

Medicine prices in Malta and their relation to economic indicators

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Abstract

This study set out to establish the nature of the relationship between the prices of medicines available for sale in the private retail market in Malta, and the Retail Price Index and the Rate of Inflation, so as to determine whether these prices exhibited the same behaviour as the above-mentioned variables used in the determination of the cost of living.

435 medicine prices were analysed for an eight year period (2002 to 2009). Two indices were created, the Retail Medicine Index (RMI) and the Weighted Medicine Index (WMI). The RMI and the WMI, $p \leq 0.05$ (CI ± 5), both showed correlation coefficients, r of 0.89 and 0.91 respectively, in relation to the RPI. The RMI showed an 11% increase over the study period, while the WMI exhibited an increase of 13%. No correlation was established between the Rate of Inflation and the rate of increase in medicine prices.

The study indicates that, contrary to anecdotal perception, medicine prices in the Maltese Islands follow the same path as accepted economic indicators. In fact, over the eight year period, medicine prices increased by an amount two-thirds (12.38%) that of the Retail Price Index (18.8%). The increases observed were lower than the non-weighted mean for the EU-26 (16.47% as per ECB data).

Keywords

Medicine prices, Retail Price Index, and inflation

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Introduction

The prices of medicines have been the source of much debate within economic, social, and pharmaceutical circles since the very beginning of economic study.^{(1) (2)} The lack of data and academic evaluation of the prices of medicinal items in the Maltese Islands in a societal context, provided the necessary stimulus and cause for a study of the relationship between the prices of medicinal drugs and the economic indicators that are utilised in the measurement of the cost of living.

One of the most quoted ‘urban myths’ all around the world⁽³⁾, with Malta being no exception^{(4) (5)}, is that the prices of medicines are constantly on the rise. The various, perceived perpetrators, are seen to be, all in unison, or on various occasions, separately, the pharmacy owner, the authorized distributor for a particular manufacturer, the pharmaceutical manufacturing company, or the government of the day⁽⁶⁾.

The patient-cum-consumer’s perception of rising prices and profiteering within the field of healthcare can only be brought into perspective if one relates the retail price of a pharmaceutical product to the actual scenario in which it is relevant to the man in the street. As further explained below, the Retail Price Index (RPI), and the Rate of Inflation, are two economic indicators which enable this to be carried out⁽⁷⁾.

The Retail Price Index is published by the National Statistics Office of Malta (NSO) on a monthly basis. It is composed of the prices of multiple commodities and services on the Maltese Market. Each sector is given a weighting determined by the last National Household Budgetary Survey, in this case the last one held in 2001

was the reference study.⁽⁷⁾ Medicines are included under Section 8, which is denominated as Personal Care and Health.

The RPI enables comparisons to be made over time of the relative prices of a group of items, or the whole 'basket' of commodities⁽⁸⁾. Thus one can calculate an arbitrary increase or decrease in 'the cost of living' over a specified time period. Usually comparisons are made at yearly intervals, so as to negate, or at least minimize, one off, or seasonal variations in prices. The NSO⁽⁷⁾ and the European Central Bank publish monthly updates of the RPI and Harmonised Index of Consumer Prices (HICP).

Figure I clearly shows an increase in the RPI for the Maltese Islands over the eight year period. Using the above time-frame, this study revealed the relation between the RPI and the prices of medicines in Malta. It also established the degree of correlation between the rate of inflation⁽⁹⁾ (derived directly as the yearly percentage increase in the RPI) and the rate of variation in medicine prices.

Methodology

The World Health Organisation provides detailed information on how to measure medicine prices⁽¹⁰⁾, including a core list of medicines to be evaluated. The list however only consists of fourteen medicines, and an appendix of regional items, according to geographical area⁽¹⁰⁾. An alternative approach was adopted for three main reasons : (i) a larger sample size was desired so as to enable a greater level of statistical significance (ii) the

core list of medicines includes certain compounds no longer widely in use in the developed world (iii) the medicines included had to have a direct relevance to the regular purchasing habits of the general population.

Four hundred and thirty-five (435) medicines were selected to be part of the test sample grouping, after fulfilling the initial base criterion of being available for private consumption on the local market for the whole duration of the period under study. Pricing data was extracted from EPOS (Electronic Point Of Sale) systems operative in three community pharmacies. This EPOS system is one with official approval from the VAT (Value Added Tax) Department of Malta, and thus prices can be assumed to be correct and as stipulated by law⁽¹¹⁾.

