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THE IMPACT OF INCOMES AND LOANS ON HOUSEHOLDS' EXPENDITURES. CASE OF ROMANIA

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Abstract: *The population's expenditures, incomes and loans in Romania have increased during the last decade. These trends reveal a direct relationship between the named variable and a possible influence of the loans on the households'expenditures that exceed the influence of incomes. The research results reveal a strong correlation between incomes and expenditures, but also the population's propensity to save. Based on regression analysis we concluded that the additional effect of loans on the expenditures could not be considered statisticaly significant.*
JEL classification: A11, C51, D12, D14
Key words: incomes; expenditures; loans; deposits; regression analysis; living standard

1. INTRODUCTION

The level of population's expenditures is one of the most important indicators at the macroeconomic level because they contribute significantly to the increasing of living standard. In this respect, the factors that determine a certain level of the population's expenditures become of interest for economic research.

As regards the Romanian economy, the roumours stress the existence of a high level of population's expenditures that are not sustained by a real economic development and income increasing. The loans are also considered dangerous because they stimulate an unsustainable consume. Starting from this problem and from several issues debated in literature we tried to find answers to the following questions: (1) Are the Romanian population's expenditures higher than incomes? (2) Which is the loans' influence on the level of expenditures?

The results reveal rational behaviours of the Romanian population, which has a propensity to save money, and an influence of loans on the expenditures which is not statisticaly significant.

2. LITERATURE REVIEW

Credit market is more and more accesible to households that need loans in order to buy expensive goods that can be used over a long period of time. They can benefit from these goods even if they do not have all necessary financial resources at the purchasing date. Thus, the loans could be an alternative to renting goods and services such as houses, cars etc. The purchased products will be paid from future incomes (Andreou, 2011). One of the strongest incentives of household loans is considered the interest rate. In this respect a low interest rate can stimulate the housholds' expenditures and the demand of loans while a high interest rate will discourage such behaviours (Wilcox, 1990).

As regards the effect of loans on the households' expenditures on medium and long run it is revealed in literature a negative effect especially generated by high-cost credits. While this kind of credits can help families to survive after crisis or disasters, on long run the loans reduce the expenditures on nondurable goods affecting negativelly the aggregate demand (Dobridge, 2016). Other researches stress that even loans with low interest rates, such as mortagage loans, could create big problems when they are accessed by people with limited or volatile incomes. In these cases, a decreasing of incomes that can be accompanied by a decreasing in the market value of secured properties could lead to the lenders' impossibility to compensate the debts. In order to avoid such situations, the role of central banks is considered crucial. These ones should regulate de credit market in order to avoid nonperforming loans. The commercial banks should also to evaluate the risk of their creditation activities by taking into consideration different macroeconomic factors, like decline in GDP, exports, unemployment rate etc. (Mileris, 2014).

Nevertheless, other researches conclude that a low level of loans can have a negative impact on households' expenditures because people tend to save more money in order to buy expensive goods (especially houses) in future, and the aggregate demand is decreasing (Muellbauer, 2007). Moreover it is underlined in literature that the increasing of population's loans do not lead to a decline in the housholds'expenditures and the debts evoluate in a direct relationship with the expenditures when a future income increasing is expected (McCathy, 1997). In this respect, the income is considered the main incentive of households' expenditures (Fazel, 2005). The expenditures is also stimulated by a strong development of both traditional and modern trade (Chitu and Tecau, 2014).

3. RESEARCH METHODOLOGY

Having in mind the research questions our main goals was to analyse the evolution of populations'incomes and expenditures in Romania in the last period of time and to identify the main factors that determine the consumption of goods and services. As the income is recognised in the economic theory as the main determinant of consumption we started from the folowing hypotheses:

H_1: The households' income has a direct influence on the population's expenditure.

H_2: The loans have a direct influence on the households' expenditures, which exceeds the influence of the incomes' increasing.

In this respect we designed a theoretical model presented in Figure 1. This one starts from the assumption that if the Central Bank stimulates the decreasing of interest rate, the loans would be stimulated and in their turn the loans would stimulate the population's expenditures. This effect will be added to the income influence on the expenditures.

