can make a contribution to reducing congestion, rationing road space and improving local environments, mitigating climate change in the process and enhancing social inclusion and equity. More recent attempts at road user charging have also aspired for increased liveability and sustainability of urban areas (PRoGR€SS, 2004).

In conclusion, parking and road user charging both rely on pricing mechanisms to influence driver behaviour. Their purpose might be the same however their impact is very much dictated by design. Changing from one system to another will certainly impact the transport system, as well as travel behaviour and the economy.

3.0 OVERVIEW OF THE CASE STUDY

Malta is one of the smallest states in Europe and has a population of just over 400,000 people over an area of 316km^2 (National Statistics Office, 2012). This makes the islands one of the most densely populated areas in the world. Figure 1 shows the islands administrative boundaries, its dense road network and the built up area which covers just over 27% of the territory (National Statistics Office, 2011).

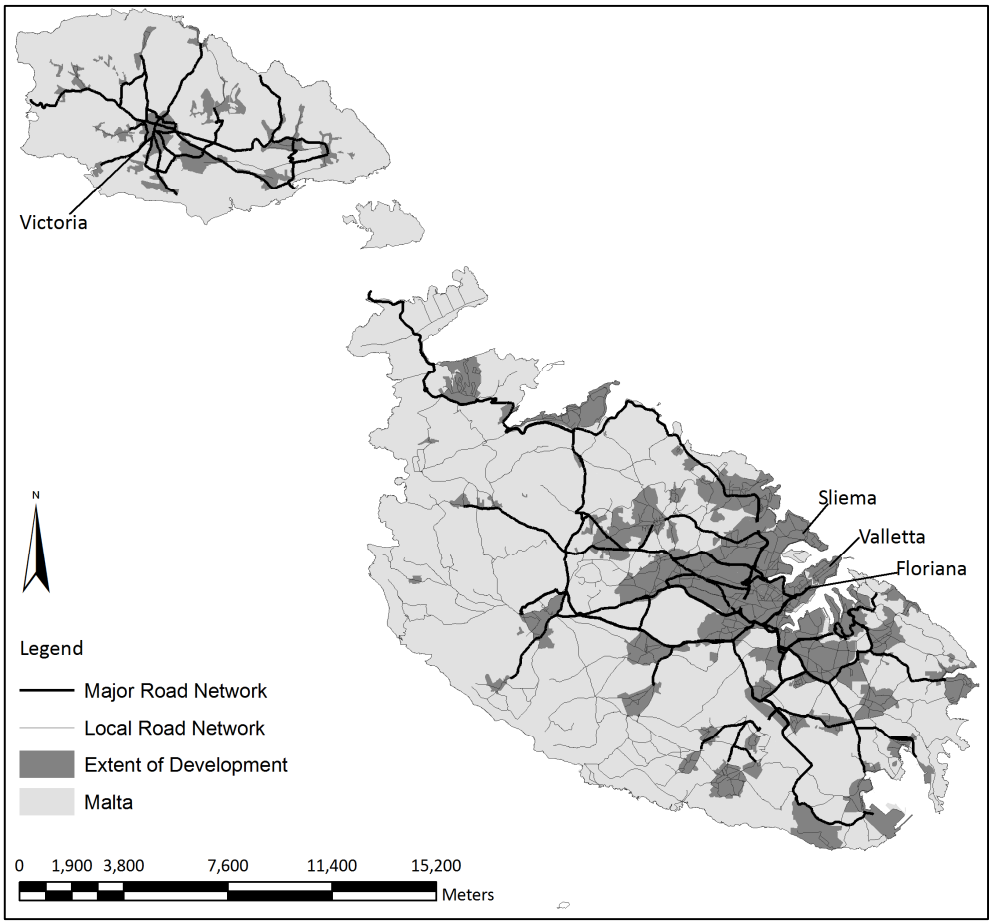

Figure 1. The islands of Malta. Drawn by author.

