

# Population, Health and Nutrition in Spain (18<sup>th</sup>-20<sup>th</sup> Centuries)

Antonio D. Cámara  
Centre d'Estudis Demogràfics  
Barcelona-Spain

## Introduction and study objectives

Demographic and health indicators in Spain have shown divergent trends and values with respect to some neighbor countries until the last decades of the 20<sup>th</sup> century when an intense process of improvement in wellbeing occurred in that country. Just to consider the cases of the demographic and health transitions, both declines in mortality and fertility considerably delayed. In many cases of Western Europe the bulk of these changes were already in progress between the mid 18<sup>th</sup> and mid 19<sup>th</sup> centuries (mortality) (Schofield et al., 1991) and in the late 19<sup>th</sup> and early 20<sup>th</sup> century (fertility) (Livi-Bacci 1992; Gillis et al., 1992). In contrast, in most Spanish regions, those changes did not commence until the late 19<sup>th</sup> century and the second decade of the 20<sup>th</sup> century respectively (Nicolau, 2005). Also, data on height (used as an indicator of cohort nutritional status) at mid 19<sup>th</sup> century have shown that Spanish males were among the shortest within Western societies (Cámara, 2007). These facts had been mainly associated to the economic trajectory followed by the country, particularly to the failure of industrialization and the delay of the Spanish agriculture during the 19<sup>th</sup> century (Nadal, 1975). After reviewing these initial statements, the Spanish economic history has recently concluded that an economic growth, though limited, took place at least since the middle of the 19th century (Germán et al., 2001). Being so, it is still needed to find out why such economic development did not render parallel benefits in terms of health and nutrition for the majority. This apparent paradox results of major interest in a country that did not attend an accelerated industrialization and urbanization process (factors usually cited when arguing on the negative effects of economic growth for some components of living standards (Floud et al., 1990).

This paper is focused on the study of some variables and processes that have received little attention on behalf of Spanish historiography so far. This is the case of the interaction among the growth of the Spanish population, the productive capacity of the Mediterranean agrarian systems and the institutional changes that were occurring since the middle of the 18<sup>th</sup> century. Demographic and productive trends will be reviewed both at the national and local levels in the hope to draw a general explanatory background on the evolution of biological living standards in Spain during the transition to the modern society. Not only the Malthusian paradigm during that period is reviewed under a classical approach to the synergy among population, infection and nutrition (Rotberg and Rabb, 1985) but also social implications behind the whole process of changes are analyzed and related to the impact of institutional changes over the communities.

## Sources, methods and preliminary results

Following a fruitful way of practising historical demography, a combined use of indicators providing both quantitative and qualitative information is applied (Bengtsson et al., 2004). Population growth rates, mortality rates, death cause specific patterns and trends in height are analysed using nominative information and, thus, allowing a micro-social approach to supplement aggregated figures.

The data come from two rural communities in the south of the country. These communities, merely distant 40 km. are, nevertheless, very representative of diverse ecological and socioeconomic scenarios existing in rural Spain at the end of the Ancient Regime (second half of the 18th century). Santa Fe experienced an early transition to the agrarian capitalism as showed by a rapid privatization of lands between 1750 and 1850 and the practice of a modern agriculture based on some cash crops like hemp, linen and beetroot similarly to the most advanced areas of Northern Europe. In contrast, Montefrío kept large extensions of commons as well as the traditional Mediterranean crops and farming system until the last third of the 19<sup>th</sup> century.

The anthropometric data of Montefrio come from the Local Military Recruitment Records (LMRR) extraordinarily preserved since the last third of the 18<sup>th</sup> century. Heights of Santa Fe come from the LMRR (available since the beginning of the 20<sup>th</sup> century) as well as from the Provincial Military Recruitment Records (PMRR), which gathered the local data under the same criteria since the end of the 1870s (male cohorts born since the late 1850s). A database containing information about 20,000 recruits from both communities was assembled. Name and last name were recorded allowing to identifying the recruit's family in the local censuses and, thus, permitting the addition of other variables like the household context (e.g. the household's head occupation).

