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From Affluence to Processed Food: Meat Consumption in Spain from 1950 to the present

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KEYWORDS: **nutritional transition, meat, Spain, consumption.**

JEL CODES: **N34, N54, O13, E21.**

Using Spain as a case study, we analyze the evolution of meat consumption from the 1950s to the present. A meat consumption database was constructed using four sources: the FAO, Ministry Balance Sheets, Household Budget Surveys and the Food Consumption Panel. The study has two main contributions. First, we question the idea that meat consumption in Spain has been increasing steadily since the 1950s, as some economic historians have reported. Second, we identify two different food consumption models. The first is characterized by an increase in standardized meat consumption and the second features decreased meat consumption alongside a rise in the consumption of processed and prepared meat.

Del exceso a la comida procesada: Evolución del consumo de carne en España desde la segunda mitad del siglo XX

PALABRAS CLAVE: **transición nutricional, carne, España, consumo.**

CÓDIGOS JEL: **N34, N54, O13, E21.**

En este trabajo utilizamos a España como caso de estudio para analizar la evolución del consumo de carne desde la segunda mitad del siglo XX hasta nuestros días. Para ello, hemos construido una base de datos utilizando cuatro fuentes: la FAO, los balances del ministerio, las encuestas de presupuestos familiares y el panel de consumo alimentario. Hay dos contribuciones principales. En primer lugar, ponemos en duda el hecho de que el consumo de carne en España haya estado creciendo ininterrumpidamente desde los años cincuenta, tal y como algunos trabajos han afirmado. En segundo lugar, observamos dos modelos de consumo alimentario: el primero está caracterizado por el incremento en el consumo de carne estandarizada y, el segundo, se caracteriza tanto por la caída en el consumo de carne como por el incremento en el consumo de carne procesada y más elaborada.

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1. INTRODUCTION

The topic of meat consumption is a highly debated and widely discussed issue in current times. There is a general agreement among the public and scientific community that overconsumption of meat in both developed and developing economies raises various health, environmental, and ethical concerns. However, it is noteworthy that the trends in meat consumption in high-income and emerging economies are divergent. While developing economies have seen an upward trend in meat consumption (Delgado, 2003), developing economies have experienced a downward trend in recent years, though this decrease in consumption is not enough to achieve sustainable diets (Stewart *et al.*, 2021).

Multiple studies from different disciplines, including economic history, history, sociology, and nutrition studies, have differentiated two phases in the evolution of food consumption. Meat consumption and the consumption of other animal products such as milk, play a significant role in differentiating between these phases. The first phase is marked by an increase in meat consumption, while the second phase is characterized by a decrease in meat intake.

Nutritionist Barry Popkin identifies these two periods in his presentation of the modern nutritional transition. Generally, the nutritional transition takes place when a society reduces its consumption of plant-based foods and increases its intake of animal fat, sugar, and processed foods (Popkin, 1993)[1]. However, in the final stage of the nutritional transition, Popkin argues that there is a behavioral change involving a greater awareness of eating habits. This behavioral change represents a "break" in the evolution of food consumption, where societies decrease their intake of meat, milk, sugar, and so on. Empirically, some authors have demonstrated that once a certain income level is reached, meat consumption in high-income countries tends to decrease, giving rise to this "break" (Cole & McCoskey, 2013; Hansen, 2018).

Louis Malassis, in his examination of dietary changes and food consumption models (Collantes, 2016; Fonte, 2002; Malassis, 1997), highlights a significant "break" in the evolution of food consumption that occurred around the 1980s. During this period, wealthy societies reached a maximum calorie intake of approximately 3500 per day, with 40% of protein intake coming from animal products (Malassis, 1997: 220-24). Instead of continuing to increase food consumption, consumers began to diversify their dietary choices and reduce their calorie intake. This shift in food consumption can be attributed to the

1. See also Grigg (1995) for a historical approach and Delgado (2003) for a focus on developing countries.

rise of the Fordism model, which led to an increase in the consumption of standardized agro-industrial food products following the Second World War (Collantes, 2019b; Clar, 2008). In the subsequent decades, the consumption of prepared, processed, and elaborated foods became more prevalent in wealthy countries (Laajimi & Albisu, 1997; Langreo, 2008), resulting in a stabilization or decrease in calorie intake.

The prevalent view of nutritionism has also affected consumer preferences with regards to meat consumption. During the 19th century, meat was perceived as a vital source of protein in Europe, resulting in a rise in global meat trade and consumption (Scrinis, 2013: 115). Similarly, in the early 20th century, the global perspective on nutritionism centered on the ideal diet, promoting the intake of calories, macronutrients, and vitamins (Barona, 2008: 91). Biltekoff, analyzing this process in the USA, refers to this paradigm as "newer nutrition", which persisted until the first half of the 20th century. However, following World War II, the view of nutritionists changed to "negative nutrition", highlighting the health risks associated with excessive meat consumption, such as obesity and cardiovascular diseases (Biltekoff, 2012: 6-7; Collantes, 2015a: 252; Scrinis, 2013: 141; Variyam & Golan, 2002: 13). As a result, shifts in mainstream nutritional views may have impacted consumer preferences by encouraging a decrease, or a "break", in meat consumption.