Malta became independent from the British in 1965, but it was only in the 90s that the islands experienced the first economic boom with increased standards of living, increased household income and naturally, increased car ownership and car dependence. Figure 2 shows the growth in car ownership in the islands compared to the 2010 motorization rates of other European countries. In 2010 Luxemburg registered a higher rate of motorization (659) followed by Iceland (649), Italy (606), Cyprus (575) and then Malta (573) (European Union, 2012). A 'predict and provide' policy in favour of private motorization led to an extensive road network to be constructed, servicing mostly the urban area. Over 90% of inhabitants are considered urban and living within the urban agglomeration surrounding the Central Business District (CBD) which is also the capital city – Valletta.

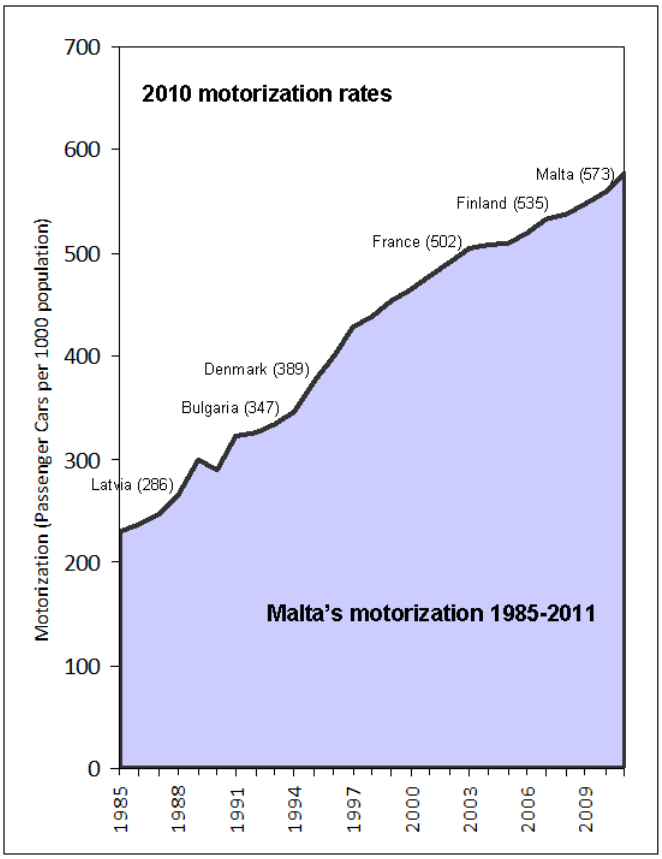

Figure 2. The growth in car ownership. Compiled by author from National Statistics Office 2011; European Commission, 2012.

Valletta and its suburb Floriana are surrounded by fortification walls and built on a peninsula, limiting dramatically the infrastructure for access. Currently there are only 3 roads that lead to the city, making access by car difficult. The area is small at just over a

kilometre square but the density of activities is very high, so as to attract a relatively large number of commuters and visitors on a daily basis.

The rates at which traffic into Valletta increased over the years reflects increased car ownership rates in the islands. These were in parallel to the development of the road network with the number of cars per km of road remaining relatively stable over the years during the 90s and early 2000s despite the increase in number of vehicles.

4.0 POLICY OVERVIEW AND TIMELINE

Transport policy over the years has been very weak with traces of policy documented over the years in electoral programmes (Attard, 2006), until 2004 when the Cabinet of Ministers approved the first ever Sustainable Land Transport White Paper which provided transport policy for the period 2004-2014. The main objectives of the White Paper focused on achieving a modal shift from private to public transport, safe travel for all users, healthier travel and increasing the accessibility of transport infrastructure. The White Paper aimed for a 20% reduction in on-street parking and the introduction of parking management tools in an attempt to restrain non-essential car use.

Between 2006 and 2007 the Government went on to remove the annual V-licence and replace it with a road user charging scheme called the Controlled Vehicular Access (CVA) System, developed the first ever Park and Ride on the outskirts of Valletta and extend pedestrianisation in the city's commercial streets. All this as part of a strategy to improve accessibility to the capital city, the island's CBD. Of most interest to this paper is the road charging scheme (CVA) which saw Malta follow the likes of Durham (2002), London (2003) and Stockholm (2006) in introducing road user charging. Table 1 summarizes the operation of the scheme in Valletta. Further information about this was documented by Attard & Ison (2010).

