

# FECUNDITY AND FAMILY STRUCTURE IN SPAIN

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## ABSTRACT

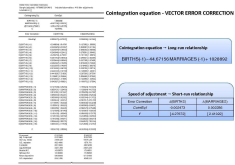
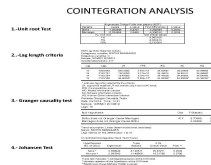
**OBJETIVE:** The study analyzes in Spain the relationship between fecundity and marriage. Using econometrics and statistics we shall study the series of births to married and unmarried mothers with the aim of constructing a model allowing an approximation to the relationship between fecundity in and outside of marriage (1976M05-2010M12).

**METHOD:** You specify a Vector Error Correction (VEC). This will consider the dynamic adjustment of the variables in both the short as long term.

**RESULTS:** - It checks the domain short or long term effect. The resulting serie is a linear combination of both and have short memory.

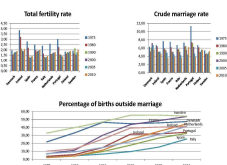
**CONCLUSIONS:** - The births are explained by themselves and by the delay marriages from 12, while marriages are explained only from their own path

## RESULTS



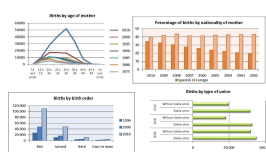
## INTRODUCTION

### FERTILITY AND MARRIAGE IN EUROPE



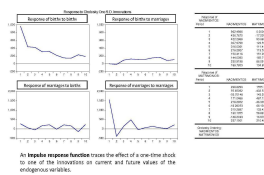
Source: IINE, Eurostat.

### PROFILE OF UNMARRIED MOTHERS IN SPAIN



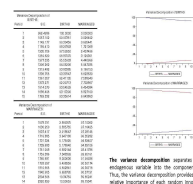
Source: IINE, Eurostat.

## IMPULSE RESPONSE FUNCTION



Impulse response function from the effect of a one-time shock on the response of current and future values of the endogenous variables.

## VARIANCE DESCOMPOSITION



The values correspond to the relative contribution of each variable to the variance of the response of the dependent variable to the VEC. The relative contribution shows the relative importance of each variable in affecting the variance of the VEC.

## METHODS

### VECTOR ERROR CORRECTION (VEC) MODELS

Vector Error Correction (VEC) Models: The VEC has cointegration relations built into the specification so that it restricts the longer behavior of the endogenous variables to converge to their cointegrating relationship while allowing for short-run adjustment dynamics. The cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments. The VEC specification only applies to cointegrated series.

#### Cointegration Testing

1. Test each stock as different dependent series is said to be integrated and is denoted as I(d) where d is the order of integration. The order of integration is the number of unit roots contained in the series, or the number of differencing operations it takes to reach the series stationarity. The analysis ends with the Augmented Dickey-Fuller.
2. First determine the optimal delay using several criteria: AIC, BIC, FPE, FPE Error de Predicción Final, AIC Modèles CC, etc.
3. The Cointegration Test.
4. Test cointegration (rank test). Study whether the variables are cointegrated.

#### Vector Error Correction (VEC) Models

The cointegrating equation is

$$Y_t - \beta Y_{t-1} = \alpha + \epsilon_t$$

The corresponding VEC model is:

$$\Delta Y_t = \alpha + \beta(Y_{t-1} - \beta Y_{t-1}) + \epsilon_t$$

In this simple model, the only right-hand side variable is the error correction term. In long-run equilibrium, this term is zero. However, if  $\alpha$  and  $\beta$  deviate from the long-run equilibrium, the error correction term will be nonzero and push variables to partially restore the equilibrium relation. The coefficient  $\alpha$  measures the speed of adjustment of the endogenous variables towards the equilibrium.

- Marriage is the cause of fertility?
- Does the non-marital fertility is due to marriage?

#### Empirical Analysis

EMPIRICAL DATA	VARIABLES	DESCRIPTION
Births	Nonmarital Births Variable	Number of non-marital births
Marriages	Marriages	Number of marriages
Marriage Rate	Marriage Rate	Ratio of marriages to population
Marriage Rate	Marriage Rate	Ratio of marriages to population

The exercise has been undertaken with the OLS and VEC.

## CONCLUSIONS

1. In 1975 only 2 out of every 100 births occurred outside marriage in Spain. Between 1975 and 1990 the rate of change of those born outside marriage in Spain increased 373 percent. Since 2000, significant positive changes occur and in 2010 the weight in Spain is, 32.47 percent, down from Sweden (54.16 percent) and ahead of Italy (25.41 percent) and similar to Ireland (33.48 percent). Changes in the sociodemographic profile of nonmarital fertility in Spain: 1.- Increased maternal age; 2.- Foreign mother; 3.- Increase in the second and third births; 4.- Cohabiting parents.
2. Since the series are cointegrated births and marriages will be possible to distinguish a long-term and short-term dynamics.
3. In the short term both variables, births and marriages, respond to imbalances to restore convergence to long run equilibrium.
4. In the long term there is a complementary relationship. Evidence for the presence of an effect crowding-in.
5. The estimated model indicates that births are explained by themselves and by the delay marriages from 12, while marriages are explained only from their own path.
6. The response of births to a shock in the history of marriage behavior or collects initial negative effect is immediately replaced by positive effects throughout the entire period. Marriage is a cause of fertility.
7. The response of marriages to a shock to the behavior or trajectory of births does not include a clearly positive or negative effect, but varies over the different delays. Nonmarital fertility is not due to marriage.

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