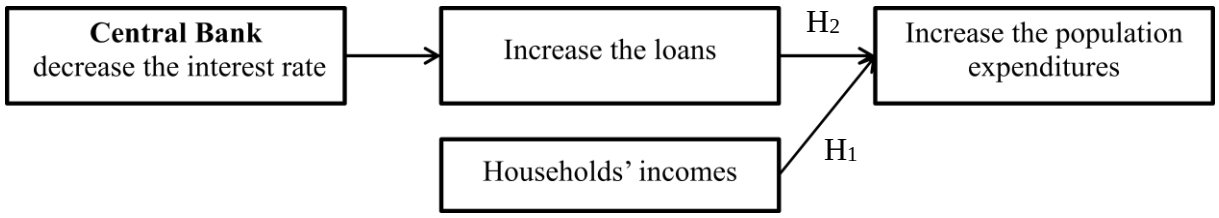

Fig. 1 – Theoretical model regarding the determinants of population's expenditures

In order to test the proposed model we used secondary data published by the Romanian National Institute of Statistics. The raw data have been collected from the statistics data base "Tempo – online" and computed in order to identify the trends of the named variables. Statistical data from the website of Romanian National Bank were also used. The cause-effect relationship from the theoretical model have been tested by using the Linear Regression Model. After testing, the model was redifined taking into account only the significant factors.

4. RESULTS

The results of our research are presented for every objective established: the evolution of population's incomes and expenditures in absolute and real values; the influence of incomes and loans on the households' expenditures.

4.1. The evolution of population's incomes and expenditures

In Romania, the evolution of population's expenditures and incomes in the period 2001-2016 reveals a continuous increasing with a higher ratio from year to year between 2001 and 2008 (see Fig. 2). If these ratios were often higher than 20% in the named period of time, after the economic crisis the increasings of both indicators has been very small, with an annual average of about 4%. In spite of these fluctuations, it can be noticed that signficant increases have been recorded both for population's incomes and expenditures. Thus, in 2016 the monthly average of income per household was 5.64 times higher than in 2001 and the monthly average of households' expenditures increased by 4.89 times. We can observe that if until 2004 the two curves almost overlaped, after 2005 the average incomes have overpassed the level of expenditures. This trend has lead in 2016 to an average income per household higher with about 17% than the average level of expenditures.

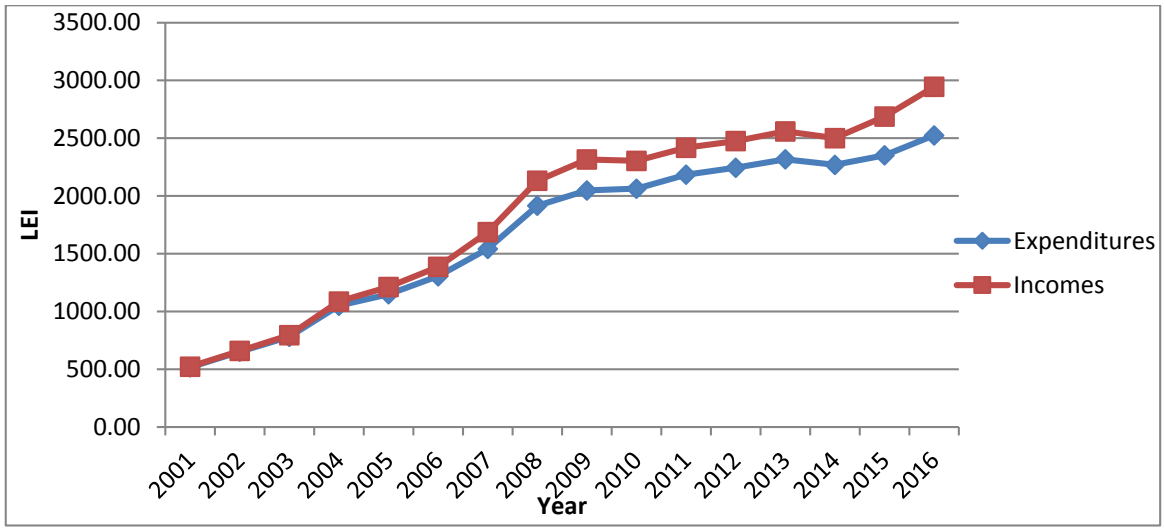

Fig. 2 - Evolution of total households' incomes and expenditures in Romania (monthly average)

(Data source: National Institute of Statistics, Tempo-online. http://statistici.insse.ro)

The evolution of nominal values could be erroneous because the inflation could determine a false increasing, which is nullified by the general increasing of prices. In this respect we examined the evolution of annual consumer price index in Romania for the same period of time. The figures presented in Figure 3 show a quite high inflation between 2001 and 2006 but since 2007 the price index has been stabilised at low values, which decreased gradually until 2016. Following this trend, the inflation recorded negative values in 2015 and 2016.