Table I. Principles of the Controlled Vehicular Access System. Adapted from http://www.cva.gov.mt/en/exemption_procedures.asp (accessed 21 February 2013)

Sponsor	Cabinet Committee for National Projects, Government of Malta
Regulator	Malta Transport Authority, subsequently Transport Malta
Contractor	CVA Technology Ltd
Entry/Exit points	11
Charging times	0800-1800 Weekdays; 0800-1300 Saturdays Free on Sundays and Public Holidays
Charges	Free first 30 minutes; €0.82 per hour up to a max of €6.52 per day.
Pre-payment	10% discount
Full exemption	Residents and their children; Service vehicles for works; police and emergency vehicles
Technology	Automatic Number Plate Recognition (ANPR) for monitoring entrance and exit and calculating time spent in zone
Billing	Monthly bills sent to vehicle owner

In 2009 the Government also overturned the monopoly in the provision of public transport services and reformed the bus service by issuing a competitive tender to operate the national service. The reform was set to improve the quality of service to the customer and change the network of services to reflect modern journey patterns on the islands. In 2011 the bus reform was implemented with Arriva (Malta) being the winning operator. The run up to the reform is documented by Attard (2012).

In all this, parking policy featured very little. With the exception of Valletta, drivers in Malta enjoy free on-street parking with a few commercial parking facilities in town centres offering high density commercial, retail, office and leisure activities. An informal system of car park attendants developed over time whereby users tip the attendant on site in public off-street parking areas. These car park attendants were “licensed” by the transport regulator and assigned a parking area in the early 2000s in an attempt to curtail the on-site wars between people touting for tips. These however contributed very little to demand management, apart from raising questions as to whether the whole operation, run by private individuals without title, is at all legal and fair. In popular parking areas it is evident that abuse occurs with car park attendants parking vehicles illegally in an effort to cram as many cars as possible into one area and attend to those cars with owners leaving their keys inside. Those ready to take such risks pay more and are given priority. This way parking areas increase their capacity by an average 30% (Cabinet Committee for National Projects, 2005). In addition car park attendants pay no rent for the land on which they operate, nor do they pay any tax from revenues raised. These

existed also in Valletta but were subsequently removed with the introduction of the CVA system. The practice however remains widespread in all other areas of the islands.

In 2004 a committee within Government was set up to draft the guidelines for controlled residents' parking schemes. These schemes were aimed at introducing time constraints on the use of parking spaces in areas where many users, in particular residents, battled over limited spaces for parking. The scheme did not introduce charges but protected the residents' interests over visitors by limiting the amount of time spent parking in the same spaces. Residents of course were exempt. These schemes were implemented in a number of primary town centres (with the exception of Valletta due to its existing scheme) and, because the process involved all stakeholders including the local councils, retail, employer unions and central government, there was generally agreement to the adoption of such schemes. Despite this, the recent attempts by the Sliema Local Council to introduce a residents' parking scheme are proving difficult, with the business community requesting paid parking to be introduced as an alternative (Times of Malta, 2013).

On 26th September 2012 Central Government issued a tender to privatize and regulate the parking operations in 34 public off-street parking areas, currently served by car park attendants (TM, 2012). The tender specified the requirements of the operation as well as guaranteeing a job to the incumbent car park attendant should he/she not be in a position to match the offer made by other operators. The operators had to upgrade the areas, provide security, install access control measures, charge fees which were available to drivers prior to accessing the site and provide access 24 hours a day, seven days a week (with the exception of areas in Rabat, Mosta and Floriana where car parks are used by residents for overnight parking, in which case charging is to be affected between 0800-1800hrs only) (TM, 2012).

Despite the lack of documented government policy in the area of parking, this tender introduced for the first time the concept of paid parking in public car parking areas. Unfortunately this tender was heavily criticized by the general public who saw this as a new tax, and by Local Councils who felt they should have been given the option to decide on the public parking areas within their localities and also what to make out of monies generated from such operations, if the Local Council would approve charging for parking. In the end the opposition was so great that Transport Malta, the Government's Transport Regulatory Authority had to withdraw the tender and since then nothing has been proposed to manage parking outside the capital city. One might suggest that the lack of an overall Government policy in the area of parking charges gave the Local Councils the opportunity to attack central Government and demand governance over such a concern.

