# Valletta 2018 Investment Survey<sup>i</sup>

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### Introduction

That Valletta has seen a substantial investment and development boom over the last few years is well known to all those who live in Valletta or have visited Valletta in recent years. The aim of this research is to attempt to quantify the magnitude of this investment activity and evaluate the extent of cultural heritage, residential and commercial development that has taken place since 2013 and its short-term impact on the economy. The analysis covers the period post 2013, following the choice of Valletta as the European Capital of Culture (ECOC) for 2018. Whilst the ECOC title instigated substantial investment in culture and heritage within Valletta, this has led to a boom in commercial redevelopment and investment in Valletta, which will also be evaluated in this study.

Whilst it is difficult to attribute such activity exclusively to the ECOC title and the investment in culture and heritage, few activities are known to have substantially shaped activity in Valletta differently from the rest of the country. In this context, the difference between the development which took place in Malta and that which took place in Valletta will also be explored as a means to evaluate the extent to which ECOC and the investment in culture and heritage may have contributed to Valletta's redevelopment and construction boom.

# Preliminary Investigation of Data

In order to conduct this study, a number of data sources have been utilised. These include permits data from the Planning Authority (PA), data on culture and heritage investments sourced from Heritage Malta and the Restoration Directorate, information on major projects from the Grand Harbour Regeneration Corporation (GHRC) and the Ministry for Transport, Infrastructure and Capital Projects (MTIP), data on construction costs from NSO, licences data for hotels, guest houses and restaurants, reported investments in a number of hotels in Valletta from the Malta Tourism Authority (MTA) and contracts data. This section contains a preliminary analysis of this data.

#### **Residential Permits**

Figure 1 shows the amount of dwelling units permitted in Malta and in Valletta. Figure 2 presents a chart with the number of permits indexed to 100 in 2012.

#### Figure 1 and 2

#### **Dwelling Units Permitted**

	Valletta	Malta
2011	6	3,955
2012	16	3,064
2013	18	2,705
2014	19	2,937
2015	26	3,947
2016	30	7,508
2017	32	9 822



#### Source: Planning Authority

The data suggests that in terms of residential permits, Valletta recorded a slower rate of increase, particularly after 2016, than that experienced in the whole of Malta. This could be partly due to planning constraints but also the result of the conversion of residential into commercial property.



Source: Planning Authority





<sup>1</sup> Data excludes permits for leisure permits.

#### Non-Residential Property Permits

With respect to non-residential property, data from the PA was provided in terms of floor space in square metres (SQM). Figure 3 is consistent with the above conversion to commercial hypothesis, with the amount of non-residential permits<sup>1</sup> in Valletta exceeding the pace of activity recorded throughout the country, after 2013.

It is interesting to note from Figure 4 that 41% of the permitted non-residential floorspace in Valletta between 2013 and 2017 comprised tourist accommodation and food services, suggesting the importance that tourism activity has gained throughout the period under review. Heritage and leisure together comprise another 33% of non-residential floorspace permitted.

#### **Construction Costs**

Unfortunately information on the cost of construction activity by type of investment in Valletta was not readily available and could in the future be collected through a dedicated survey. Therefore, in order to estimate the potential investment activity that has taken place in Valletta, alternative sources of data were utilised. Figure 5 gives an overview of costs per SQM from different sources. The estimates include the author's calculations.

#### Cultural Heritage Investment

Data provided in Figure 6 provides estimates of construction and restoration works since 2013, provided by Heritage Malta, the Restoration Directorate and the Grand Harbour Regeneration Corporation. These include works on three of the four main flagship projects of Valletta 2018, that is MUZA, the Valletta Design Cluster (VDC) and also some works carried out on Strait Street. These exclude privately financed works, particularly the rehabilitation of the covered market (estimated at around €14 million<sup>2</sup>). Also included is an estimate of construction activity carried out after 2013 of the new Parliament

<sup>&</sup>lt;sup>2</sup> Times of Malta, January 5, 2018

Building and the restoration of Pjazza Teatru Rjal by Renzo Piano estimated to have cost in total €90 million. Between 2013 and 2018, €84 million have been spent in cultural heritage projects, whilst almost €20 million is projected for 2019. These figures also exclude around €20 million spent on squares and gardens such as Tritons' Square, Castille Square and the recently inaugurated Ġnien Laparelli.