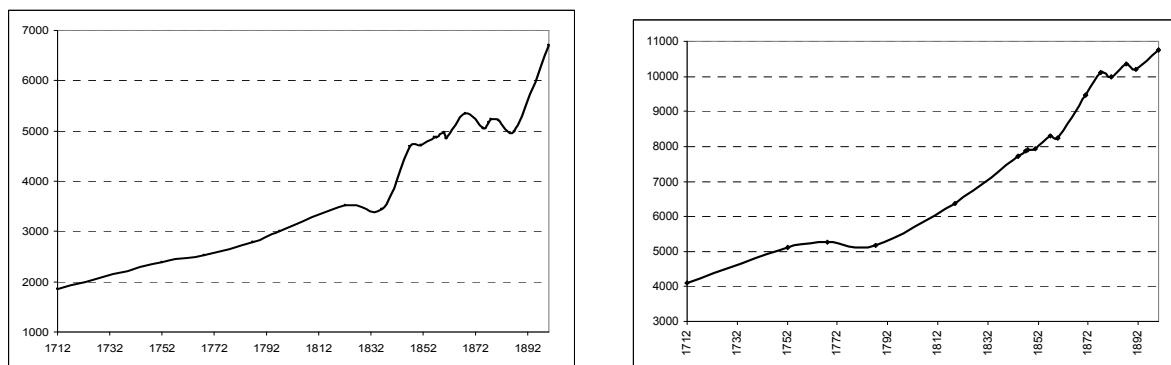
Under the same nominative criteria data on mortality were also collected from the local vital statistics. Age, occupation and cause of death were consequently added into the database. The treatment of the death causes is based on the adaptation of McKeown's classification made for the Spanish case (Bernabeu et al. 2003).

Supplementary demographic and economic data have been also collected from different local archival sources for the period 1750-1900 and will be presented in the paper (e.g., changes in crop systems and landholding, productive trends and livestock composition).

Next it is proceeded to present some preliminary results that will be commented in detail in the paper. Firstly, different ecological and socioeconomic contexts seem to have determined a different timing and response to both mortality and nutritional crisis within the studied communities.

Secondly, the poor results of health and nutrition indicators are preceded by an intense demographic growth period during the central decades of the 19<sup>th</sup> century. Very significant inequalities in the community height distribution are observed and, when these are explored in detail through the local censuses, some social sectors appear to be particularly affected during the periods of economic stress also matching relevant institutional changes (namely the progress of liberal measures at the countryside). A transitory process of convergence is detected by the end of the 19<sup>th</sup> century. In contrast, again, the first third of the 20<sup>th</sup> century and particularly the years of the Spanish Civil War and early post-war (1936-44) might have attended an increase of social differentiation in terms of health and nutritional status.

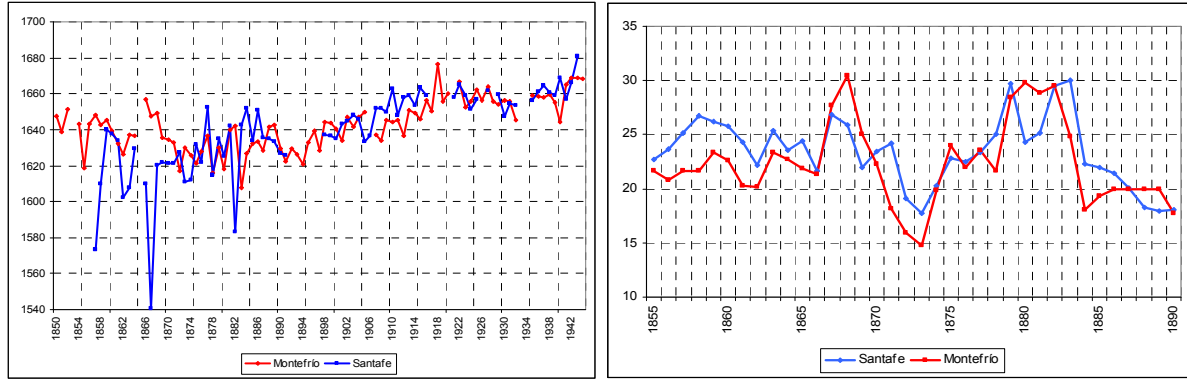
**Figure 1. Evolution of population in Santa Fe (right) and Montefrio (left) 1712-1900**