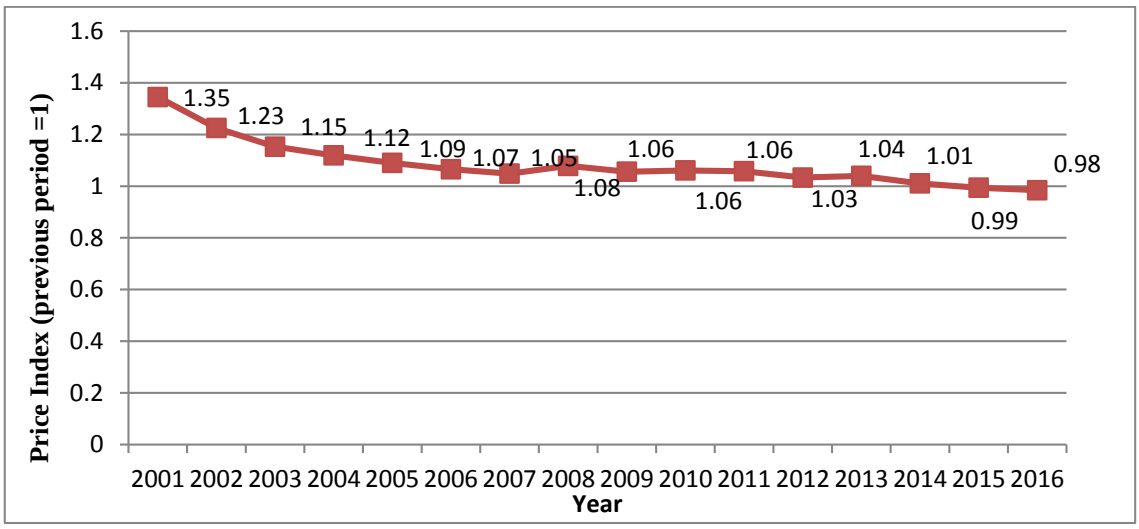

Fig. 3 - The evolution of annual consumer price index in Romania (previous period = 1)

(Data source: National Institute of Statistics, Tempo-online. http://statistici.insse.ro)

Having in mind the above figures we can apreciate that the real increasing of population's incomes and expenditures is not significantly different from the nominal increasing. A comparisson between the nominal and real values is presented in Figure 4.