For the 2013 elections the three parties have voiced different approaches to dealing with traffic and parking problems. Table II shows the three main parties electoral programmes. The Nationalist Party seems to persist with their previous attempts to privatize parking and introduce pricing, even though this is not directly stated. On the other hand the Labour Party is proposing not only to maintain the current *status quo* of free parking but also to construct more parking infrastructure in areas already at capacity, including the University where a restriction on the provision of more parking is dictated by the Local Plan. In addition to the parking proposals the Labour Party is also proposing reducing the charging times in the capital city, allowing more cars to access the City for free (Partit Laburista, 2013).

Table II. Electoral Programmes for the 2013 General Elections. Adapted from Nationalist Party (2012), Partit Laburista (2013), Alternattiva Demokratika (2013).

Nationalist Party	**Labour Party**	**Alternattiva Demokratika (Green Party)**
• In order to manage the traffic situation better, we will enter in to partnership with the private sector to build car parks in order to reduce the current parking problem.	• Priority will be given to projects that address the problem of parking, especially in commercial centres such as Valletta, Sliema, Bugibba and Tarxien. We will endeavour to construct a parking complex at the University of Malta. • Ensure that the existing public car parks will remain for use by general public within any new fees. At the same time improve the services provided and increase safety. • In order to stimulate commercial activity, the CVA system will be reformed to make it easier and less prohibitive for people to access the City. As part of this reform we consider that access to Valletta is free after 2pm and on Saturdays.	• Whilst in certain areas it is inevitable that there will be parking for cars, the first priority should always be the use of public transport and the reduction of cars from the road.

The Green Party has probably the most extensive list of measures to encourage and implement modal shift and in fact there is very little reference to parking with the exception of one statement in which they highlight the need for parking in certain areas, however this should not be at the expense of promoting public transport and a reduction in traffic (Alternattiva Demokratika, 2013).

It is very evident that should the Labour Party win the next election there will be very little intention to restrain car use and implement a proper and effective parking policy for the islands. Moreover there might be a cut back in the road user charge as well.

5.0 METHODOLOGY

The research is primarily based on secondary sources and data collected prior to and after the removal of the V-licence and the introduction of the CVA system. Government policy documents related to the implementation of the CVA are used and data from the system is analysed. The study is based on an in-depth understanding by one of the authors who played a major role in the process of designing and implementing the road user charge in Valletta. Direct involvement and personal observation therefore support this research. The author was involved in the team of experts appointed by a special Cabinet Committee of the Maltese Government dealing with National Projects and tasked with writing the policy, designing the scheme and subsequently implementing what would be later termed the Valletta projects. This position of 'insider' (Burgess, 1984) held by the author allowed for a natural interaction with individuals involved in the project.

6.0 FINDINGS

This paper assesses the relative merits of parking charges as opposed to road user charging, using the cases of the V-licence prior to 2007 and the Controlled Vehicular Access system implemented in Valletta, Malta.

Valletta is a walled city built by the Knights of the Order of St John following the Great Siege of 1965. The City is one of the first examples of town planning based on a grid pattern of narrow streets. The population of Valletta reached its peak in 1911 with 23,006 residents. It then declined rapidly and constantly after the wars down to 5,784 in 2011, a 75% decline over 100 years. Valletta in the meantime became the seat of Government and its activities and the main commercial and retail centre for the island, attracting a considerable number of daily trips. The 1998 Household Travel Survey had estimated that by then 11% of all daily trips made in the island started or ended in the

Valletta peninsula. This is relatively high when compared to other major centres in the island such as Sliema (6%). Valletta and its suburb Floriana attract in the region of 55,000 workers over a 24-hour cycle.

The V-licence was implemented by the Police in the 1960s following the realisation that Valletta had limited space resources in which traffic could go without causing negative impacts on circulation and the residents and visitors' quality of life. The V-licence was a fixed annual fee paid for access and parking in the City. By 2007 the fee had been raised to €46, paid with the annual circulation tax. By 2004, 32,128 car owners had the V-licence, excluding some 5,000 residents that were exempt. And with only 3,000 legal parking spaces available in the City, it was evident that most car owners paid the V-licence for occasional use. Despite this its contribution to the Government Consolidated Fund was considerable, rising up to €1.4million by 2004 (Attard & Ison, 2010).