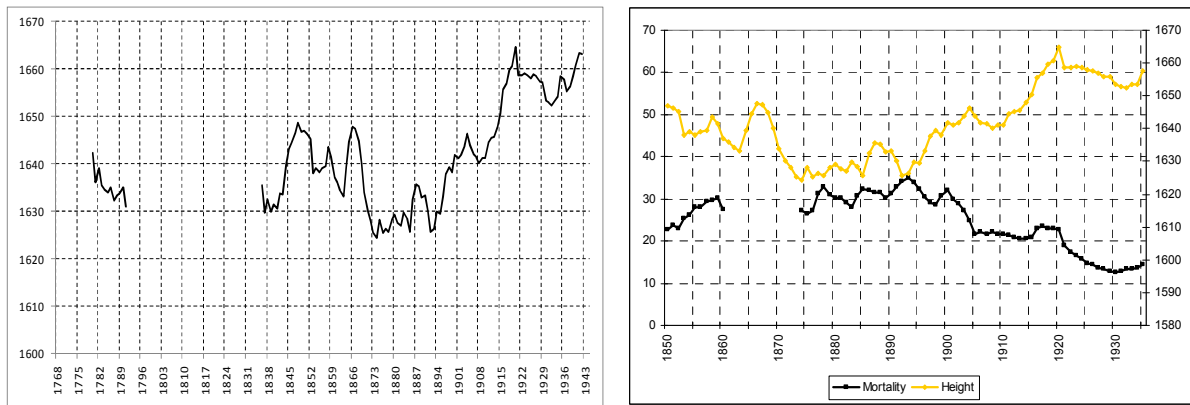
**Table 1. Evolution of the general mortality pattern**

	Montefrio		Santa Fe	
	Infectious	Non infectious	Infectious	Non infectious
<b>1841-80</b>	68.2%	31.8%	74.1%	25.9%
<b>1881-1900</b>	67.4%	32.6%	76.2%	23.8%
<b>1901-35</b>	55.9%	44.1%	57.3%	43.6%

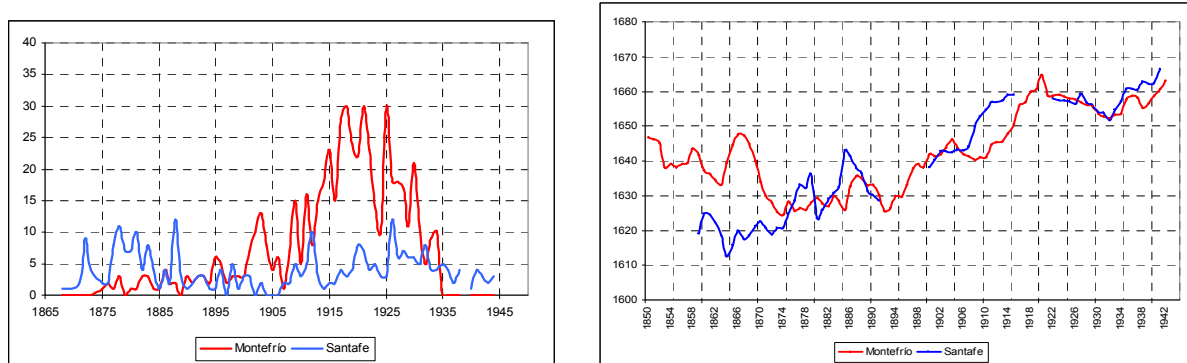
**Figure 2. Annual mean height (mm.) and annual wheat prices (pesetas per hectolitre) (subsistence crisis in 19<sup>th</sup>-century Spain happened in 1857-58, 1867-68 and 1881-82)**



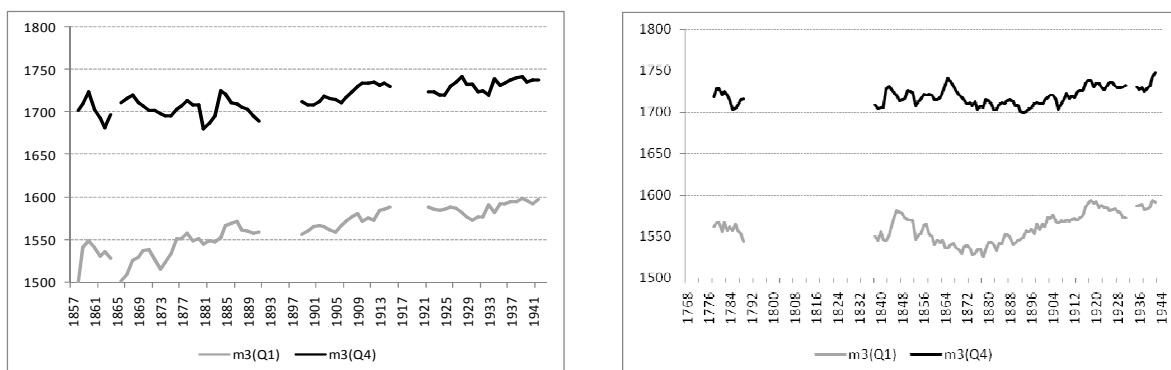
**Figure 3. Height by cohort (mm.) and mortality (per thousand) in Montefrio. Five-years moving averages**