#### Figure 5

#### **Estimated Construction Costs in Valletta**

Туре	Source	Year	€ per SQM
Residential Dwelling	Architect Valuation *	2018	833
Terraced House (Residential)	Construction Survey, NSO; National Accounts; Own Estimates	2018	726
Renovation of a detached house	Construction Survey, NSO; Own Estimates	2018	481
Hotel	Architect Valuation *	2018	1,478
Hotels and Guest Houses in Valletta	MTA; Own Estimates	2018	1,959
Valletta Design Cluster	Restoration Directorate	2018	2,089
Grand Master's Palace	GHRC	2018	911
Office	Architect Valuation *	2018	1,373
Retail	Architect Valuation *	2018	1,461
Food Services	Architect Valuation *	2018	1,540
Industrial	Architect Valuation *	2018	810
Leisure	Architect Valuation *	2018	865
Gnien Lapparelli	GHRC	2018	754

\* Estimate kindly provided by Perit Sandro Cini

#### Figure 6

#### Culture and Heritage Investment (€ million)

	2013	2014	2015	2016	2017	2018
Parliament	21.2	21.2	5.29			
St. Elmo	3.4	3.4				
MUZA			0.2	0.2	4.7	4.1
Valletta Design Cluster				0.1		1.1
Grandmaster's Palace			0.2			3.7
Mediterranean Conference Centre			0.9			
Admiralty House						1.9
Strait Street						0.1
Other			5.6	1.2	4.4	1.1
TOTAL	24.6	24.6	12.3	1.5	9.0	12.0

Source: Heritage Malta, Restoration Directorate, GHRC, MTIP

## The Valletta Property Market

By looking at a combination of permit data, number of contracts for sale negotiated and average property prices delineated in contracts data it is possible to get an idea of the evolution of the property market since 2012, the year in which the ECOC for 2018 was declared. In addition, we can compare the performance during this period with the rest of the country. Assuming that the rest of the country constitutes a control group, a simplified version of the difference in difference (DID) approach can be used as a measure of the impact of ECOC on the residential property market in Valletta. Using this approach, common factors which affect both groups (such as increase in tourism or the pace of economic expansion in general) are controlled for, with the remaining difference in performance attributable to ECOC and the investment in Valletta's cultural heritage.

Before describing these results however, some provisos and limitations of this analysis should be highlighted. First of all, Malta as a country is not a perfect control group in the sense that ECOC and the investment in Valletta's cultural heritage also had an effect on the rest of the country and not just Valletta. For instance the Valletta 2018 promotion efforts must have had an effect on tourism in general and not just that in Valletta. Secondly, there may have been other factors, such as the EU Presidency, which may have affected Valletta's property market more significantly than it did the rest of Malta. Therefore, the impact may include other factors though it is reasonable to assume, that these factors could not have brought about such a significant and permanent effect on the property market. Thirdly it is impossible to distinguish between the effect of the investment in cultural heritage and the ECOC itself; it is thus assuming that without ECOC most of the investments in Valletta's cultural heritage would not have taken place anyway. This is not necessarily completely true though it is reasonable to assume that it is true to a large extent. There are no perfect experiments in real life and the following results should thus be considered indicative.

Another limitation relates to Valletta's unique characteristics as a locality and the difficulty in finding an adequate control unit with the same characteristics as Valletta. The availability of a perfect control unit is usually a common problem in impact studies in general, and is not solely limited to this analysis.

The main indicators are provided in Figure 7. The data indicates very clearly that most of the development activity (including permit application) peaked around 2016. Therefore the analysis employs the difference-in-difference approach for the 2012/2016 period and for the 2016/2018 period, where data permits. This makes economic sense as ECOC was known in advance and required substantial preinvestment activity for the expected benefits of ECOC to be optimised. All the data is presented in index form with 2012 chosen as the base to equal 100.

# The Residential Property Market in Valletta

The data shows that between 2012 and 2017<sup>3</sup> the number of residential permits doubled. This indicates an increase in potential supply<sup>4</sup>. The number of residential permits did not peak in 2016 but continued throughout the whole period. Nevertheless it is notable that permits in Malta increased by more than double the rate of growth observed in Valletta, possibly indicative of planning constraints in Valletta as a world heritage site.

A-priori these supply restrictions should have led to an increase in prices in Valletta which would be higher than that observed in general in Malta. And indeed, between 2012 and 2016 average residential property prices in Valletta did rise faster. It is however pertinent to note that, despite supply restrictions, the number of contracts for sale negotiated in Valletta rose at a higher pace than in Malta. This suggests that during this period the increase in demand for residential properties in Valletta must have exceeded the rest of the island.