In summary, using the terminology employed by McNeill and Engelke (2014) to describe the significant economic and population growth that took place after 1945, we can distinguish a first period characterized by a "great acceleration" in meat consumption, and a second period marked by a decreasing and diversifying trend in meat intake.

In this context, we utilize Spain as a case study in order to analyze the evolution of meat consumption from the latter half of the twentieth century until the present. As discussed in depth in Section 3, there are two distinct perspectives regarding the evolution of meat consumption in Spain during this period. One perspective depicts a significant acceleration in consumption, while the other emphasizes a break around the 1990s, with consumption stagnating and tending to decrease thereafter. By presenting, for the first time, a comprehensive database of meat consumption in Spain from four sources covering the years 1952-2019, we aim to reconcile these two perspectives. Additionally, the disaggregation of meat consumption by type of animal and degree of elaboration allows us to identify two distinct models of consumption before and after the eighties, where processed meat (specifically pork) is gaining increasing significance in the Spanish diet. From a policy perspective, this is of significance as processed meat is less healthy than fresh meat. Therefore, in order to design a policy to reduce meat consumption, it is essential to utilize accurate meat consumption data in order to understand the historical trend and identify the types of meat most popular.

The work is composed of five sections. Following the introduction, we provide a detailed presentation of our database, as well as a critical examination of the utilization of indirect sources of meat consumption. In Section 3, we examine the current state of research on meat consumption in Spain and the various perspectives presented in the literature. In the following section, we present the various series of aggregate meat consumption and explore how they may be reconciled, as well as an international perspective. In Section 5, we showcase the main trends of meat intake from a disaggregated perspective. Lastly, we present concluding remarks and future research directions.

2. DATA BASE AND METHODOLOGY

In order to obtain a comprehensive, reliable, and systematic series of meat consumption in Spain from the latter half of the twentieth century to the present, we have collected data from four different sources. Two of these sources utilize indirect methods: Food and Agriculture Organization (FAO) and Ministry Food Balance (MFB), while the other two utilize direct methods: Household Budget Surveys (HBS) and Food Consumption Panel (FCP). Direct methods aim to provide real consumption at the household level through surveys and shopping records, while indirect methods provide residual results (see below). The last benchmark year we are taking into account is 2019 due to data distortion caused by the COVID-19 crisis in 2020. In other words, we believe that the effects of the pandemic on meat intake should be studied separately.

Household Budget Surveys are widely considered to be the most reliable source of data. While they are not conducted on an annual basis, they provide information on direct consumption from 1958 to 2018[2]. Basic Household Budget Surveys (BHBS) collect data in 1958, 1964/65, 1973/74[3], 1980/81 and 1990/91. The sample size of the BHBS ranges from 24,000 to 28,000 households, which is considered to be a respectable and representative sample size[4]. The more recent BHBS provide increasingly detailed and disaggregated data. Nonetheless, all BHBS data has been relatively disaggregated since 1964. The Permanent Surveys of Consumption (PSC) have a smaller sample size (around 2,000 households) and the data is significantly less disaggregated than that provided by BHBS, however, it provides quarterly data on consumption from 1977 to 1985. The PSC were

2. This paragraph is highly based on Collantes (2012: 5), and Maluquer de Motes (2005: 1271-72) .

3. We have chosen not to consider the 1973/74 BHBS in our analysis, as it does not provide information on the intake of physical quantities, only the household spending.

4. The 1958 BHBS contains a less simple-size (around 4,000 households).

replaced in 1985 by the Continuous Household Budget Surveys (CHBS), which have a sample size of around 3,200 households. Finally, from 1997, the CHBS were improved with a larger sample size (around 8,200 households) and more detailed data and continues until today. The 1958, 1964/65, 1980/81 and 1990/91 Household Budget Surveys are considered a systematic and consistent series of meat consumption in Spain from 1958 to 2019.

The Food Consumption Panel (FCP) is a reliable and direct-based source of food consumption data in Spain, providing annual series of meat consumption in a highly disaggregated form. The benchmark years range from 1987 to the present, with a sample size of approximately 12,000 households (Martín Cerdeño, 2016: 76). The data from the FCP is published in the book *Food in Spain* from 1987 to 2005, and from 1999 until the present it is published online[5]. To collect data on food consumption, an individualized questionnaire (shopping diary) is completed by each household, noting different categories of foods, both in physical units and in terms of expenditure, price, and place of purchase (Méndez *et al.*, 2005). Data collection is typically carried out by private companies, which have changed (as well as their methodology) over time (Collantes, 2012). In addition to household consumption, the FCP also provides data on extra-domestic consumption, which is disaggregated by products in certain years. This includes consumption in public institutions such as nursing homes and consumption in restaurants, which has been obtained from 1987 to 2007 and from 2016 to 2018.