With this there were also concerns about the merit of the V-licence in banning cars during the day when the demand was high, but also during the night when demand was low. Cultural venues suffered a lack of business in the evening since many were disqualified from accessing the city a priori. The night also provided insights into the actual resident vehicles in the city and it was evident that many worked through the system and registered addresses in Valletta to avoid paying the V-licence.

Whilst the V-licence in itself was a fee for access and parking, the on-street parking was provided on a 'first come first serve basis' which also meant that commuters occupied parking spaces for eight hours with little or no significant contribution to the city's economy. Visitors and residents were excluded from using parking spaces during the day. A survey carried out prior to the introduction of the CVA showed the parking situation in Valletta. Despite some 2,985 on-street parking spaces, half of which were used by the small resident population, over 5,000 vehicles were registered as parked in Valletta by 11:00am. Figure 3 shows the patterns of use indicating the city's available spaces filled by commuters by 8:00am.

The Controlled Vehicular Access system, as described in Section 4 operates on a pay per use model. It allows access to the city to all and charges according to the time spent in the charging zone. This is done through camera technology that captures and records entry and exit times of each vehicle.

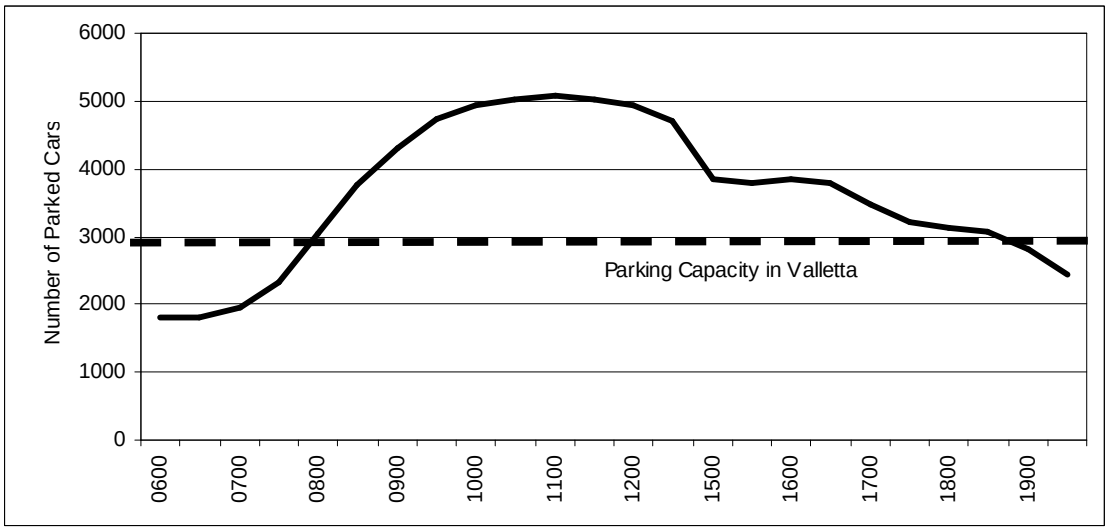

Figure 3. Parking capacity and usage in Valletta on a typical weekday. Source: Cabinet Committee for National Projects (2005).

As identified by Attard and Ison (2010), the Controlled Vehicular Access system has a number of advantages, amongst which worth mentioning here are that it:

- discriminates against commuters and encourages shorter visits for shopping and entertainment (Delia, 2007).
- increases parking turnover in the area closest to the city's commercial centre.
- allows for changes to the system to be effected easily through technology (Mamo and Dalli, 2007).
- allows for a fairer system of assigning residency (Delia, 2007).
- - allows customer interaction for viewing and paying the charge (Mamo and Dalli, 2007).
- allows and encourages visitors to the city during low demand.