By 2018 the amount of new contracts for sale in Valletta stabilised to its 2012 levels whilst average residential prices increased at a slower rate in Valletta over this later period compared to Malta as a whole. The amount of new residential permits in Valletta continued to rise at a more moderate pace than Malta as a whole. These indicators suggest that demand for residential property in Valletta was weaker in this period than in the rest of Malta.

When considering the combination of all these factors one must deduce that demand for

<sup>&</sup>lt;sup>3</sup> Unfortunately data for 2018 is not available

<sup>&</sup>lt;sup>4</sup> Note that not all permits necessarily translate into potential properties for sale. Thus, the indicator is just a proxy for potential supply.

residential property in Valletta must have increased significantly in the period between 2012 to 2016 with supply constraints exacerbating a strong increase in residential property prices. Nevertheless demand must have stabilised somewhat in 2016/2018 and slowed down the pace of residential activity in this period at least relative to the rest of Malta.

# The Commercial Property Market in Valletta

With respect to commercial activity in the property market, the data suggests a much stronger pace of activity in Valletta than in the rest of Malta. Between 2012 and 2016 the amount of commercial permits issued in Valletta by far surpassed the rest of Malta and so did the number of contracts for sale. At the same time average commercial contract property values may have actually declined unlike the rest of the country.

An extra word of caution is here warranted as the average price calculated from contracts data, particularly in a single locality, is based on a very small number of contract observations, making the resultant average price sensitive to single transactions and does not control for the type, quality and size of the contracts. Thus the drop is sensitive to outliers and may simply reflect the sale of different types of property in different years and unlikely to be indicative of a drop in prices.

Nevertheless it is evident that the supply constraints observed in Valletta for residential property are not observable for commercial property between 2012 and 2016, suggesting that the upward pressure on commercial property prices may have been less than that observed for residential prices.

As in the case of the residential market, the activity related to commercial property stabilised somewhat in the 2016/18 period and the DID indicator suggests that it was weaker than the rest of the country. Whilst the number of permits issued was less than the amount issued in 2016, it remained significantly higher

than in 2012. This suggests that supply for development for commercial purposes remained relatively strong over this period. However the amount of commercial contracts concluded went back to its 2012 levels, indicating that demand may have slowed down and continued to reduce pressure on commercial property prices.

To conclude, we see a substantial increase in commercial property demand between 2012 and 2016 which was even stronger than the rest of Malta. Unlike in the case of residential property, the supply adjusted to this demand thus minimising commercial property price pressures during this period. Activity normalised in the last two years under analysis and partly returned to 2012 levels, though supply of commercial property up for development remained higher than in 2012.

Overall, this analysis is consistent with thriving urban development in the Capital, particularly in the period between 2012 and 2016. Such activity was predominantly commercial, and for although demand residential accommodation in Valletta remained strong, supply in that segment responded less strongly. This may have been due to planning constraints but is also probably due to an overall shift in residential properties converted into commercial properties, particularly in the accommodation sector. Overall activity slowed down after 2016, particularly from a demand perspective, though the demand for commercial property for development remained relatively stronger than pre-2012 levels.

## Methodological Issues

One of the aims of this research is to quantify the investment activity in the period following the choice of Valletta as the ECOC and 2018. Because of data limitations, the amount of investment that has taken place in Valletta was estimated on the basis of a number of assumptions. The following section contains a detailed overview of these assumptions.

#### Figure 7

Difference in Difference (DID) Evaluation of the Impact of Valletta 2018 on Valletta Property Market

#### **Residential (2012 = 100)**

#### Commercial (2012 = 100)

Valletta

100

53

34

-47

-35

Malta

100

217

272

117

25

DID

-164

-61

**Average Price** 

2012 2016

2018

% change 2012/16

2016/18

Average Price					
	Valletta	Malta	DID		
2012	100	100			
2016	145	115			
2018	162	153			

#### % change

**Contracts for Sale** 

2012/16	45	15	31
2016/18	11	33	-22

Malta

100

151

157

DID

Valletta

100

202

97

#### **Contracts for Sale**

	Valletta	Malta	DID
2012	100	100	
2016	357	190	
2018	129	178	

#### % change

2012

2016

2018

2012/16	102	51	51
2016/18	-52	4	-56

% change			
2012/16	257	90	167
2016/18	-64	-6	-58

Permits = Supply				Permits (flo	Permits (floorspace) = Supply		
	Valletta	Malta	DID		Valletta	Malta	DID
2012	100	100		2013	100	100	
2016	188	252		2016	1,000	221	
2017	200	321		2017	400	172	
% change				% change			
2012/16	88	152	-64	2013/16	900	121	780
2016/17	7	27	-21	2016/17	-60	-22	-38

Source: Contracts, Planning Authority, Own Estimates

The estimates of investment activity is primarily based on permit data obtained from the PA. For non-residential activity, the amount of floorspace in square metres was obtained from 2011 and 2017. For residential permits, the number of units permitted was available. These were converted into square metres by assuming that every residential permit involved the redevelopment of 80sqm per unit.