The selection of the sample members was not random, but purposive, that is intentionally biased in favour of a chosen variable. In this case the medicines selected were taken in descending order of the most popular medicines sold over the eight-year period, by volume. This was done to increase the relevance of the results to the everyday purchasing habits of the average consumer. Other data identifiers, including the manufacturer, local supplier, originator or generic status, drug class (the system utilised was closely framed on that utilised by the British National Formulary⁽¹²⁾), were collected for each product, and entered into the main database.

The whole population was defined as the number of medicines granted Market Authorisations by the Malta Medicines Authority as at the 15th of October 2009⁽¹³⁾. 84 medicinal products also were available on the market due to the fact that they were centrally registered with the European Medicines Agency (EMA).⁽¹⁴⁾ Thus a total of *circa* 3,200 medicines were authorised for distribution in the Maltese Islands at the time, with 1,500 of these confined to use at Mater Dei general hospital or other primary healthcare centres.

The retail prices² for the products were then utilised to compile two theoretical model indices, the Retail Medicine Index (RMI), and the Weighted Medicine Index (WMI). Together with the RPI, these two indices were reduced to an arbitrary base year 2002 value of 100. This enabled the behaviour of both the RMI and the WMI to be compared to that of the RPI. The indices were also studied with respect to the price variation of subdivision by OTC/POM, originator/generic, and drug class status. The mean change in drug price over the eight-year period was also calculated.

Results

The RPI and the model indices

Figure II shows the RPI and the two indices over the study period. The correlation constants, r , for the RMI and WMI, with respect to the RPI, were 0.9242 and 0.9339. This demonstrated a strong, positive connection between the two model indices and the RPI. Both the RPI and the indices moved together in the same proportions; this, however, did not imply causality, that is that a change in one variable had a direct effect on the other.

The RPI increased by 18.79%, over the eight year study period, whereas the RMI and WMI exhibited gains of 11.01% and 13.66%, respectively. When split by OTC/POM status the RMI showed growth of 16.22% (OTC) and 7.21% (POM), with the WMI producing 19.55% (OTC) and 7.54% (POM).

² Retail Prices referring to periods before the Euro change over in the Maltese Islands were converted to Euro(€) using the fixed rate of 0.4293c (Lm) per Euro(€). This was in line with the relevant legislation and enforced by the Central Bank of Malta.

Originator (O) and generic (G) subdivision produced results of +11.05% (O) and +10.68% (G) for the RMI, and +13.6% (O) and 14.02% (G) for the WMI. Splitting the indices by drug class revealed that the greatest increases were registered by the class of drugs labelled as respiratory medicines, both in the case of the RMI (25.05%), and the WMI (34.87%).

The mean increase in price for the sample was of 17.87%, split 16.2% and 18.2% via generic/originator class. The OTC/POM division gave means of 21.59% and 11.14%.

The Rate of Inflation (9) and the rate of increase in the sample medicine price were not related, $r = -0.1381$ and 0.0361 (RMI and WMI). Thus, while the average inflation rate for the Maltese economy was 2.49% that for the sample medicines was 1.51% (RMI) and 1.86% (WMI).

Discussion

The two indices utilised in the study increased by a factor of two-thirds the increase in the cost of living. The increases exhibited by the two indices show proximity to the figure issued by the European Central Bank, via the Harmonised Index of Consumer Prices, of 16.04% for Malta.⁽¹⁵⁾ However further comparative analysis of the respective methodologies is required to enable conclusive statements to be made. The average for the EU-26 for the same period was 16.47%, with Lithuania showing the greatest upward variation (+85.55%) and Spain the largest decrease (-27.15%) *Figure III*.

The greatest increase in the indices was registered in 2005 (4.49% and 5.2%), just prior to the introduction of a new and more costly system of medicine authorisation in Malta. This could have been a contributing factor to the sharp increase recorded at the time.

OTC medicine products have shown the greatest real rise in price. Part of this increase can be attributed to the fact that this section of pharmaceutical products is heavily incentivised, and fierce competition in the segment could be driving prices up, rather than down through trade discounts being added on to the final retail prices.