Figure 4 shows the number of vehicles that have entered the charging zone since its inception in May 2007 up until December 2011. There is evidence of increased traffic particularly after the first year of operation. This is probably due to an attenuation of the effects of the charge after one year. This attenuation however is less pronounced in the autumn and winter months with more variations over the spring and summer months. The low number of vehicles recorded in 2011 is due to infrastructure projects in the City which reduced the access into the city further and limited circulation and parking. The effects of such infrastructure works will be worth investigating once all the major projects in Valletta are completed.

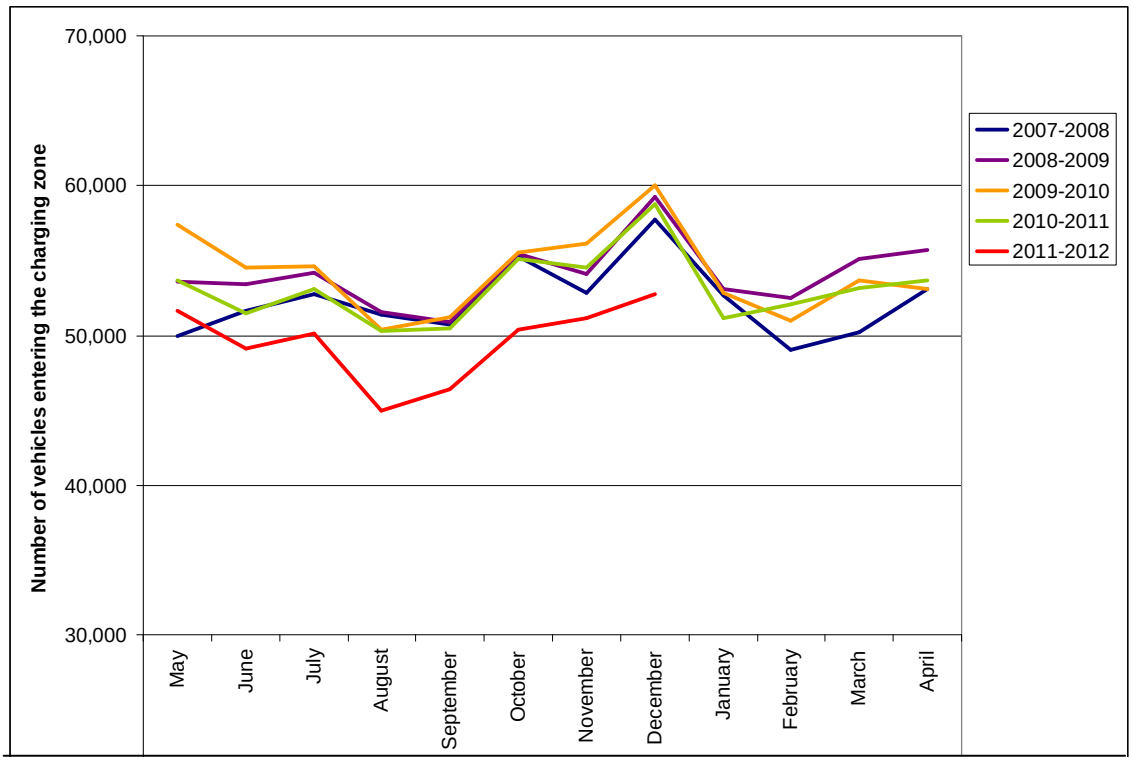

Figure 4. Number of vehicles entering the charging zone between May 2007 and December 2011.
Source: CVA Technology (2012).

In order to compare the V-licence to the CVA system data from the National Household Travel Surveys is used, particularly to show differences in modal split and car use. Figure 5 shows the modal share of all trips ending in Valletta in 1998 and in 2010. The 1998 dataset represents the patterns under the V-licence whilst the 2010 dataset shows modified patterns of modal split, three years after the implementation of the road user charge. The shift from private to public transport modes is evident and very positive. Despite attracting more car traffic, in terms of actual number of cars in the charging zone over the years (as seen in Figure 4 above), there is a significant change in behaviour for trips to Valletta.