Data for commercial permits for 2018 was not available. An estimate was computed which was generally based on simple trend forecasts. Where no clear trends were noted, the permits for 2018 were kept the same as for 2017. As for residential permits, the estimate for Valletta was based on OLS forecast conditional on permit data for Malta (data available until September 2018), average residential contract prices and number of residential contracts in Valletta.

Because the year a permit is obtained is not necessarily the year in which the development starts, it was assumed that the development in a given year pertains to 10% of the permits from year t-2, 80% of the permits from t-1 and another 10% of the permits of that same year. In other words it is assumed that development usually takes place over a three-year period with 80% of the development being undertaken in the following year a permit is obtained. In this context, all data estimates for 2018 should not have a significant influence on the analysis for the period under consideration.

Based on these assumptions an estimate was derived for the amount of development footprint by type of development. The following categories of development in Valletta were obtained: Leisure, Office, Retail, Food and Drink, Industrial, Tourism, Warehousing, Culture and Heritage, Other Commercial and Residential Dwellings. In order to estimate the cost of this investment activity, the estimated floorspace developed was multiplied by an estimate of the cost per sqm by type of development. The cost was based on the information illustrated already in Figure 5 and is largely based on official but confidential sources of information and professional architect's valuations. These estimates also take into account a higher cost than the typical development in the rest of Malta in view of the characteristics of Valletta as a world heritage site.

Nevertheless, because of the range of estimates, two alternative cost scenarios are considered around the baseline as shown in Figure 8 below. The baseline scenario depends on Architect's valuations, allowing for costs in Valletta to exceed the national average by 75%. The MAX scenario shows the upper limit based on more optimistic assumptions obtained independently by the Authors from alternative sources. The MIN scenario is also based on architect's valuations but assumes that the additional cost related to Valletta compared to the rest of the country is 50%. The baseline scenario is judged by the authors as the most realistic scenario<sup>5</sup>. All data was converted into current prices using the construction cost index as a deflator.

#### Figure 8

#### Typical Cost per SQM in 2018

	BASE	МАХ	MIN
Leisure	865	1,013	754
Office	1,373	2,541	1,178
Retail	1,461	2,541	1,253
Food & Drink	1,540	2,541	1,320
Industrial	810	2,541	810
Tourism	1,525	2,541	1,268
Other	971	1,013	971
Warehouse	1,234	2,541	1,058
Heritage	2,089	2,541	911
Dwellings	833	1,013	833

Source: Own Estimates

<sup>&</sup>lt;sup>5</sup> This judgement was supported by independent consultation with a contractor

Finally, the data obtained independently from the Restoration Directorate, Heritage Malta and GHRC for culture and heritage investment as well as for public spaces (classified under entertainment) was used and replaced for the estimates based on the PA permits as these are available and hence more precise than own estimates.

# Quantification of Investment in Valletta

Based on these estimates and assumptions the total investment expenditure in Valletta between 2013 and 2018 is estimated to have reached  $\notin 167$  million. This is closer to the lower bound range estimated at  $\notin 158$  million whilst the upper bound of the range of estimates reaches  $\notin 207$  million. We will focus mainly on the results of the baseline scenario. The range of estimates should however be kept in mind given the uncertainty behind some of the assumptions.

Figure 9 illustrates the cumulative investment over this period by more detailed type of investment. Figure 10 shows the evolution of the investment in the period under review and how it evolved between residential, nonresidential and cultural heritage investment.

The strong element of cultural heritage development that has taken place in Valletta over this period is clearly evident and almost accounts for half of the investment activity that has taken place. Leisure represents another sizeable 15% of investment activity and is predominantly composed of the redevelopment of open spaces such as squares and gardens. Together these investment activities account for almost 2/3rds of total cumulative investment and were very clearly driven by the substantial efforts in preparation for the ECOC in 2018.