**Figure 4. Three malnutrition-related death causes (rachitis, rickets and atrepsia) and height**



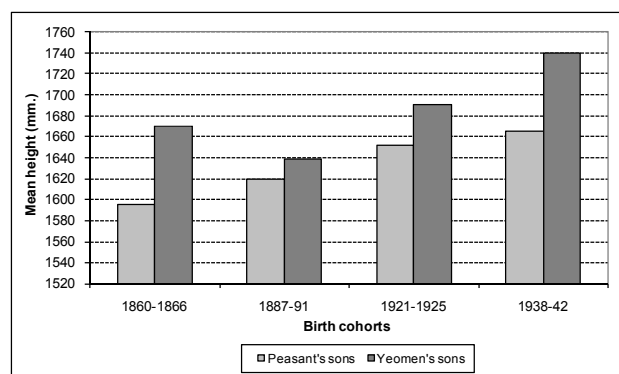
**Figure 5. Height distribution in Santa Fe and Montefrio (quartiles and mm.) 3yrs moving average**



**Table 2. Height (mm.) and social status. Montefrío, 1830-1944**

Family	Cohorts (valid cases)				
	1830-59	1860-89	1890-1909	1910-29	1930-44
García-Valdecasas	1714 (7)	1699 (16)	1689 (8)		1691 (3)
Ruiz-Fuensalida	1757 (2)	1685 (4)	1649 (2)		
Alba	1694 (7)	1691 (7)	1666 (7)	1701 (3)	1708 (3)
Rico	1696 (11)	1691 (7)	1657 (10)	1642 (8)	1676 (9)
<b>4 Selected families</b>	<b>1715 (27)</b>	<b>1691 (34)</b>	<b>1665 (27)</b>	<b>1671 (11)</b>	<b>1692 (12)</b>
<b>Community</b>	<b>1648</b>	<b>1632</b>	<b>1636</b>	<b>1654</b>	<b>1658</b>

**Figure 6. Height and socioeconomic status in Santa Fe**



## References

- Bengtsson, T., Campbell, C., Lee, J. et al. (2004): *Life under Pressure. Mortality and Living Standards in Europe and Asia, 1700-1900*. Cambridge, the MIT Press.
- Bernabeu, J, Ramiro Fariñas, D., Sanz Gimeno, A., Robles, E. (1993): “El análisis histórico de la mortalidad por causas. Problemas y soluciones”. *Revista de Demografía Histórica*, XXI, I, pp. 167-193.
- Cámara, A.D. (2007): “La paradoja de la modernización en España: el descenso de la estatura en el medio rural durante la fase expansiva del primer capitalismo agrario”. Paper for the *III Congreso Internacional de la Asociación Mexicana de Historia Económica*. Cuernavaca (Mexico).
- Floud, R., Watcher, K., Gregory, A. (1990): *Height, health and history: nutritional status in the United Kingdom 1750-1980*. Cambridge, Cambridge University Press.
- Germán, L., Llopis, E., Maluquer, J., Zapata, S. (2001): *Historia económica regional de España, siglos XIX y XX*. Barcelona, Crítica 2001.
- Gillis, J., tilly, L. and Levine, D., (eds.) (1992). *The European experience of declining fertility. A quiet revolution (1850-1970)*. Cambridge, MA, Blackwell.
- Livi-Bacci M. (1992), *A Concise History of World Population*. Cambridge, MA, Blackwell Publishers.
- Nadal, J. (1975): *El fracaso de la revolución industrial en España, 1814-1913*. Barcelona, Ariel.
- Nicolau, R., 2005. “Población, salud y actividad”. In A. Carreras and X. Tafunell, (eds.), *Estadísticas Históricas de España. Siglos XIX y XX*. Segunda edn. Madrid, Fundación BBVA, pp. 79-154.
- Rotberg R. and Rabb, T. (1985): *Hunger and History. The impact of changing food production and consumption patterns on society*. Cambridge, Cambridge University Press.
- Schofield R.S., Reher, D.S. and Bideau, A. (eds.) (1991): *The decline of mortality in Europe*. Oxford, Clarendon Press.