Conclusions

The results demonstrate that medicine prices have risen at a lower rate than that of the cost of living. This, however, does not prove whether they are affordable or not to the general Maltese population.

Further refinement of the concept of the Retail Medicine Index introduced as a tool in this study is required so as to improve upon the limitations of this study. An improved RMI would be subdivided into classes with respect to disease treated to ensure representation of the whole spectrum of medicines available on the market, with an element of weighting towards retail volume based on countrywide sampling. The RMI could be included as part of a *Healthcare Index* which would be composed of a cross-section of services.

Evaluation of the worth of the private retail market in money terms would also provide useful information as to volume capacity, throughput and sustainability of possible models of price monitoring, analysis and control.

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Figures I-III

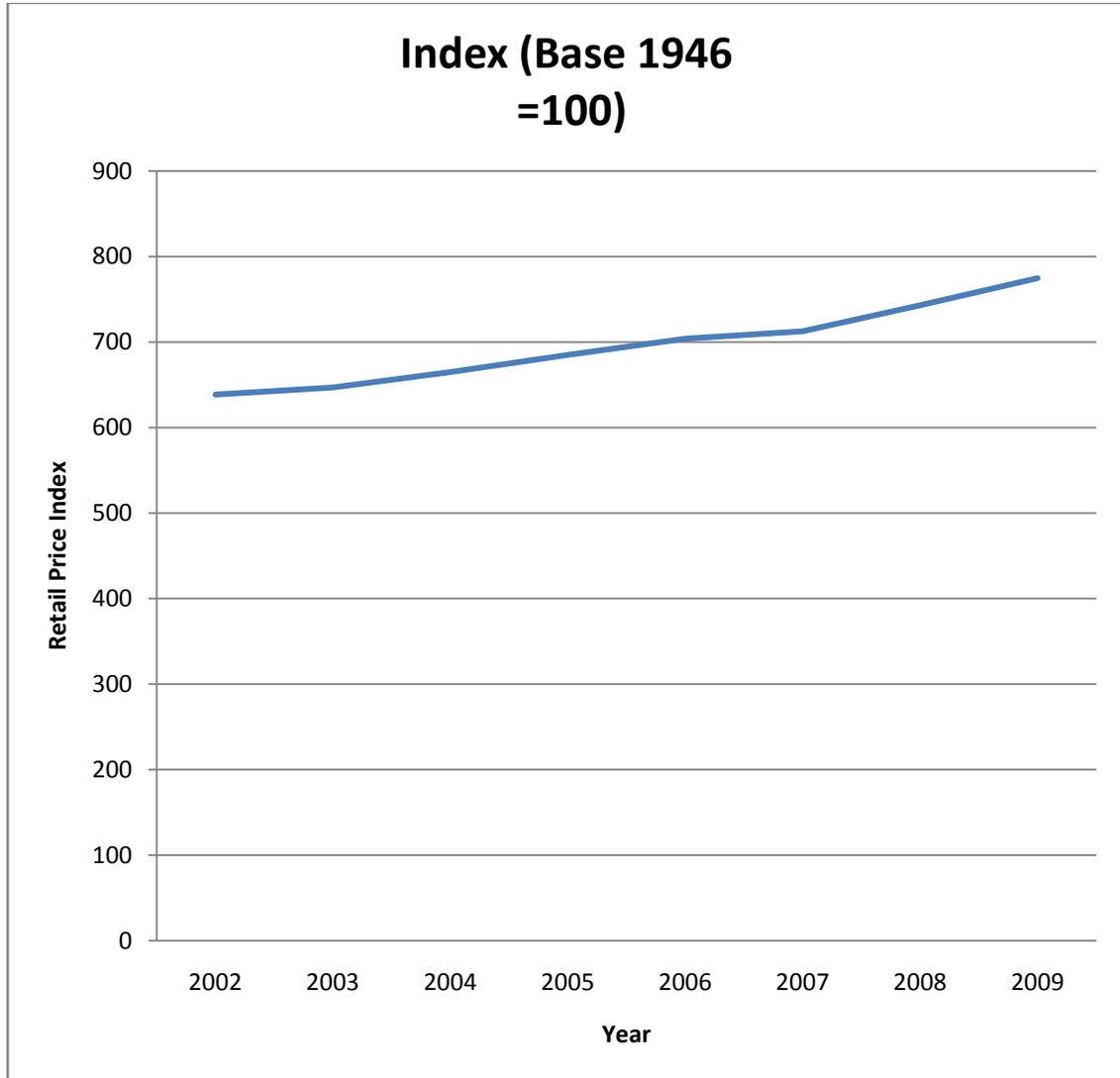


Figure I – The Retail Price Index (Base 1946=100)