The major spin-off of such investment in the Valletta cultural heritage seems to have been in the hospitality services, comprised of accommodation, food and drink. Together these account for 21% of investment activity over this period. Among the commercial element of investment activity, 6% was invested in office space consistent with a thriving business, consultancy and auditing services for which Valletta has also become synonymous. Wholesale and retail represent 4% of investment. Dwellings represent just 5% of investment activity.

#### Figure 9







Source: Own Estimates

It is very clear that the cultural heritage and commercial element predominated over residential development in Valletta over the last six years.

An interesting evolution of investment activity is also evident. The early years of this period were characterised by substantial cultural heritage investment, dominated by the Renzo Piano project of the new Parliament Building and the restoration of Pjazza Teatru Rjal. In later years however, the non-residential and non-cultural aspect of development in Valletta predominated particularly in relation to the hospitality industry. Investment in cultural heritage and in open spaces directly related to the ECOC were substantial in the last two years under consideration and further revived the Cultural Heritage of Valletta.

The highest level of development took place in 2017 when total investment is estimated to have reached  $\in$ 36 million of which  $\in$ 11 million was invested in hospitality industry,  $\in$ 9 million in cultural heritage and  $\in$ 9 million in leisure, including open spaces.

## The Economic Impact

The investment stimulus of €167 million presented under the baseline scenario were used to project the short-term economic impact of this investment activity. The Economic Policy Department's Structural Annualised Econometric Model for Malta (SAMM) was The model was developed with used. Cambridge Econometrics and has been overhauled in 2018. The model is a Keynesian, demand-driven model with an input-output framework at its core. The aim of the model is precisely to estimate the impact of policy simulations such as this exercise. It allows a very detailed sectoral and product classification which allows us to evaluate the economic impact of investment in different products on various industries.

Because of the input-output framework, the model allows us to capture all indirect and

induced effects of the investment activity that has taken place in Valletta. For instance, it captures the effect of added consumption resulting from the income received by those employed in construction projects. It also captures the indirect effect of construction activity on, say, demand for transport or for telecommunications services.

The estimates present only the short-term effects of investment activity in Valletta. They should not be construed as the impact of Valletta 2018, which involved many more activities apart from investment in the physical infrastructure. Hence they exclude the economic activity generated by the various events organised by Valletta 2018, including the cultural events. It also excludes the activity that has been made possible as a result of the operations of these investments. For instance, it does not capture the tourist activity that has taken place by every boutique hotel developed or office renovated in Valletta during this period. This should be purely considered as the short-term impact of the capital investment.

Based on the above estimates and assumptions, the initial investment activity in the baseline scenario of  $\notin$ 167 million generated additional investments of  $\notin$ 57 million between 2013 and 2018. However not all this investment activity generates domestic economic activity as significant leakages primarily through demand for imports to undertake this investment activity generally takes place. Indeed imports increased by  $\notin$ 224 million as a result of the investment activity.

The total cumulative impact on GDP from the investment activity is estimated at  $\notin$ 89 million (or  $\notin$ 72 million in real terms). The investment activity has generated around 153 additional full-time equivalent employment related to the construction activity and its indirect and induced effects. Again, this should not be construed as an estimate of the impact of all jobs generated through all the activities related to Valletta 2018.



Figure 11

#### Major Impact on Industry Gross Value Added (€ million)

Construction	15.0
Construction	15.0
Wholesale and Retail	8.9
Art and Heritage	8.6
Machinery and Equipment	7.1
Architecture and Engineering	5.8
Public Services	3.2
Transport and Warehousing	1.9
Financial Services	1.4
Other Non-Metallic Minerals	1.0
Water, Energy and Gas	0.7
Administrative and Other Personal Services	0.6
Other	17.2
TOTAL	71.5

#### Source: SAMM Estimates

Figure 11 shows the industries which have benefitted mostly from the increased economic activity generated as a result of this investment. These include industries which mainly support the construction activity which has taken place. But they also include the effect of the induced activity as a result of higher incomes which in itself generates additional economic activity through multiplier effects.

Whilst the construction industry was a main beneficiary of this investment activity, even higher activity was generated in ICT and communications industry. Other notable impacts are also evident in the wholesale and retail services, art and heritage services, machinery and equipment industries, architecture and engineering services and general public services.

### Conclusion

Leading to the Valletta 2018 ECOC there has clearly been a surge in investment activity in the capital city, estimated to have reached €167 million.

The cumulative investment has been predominantly related to Valletta's cultural heritage. Between 2013 and 2018,  $\in$ 84 million have been spent in cultural heritage projects, whilst almost  $\notin$ 20 million is projected for 2019.