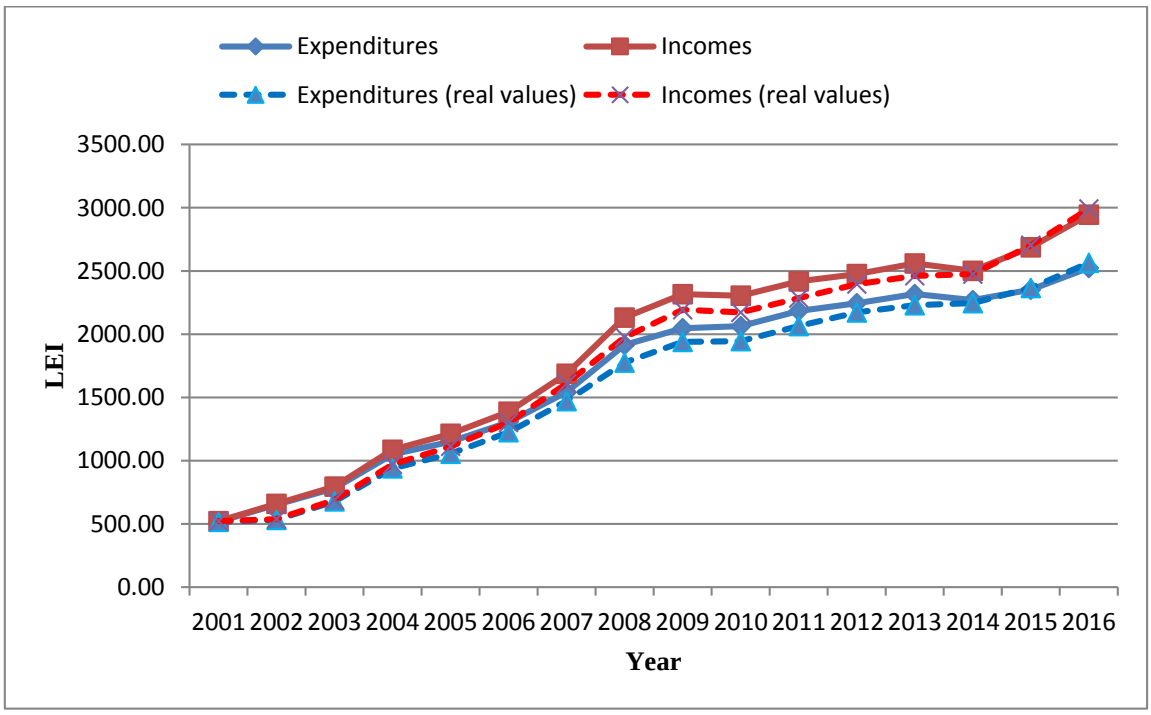

Fig. 4 - The evolution of incomes and expenditures in nominal and real values (monthly average)

In order to obtain the evolution of the named indicators in real values, we corrected the nominal values with the consumer price index. The figures show that both the incomes and expenditures have recorded lower values in real terms but the differences are quite small and the curves overlapped in the last years due to a very low inflation.

4.2. The influence of incomes and loans on the households' expenditures

In order to identify the loans' influence on the population's expenditures we analysed the evolution of loans granted to population in Romania between 2006 and 2016. Data have been collected from the website of Romanian National Bank but these ones have been available only since 2006.

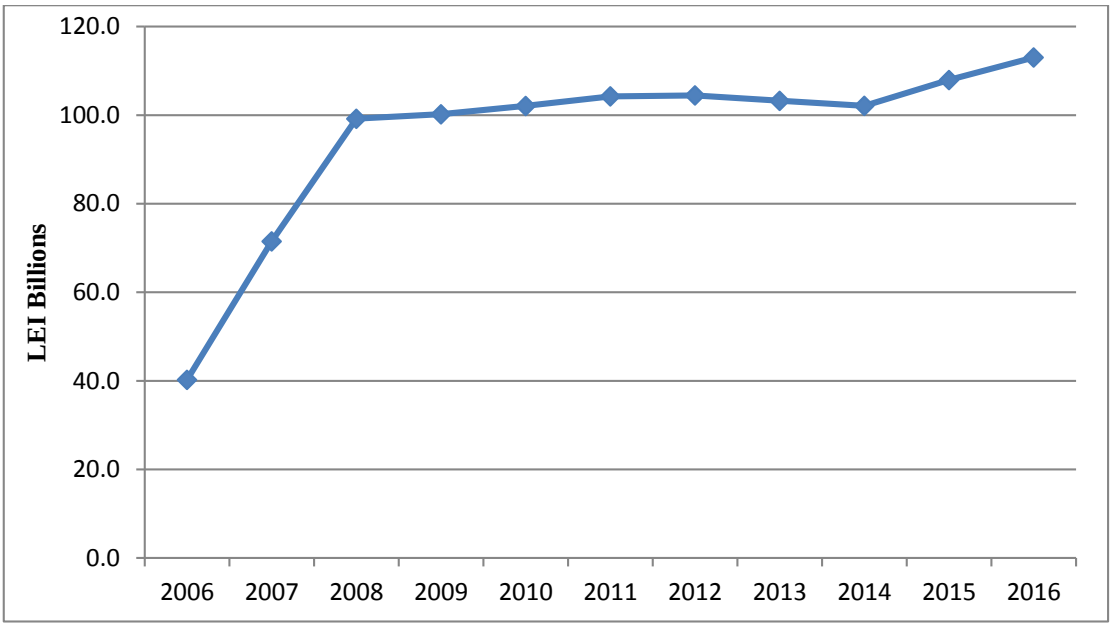

Fig. 5 - The evolution of loans granted to population in Romania (values at the end of year)
(Data source: Romanian National Bank, Statistics. http://www.bnro.ro/Statistics-report-1124.aspx)