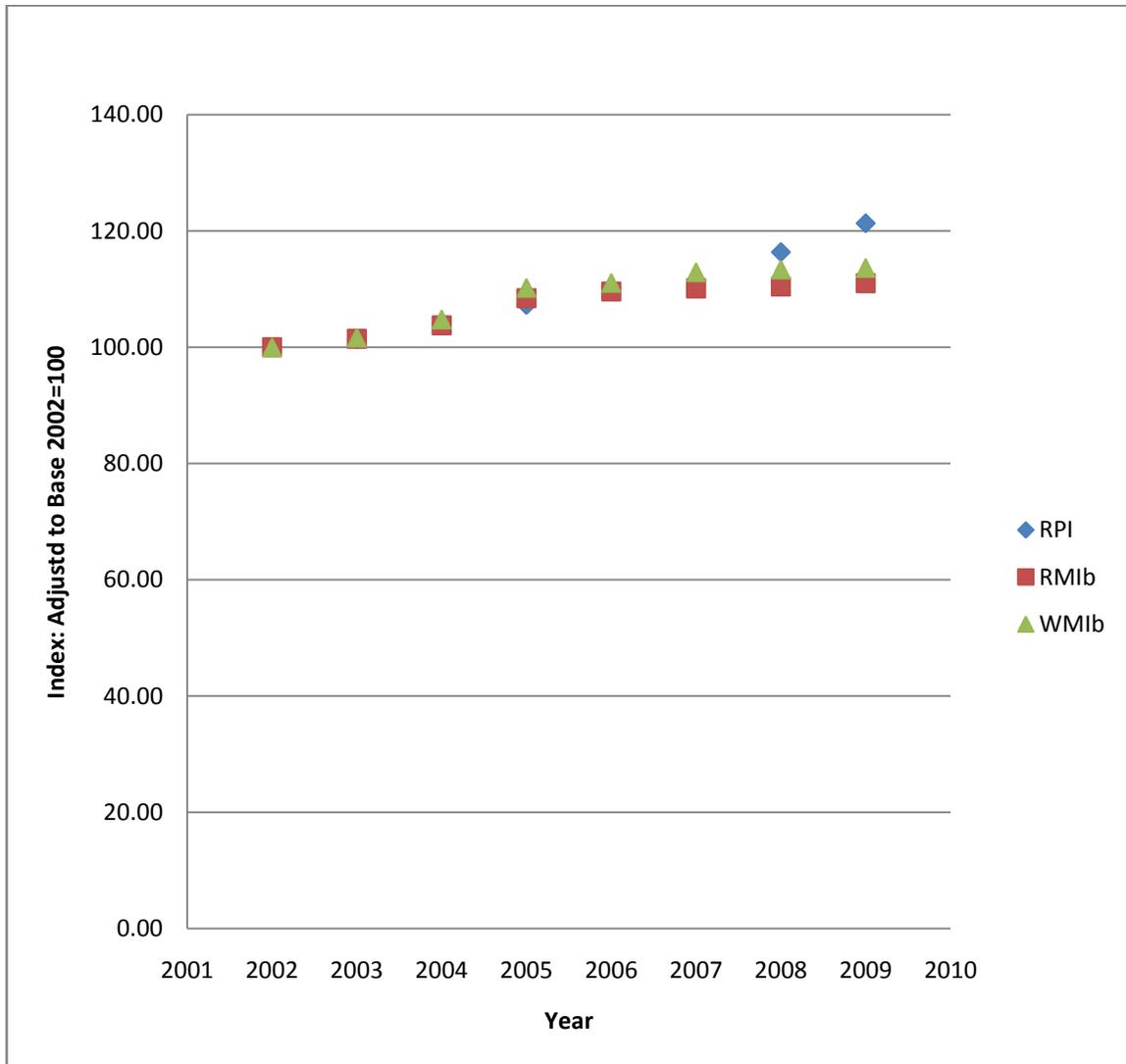


Figure I - The RPI, RMI and the WMI over time.

