

Exploring the Peaks and Valleys in the Number of Births in Portugal

António Caleiro

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Abstract In spite of the remarkable downward trend in fertility that characterizes Portugal, birth seasonality is still evident. A time series analysis of the data shows that, in general, May and September are months where more births take place and that December and February are the months with the lowest figures. In particular, the September peak in births, which is the most remarkable result, is shown to be related to end-of-year (economic) expectations.

Keywords Births · Confidence · Fertility · Peaks detection · Portugal · Seasonality · Time series

Introduction and Motivation

Portugal is characterised by a noteworthy decline in fertility, a phenomenon that requires some intervention given the economic and social costs associated with it. Notwithstanding the downward trend in fertility, a careful analysis of the data on the number of births in Portugal indicates that there are months where the number of births

is apparently much higher, as well as others where the number of births seems to be much lower.

Seasonality in the number of births is an issue that has long deserved attention. In a seminal work, Huntington (1938) called attention to the fact that seasonal variations in the number of births could essentially be explained by reasons related to climate/weather. According to this view, a higher number of conceptions should occur in a season such that the consequent births would take place at a time of year characterised by a temperature which guaranteed a higher probability of survival. Studies on the alleged physical and/or intellectual characteristics of babies that are born in a particular season, such as the likelihood of certain types of diseases, notably of mental origin, have a long history—see Castrogiovanni *et al.* (1998) for a review of some relevant issues in psychiatry related to season of birth.¹

Clearly, the relationship between season of birth and the factors identified in the literature, such as a lesser likelihood of certain diseases, does not necessarily require or imply that in some months or seasons a significantly higher/lower number of births would occur. This implication would only gain relevance if we assumed that the decision to conceive in a particular month/season is made in order to improve the chance of babies being born in a season/month which offered them better prospects. In fact, the link between climatic factors and birth seasonality has been demonstrated to be adaptive, rather than the result of a rational choice. For instance, there are some physiological factors, i.e., factors not depending on human choice, which may indeed be causal of many more/fewer births in particular months or seasons.

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A. Caleiro (✉)
Departamento de Economia, Universidade de Évora,
Évora, Portugal
e-mail: caleiro@uevora.pt

¹ Huntington (1938: v–vi) himself pointed out “the curious relation of low temperature not only to mental activity but also to the conception of persons who later display unusual intellectual ability.”