Major investments in Valletta's cultural heritage since 2013 include the restoration of upper St Elmo, the Renzo Piano Parliament building and the restoration of the old Royal Opera House site, the MUZA fine arts museum, The Valletta Design Cluster, the restoration of the Grandmasters' Palace, the restoration of the Triton fountain, as well as restoration works in Admiralty House, St John Co Cathedral and the Mediterranean Conference Centre.

In addition around  $\notin 20$  million were spent on squares and gardens such as Tritons' Square, Castille Square and the recently inaugurated Gnien Lapparelli which greatly embellished the capital city.

This notable investment led to a significant element of commercial investment, particularly related to the hospitality sector. Investment in accommodation and restaurants is estimated to have reached €35 million between 2013 and 2018. Much of this investment activity peaked in 2016/18.

Another important finding relates to the potential redevelopment of residential units in Valletta into commercial spaces. Whilst demand for residential property in Valletta increased the study indicates that supply did not respond sufficiently, potentially creating upward pressure on residential property prices. The same imbalances were not clearly evident in commercial property as in that segment supply conditions kept pace with the growing demand. These findings suggest that a number of residential properties were converted into commercial properties which created a shortage of residential properties but kept the pressure on commercial property prices contained.

Whilst the combined economic impact of ECOC and all related activities including events organised and the cultural programme cannot be gauged with this study, the difference in difference evaluation suggests that ECOC and the investment in cultural heritage played a significant role in stimulating additional demand for properties in Valletta, both residential and commercial. The evidence also suggests that ECOC and the investment in cultural heritage promoted commercial investment, particularly in the hospitality sector, which contributed to the redevelopment of residential units into commercial units in Valletta. It is indeed interesting to note that residential investment made up only around 5% of total investment over the period under review. This analysis suggests that ECOC and the investment in the cultural heritage of Valletta must have had a positive impact on economic activity in Valletta. Data available from Jobs Plus (not reviewed in this study) suggests that employment in the hospitality industry in Valletta has increased by 62% between 2012 and 2018 when the same industry generated an increase of 19% in the Maltese

<sup>6</sup> No similar positive employment impact was found in Valletta relative to the rest of the Maltese Islands from the Jobs Plus data over this period. Islands as a whole over the same period. This additional growth in employment is equivalent to an added 250 jobs in Valletta in the hospitality industry which are likely to have been supported by ECOC and the investment in cultural heritage documented in this study<sup>6</sup>.

This research has also evaluated the economic impact of the investment in Valletta between 2013 and 2019. This is expected to have generated around  $\notin$ 72 million in economic activity and around 153 new full-time jobs related to the construction activity. The initial investment also generated additional investment estimated at  $\notin$ 57 million, including by industries that service the construction industry.

The kind of activity generated by this investment did not just benefit the construction Other industries which industry. have benefitted substantially from the increased include investment activity IT and communications, wholesale and retail, art and heritage. architecture and engineering, machinery and equipment and public services.

# Annex: Contract Data for Valletta

#### Initial Cleaning

Data was obtained from NSO on the amount of contracts taking place in Malta. This dataset also contains the Locality of the property in question, whether it is residential or commercial, the notice value and the type of deed in place.

As part of the analysis process, the data was cleaned from any anomalous observations and from those observations with a zero Notice value. Donations and promise of sale transactions were excluded from the analysis, in other words only actual Sales records were kept. Residential and commercial transactions were also separated and any analysis was conducted separately on these two.

#### Residential Data

With regards to the residential transactions, we only considered the following types when calculating the necessary averages, in order to reduce outliers:

- 1. Maisonettes
- 2. Flats
- 3. Terraced Houses
- 4. Penthouses

In conducting analysis on the residential portion of the study, the total number of yearly contracts by locality was calculated. Given that we wanted to compare the average contract count in Valletta with that of the rest of the population, we had to take an average of the population. To do so, those localities which had missing observations or were repeated, were eliminated to avoid double counting of localities. After doing so, the number of localities reached 78 (including Gozo). Then our analysis proceeded with finding the population mean across years by dividing the sum of contract counts (by Year) by the number of localities.

#### Commercial Data

In terms of commercial data, the same process was conducted, but this time only transactions related to commercial activity were kept in the data.

<sup>&</sup>lt;sup>i</sup> The views expressed in this research article are those of the authors and do not necessarily reflect those of the Economic Policy Department, Ministry for Finance. Any errors and omissions are the authors' own.

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