Looking at the evolution of loans granted to population we can find a similar pattern with the expenditures and incomes curves for the same period of time. The curve's slope is very high between 2006 and 2008, followed by a small slope after the crisis period. The increasing of the loans' level in 2015 and 2016 is concomitant with the increasing of the other two variables. These evolutions reveal a direct relationship between the loans and population's expenditures, which could be considered for further computations in order to test our research

hypothesis. In this respect, three Linear Regression models have been used. For all these models, the dependent variable was the households' expenditures **('Expenditures")** and the independent variables were: households' incomes **("incomes")** and loans granted to population **("loans")**. For all these variables we used the data presented above for the period 2006-2016. The independent variables were considered separately in two Simple Regression models and after that they were included together in a Multiple Regression model. The results of these three models are presented in the equations (1) – (3).

Model 1

$$Expenditures = 181.17 + 0.81 \cdot incomes + Ɛ \quad (1)$$

(t ratio) (2.92) (31.00)

R- square = 0.989

The first model has taken into consideration the effect of incomes on expenditures and the results show that an increasing with one unit of the income determines an increasing with 0.81 units in expenditures. The t-Student ratios presented into brackets reveal a significant difference from zero of the model parameters. According to the value of determination coefficient (R-square=0.989) the households' incomes explain almost 99% of the households' expenditures variation. Thus, the first research hypothesis (H_1) could be accepted.

Model 2

$$Expenditures = 531.83 + 16.13 \cdot loans + Ɛ \quad (2)$$

(t ratio) (2.88) (7.92)

R- square = 0.874

In Model 2, the loans granted to population have been considered alone as regressor in a Simple Regression model. A direct influence is also revealed, which is statistically significant according to the value of t-Student ratios. The R-square coefficient indicates an explanation of 87.4% given by this regressor for the variation of the expenditures.

In spite of the above conclusions, the variables that influence the expenditures cannot be considered separately rather than in their interdependence. For this reason, in the third model we included together the incomes and loans as regressors.

Model 3

Expenditures= 188.31 +0.77·incomes + 0.99·loans + Ɛ (3)

(t ratio) (2.89) (10.27) (0.63)

R square = 0.991

In this case the influence of loans has become not significant from the statistical point of view as the t-Student ratio is smaller than the standard value. This phenomenon could be explained by the collinearity of the regressors. The value of R-square coefficient also indicates a very small increasing in comparison with the first model. In conclusion we cannot accept that the level of loans granted to population comes with additional information in explaining the increasing of populations' expenditures. Thus, the second research hypothesis (H_2) has been rejected.

In order to find an explanation to this rejection we included in the analysis the evolution of households' deposits in Romania between 2006 and 2016 (see Fig. 6).