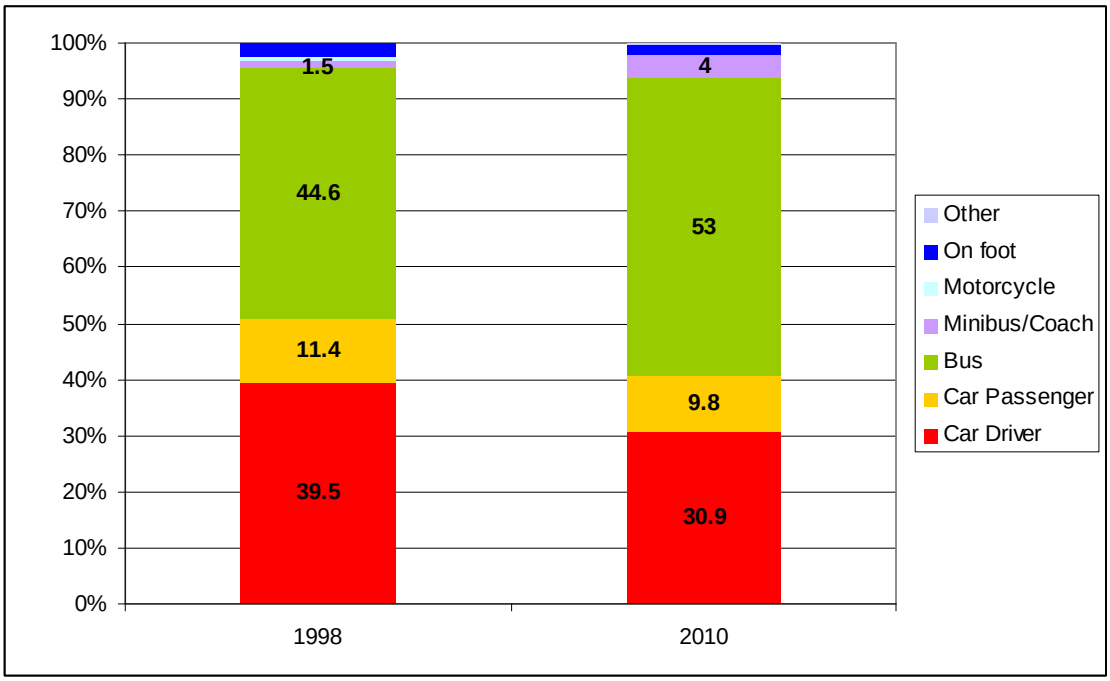

Figure 5. The modal shift for trips ending in Valletta before and after road user charging. Source: TM (2011).

It is important to remember that this modal shift did not occur all around the island. In fact Valletta was the only city that experienced this change, which is in stark contrast to the national trends of increasing car usage, starting from 54.7% of trips carried out by car in 1989, rising to 70.2% of all trips in 1998 and further increasing to 74.6% in 2010. Public transport share fell from 24.3% in 1989 to 11.3% in 2010 and walking went down from 11.6% in 1989 to 7.6 in 2010 (Attard, 2013).

In addition to this change in behaviour it is important to add that whilst 37.6% claimed to have a car available for their trip to Valletta in 1998, this increased to 47.8% in 2010. There is therefore a realisation, possibly brought about by the CVA and the car restraint policies adopted in Valletta between the period 2006-2007 that modal shift is necessary.

7.0 CONCLUSIONS

Our assessment of the merits of parking charges versus road user changing in the case of Valletta has shown that an improvement can be achieved in some aspects of the transport system.

On one level the road user charge is fairer in the access to infrastructure which is in very high demand (parking in the city centre), removing the restriction dictated by the fixed

annual charge and increasing the turnover of space within the charging zone. A small reduction in the volume of traffic within the city is also positive, even though this is affected also by other projects, and whose impacts will need to be monitored in the future. In addition, a change in travel behaviour towards the city is evident during the period in which the change from a fixed annual fee to a road user charge is implemented. Modal shift is evident towards increased use of the bus for trips ending in Valletta.

This study has shown that it is viable and possible to introduce road user charging as a more effective and efficient pricing mechanism for cities. The considerations for such schemes however must follow well known critical issues that affect their implementation. These generally relate to the purpose and objectives of the scheme, the design criteria and above all, the political champion (Attard and Ison, 2010). And as cities change, as is the case of Valletta with new infrastructure projects affecting its land use and transport system, the challenges ahead lie with updating and maintaining the effectiveness of such schemes.

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