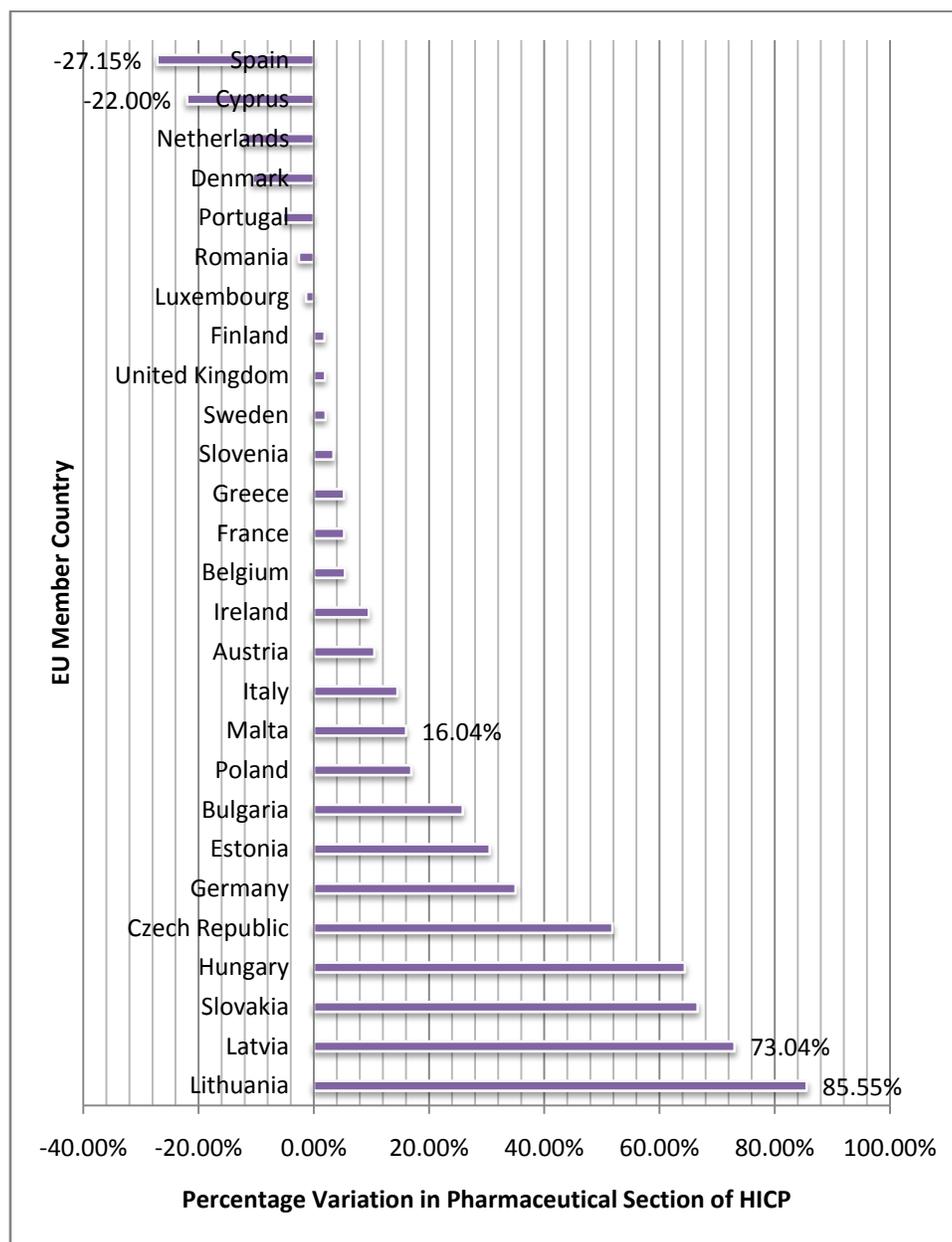


Figure II - The Percentage variation in medicine prices across the EU (2002-2008).³

³ Data drawn from the European Central Bank's Statistical Data Warehouse