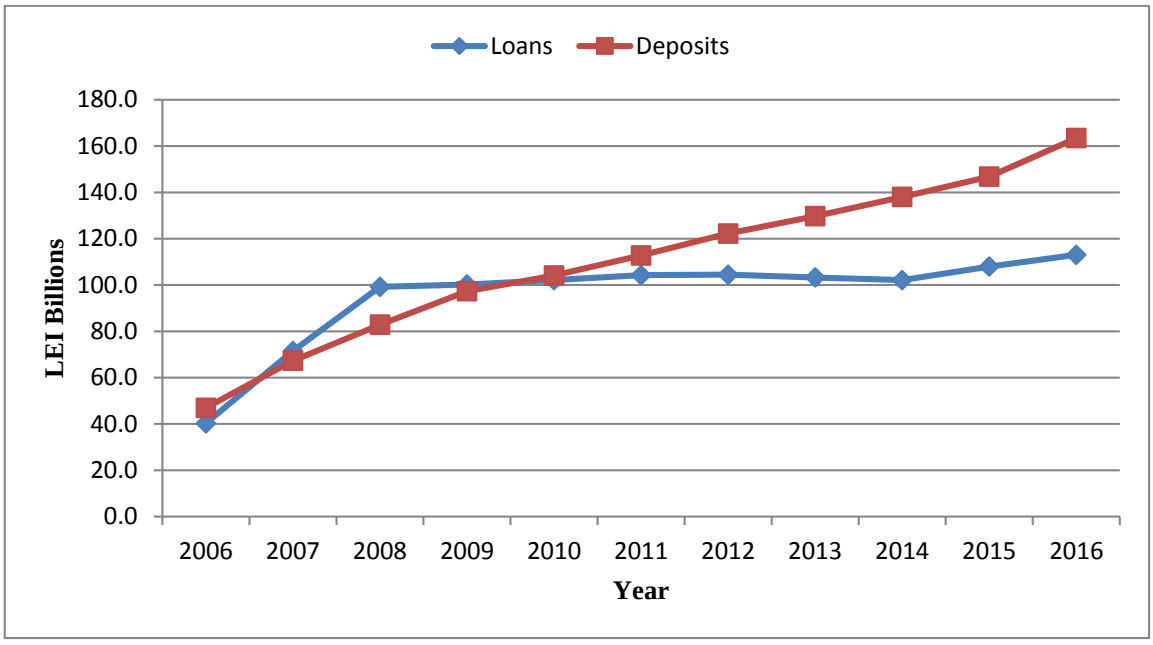

Fig. 6 - The evolution of loans and deposits of population in Romania (values at the end of year)

(Data source: Romanian National Bank, Statistics. http://www.bnro.ro/Statistics-report-1124.aspx)

In Figure 6 we can see that the level of loans granted to population exceeded the value of deposits only in the period 2007-2009, which corresponds to the economic crisis, but starting with 2010 the volume of deposits increased with a higher ratio than loans. This analysis reveals the Romanian population's propensity to save.

CONCLUSIONS

The main conclusion of our research confirm a part of the findings presented in economic literature concerning the determinant influence of incomes on the populations' expenditure (Fazel, 2005) and the direct relationship between expenditures and debts when the incomes is expected to increase (McCathy, 1997). In spite of this relationship, the level of loans has not contributed significantly to the expenditures' increasing over the last decade in Romania. Thus, the research hypothesis concerning to a significant influence of loans, which exceed the influence of incomes has been rejected. The empirical model resulted after the statistical testing is presented in Figure 7.

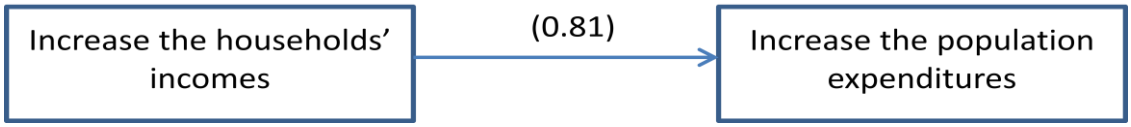

Fig. 7 – Empirical model regarding the determinants of population's expenditures

According to this model more than 98% of the expenditures' variation is explained by incomes and an increasing with one unit of incomes could lead to an increasing of expenditures with about 0.81 units. An estimation error (Ɛ) should be also considered. The difference of income that are not spent on goods and services is expected to be used for savings or loans reimbursement.

The behaviours of Romanian population during the last decade have revealed a propensity to save money as the level of incomes has always been higher than the level of expenditures and the bank deposits increased significantly. Such behaviours are not in line with some issues from literature according to which the population have usually irrational behaviours in anticipation the loans' risk and the regulatory system has to descourage a high level of creditation (Mileris, 2014). Nevertheless, a prudential policy in analysing specific categories of loans and the risk of individuals has to be put in practice in order to avoid non-performing credits.

One of the research limits consists in using mainly average figures at national level without a deep analysis regarding the behaviours of various segments of population and the reasons for which they accessed loans. Such analyses could be based mainly on marketing research, which allow the acces to primary data from population. Such researches could be further research direction on the topic of this paper.

As a general conclusion, the average figures at the level of Romanian population show rational behaviours regarding the expenditures. Thus, the savings have recorded significant increasings in spite of a very low level of the interest rate offered by commercial banks for deposits. Such behaviours reject the issues regarding the populations'expenditures that are considered very high in Romania and based significantly on loans. In spite of these evidences, a special attention should be paid to the posibility of a possible economic downturn.

CONFLICTS OF INTEREST AND PLAGIARISM: The authors declare no conflict of interest and plagiarism.

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