The FAO provides annual, online, and homogenized series of meat consumption data from 1961 to the present[6]. Similarly, the Ministry Food Balance provides annual series of meat consumption data from 1952 to 1980. Both series present highly similar results, as they are obtained through indirect estimations. This similarity is due to the fact that the FAO series is based on official data provided by the Spanish Government. The FAO series is calculated by summing the total quantity of food produced in a country, plus the imported quantity, and subtracting the amount exported. Additionally, it accounts for storage and transportation losses during the food chain, as well as variations in stock between years. Therefore, the consumption per capita offered by FAO is actually a measure of "food availability" rather than actual consumption. However, "real" consumption may not be equivalent to "food availability". For example, in the case of dairy product consumption

5. https://www.mapa.gob.es/es/alimentacion/temas/consumo-tendencias/panel-de-consumo-alimentario/series-anuales/default.aspx

6. In fact, FAO provides data from a few years before 1961 but they are not published online. We obtained data from physical volumes since 1952. The predecessor of FAO was the International Institute of Agriculture (IIA). It offers consumption data from some European Countries since the early twentieth century. However, as underlined by the IIA, the data is not too reliable.

in Spain, "dairy product availability" is higher than actual consumption (Collantes, 2014: fig. 1). Similarly, in the case of meat consumption, it can be tentatively stated that "meat availability" provided by FAO and "real" meat consumption exhibit different trends and physical quantities.

To test this hypothesis, Appendix Figure A1[7] presents the consumption of meat in various European countries, using data provided by the FAO (indirect method) and by DAFNE-ANEMOS (direct method) for the same years. DAFNE (Data Food Networking) compiles Household Budgey Surveys from 28 European countries with the assistance of different institutions from each participating country. After collecting the raw food consumption data from each country, it cleans and standardizes it for potential comparison, both at a national level and for different groups of consumers (educational level, area of residence, etc.).

As shown in Appendix Figure 1, there are discrepancies between the two data sources. The first discrepancy is related to quantity, where in all cases, FAO presents higher quantities than DAFNE-ANEMOS. The second and more significant difference is related to the trends. DAFNE-ANEMOS illustrates a slight downward trend in every country from the sample (excluding Portugal, which illustrates a U-shaped inverted trend), but FAO displays a slight upward trend during the same period.

Therefore, it can be concluded that the FAO database is not suitable for investigating actual meat consumption patterns. Instead, it is a valuable tool for analyzing food availability from a broad perspective, taking into account all aspects of the supply chain. However, if the objective is to analyze changes in dietary habits, it is more appropriate to use direct methods of measuring consumption. Despite this evidence, several studies analyzing meat consumption still continue to rely on data from the FAO (Alexandratos, 2006; Kanerva, 2013; Vranken *et al.*, 2014; Sans & Combris, 2015; Milford *et al.*, 2019; Hansen, 2018; Garcia-Closas, Berenguer & González, 2006). It is crucial to note that data on apparent consumption and consumption surveys provide different information, and thus, they should be used for different purposes. Apparent consumption data is useful for environmental studies, while consumption surveys can be used for studying consumption patterns at the individual level or for nutritional studies.

After collecting the meat consumption data from the 4 databases, our analysis of the evolution of meat consumption in Spain during the last 70 years is based on two criteria. In addition to total meat intake, the data is aggregated according to the type of ani-

7. See https://doi.org/10.26882/histagrar.091x04d

mal and degree of elaboration. Five categories of animal are considered: beef, lamb, poultry, pork, and other meats. Within the "pork" category, products such as cold meats (*e.g.* dry, soft, and smoked), cold cuts, salted meat, meat cured products, etc. are included, as most of these products consumed in Spain are derived from pigs (*e.g.* ham, chorizo, sausages, mortadella, blood sausage, etc.). The main products in the "other meats" category throughout the period have generally been rabbit meat, other fresh meat, and remains. Additionally, given that the 1958 HBS only offers three types of meats ("meats", "ham and cold meats" and "poultry") we have classified "ham and cold meats" as pork and divided "meats" into beef and sheep meat categories (50% each) for the purposes of this analysis.

With regard to the degree of elaboration, three types of meats are included in the analysis: refrigerated/fresh meat, frozen meat, and processed meat. The data provided by the FAO does not permit disaggregation based on the type of elaboration, therefore, only direct sources are used to analyze the evolution of this type of meat. It is important to note that the conduct of these two types of disaggregation (type of elaboration and origin of animal) is relevant for two reasons. Firstly, it acknowledges that while the first type of disaggregation is from the producer's perspective, the second one is also from the viewpoint of the consumer. Specifically, when a consumer is deciding to purchase a type of processed meat such as sausages, they are not necessarily considering which animal the meat comes from. Secondly, prepared products (such as processed meat) were one of the main characteristics of food habits in high-income countries during the second half of the twentieth century (Germán, 2009: 11).

Finally, in order to obtain accurate price series throughout the period, we utilize nominal implicit prices calculated based on expenditure and physical consumption data obtained from both the surveys and the panel. These nominal implicit prices are then deflated to 2013 euros using the general price index provided by the INE.

3. LITERATURE REVIEW: THE "RUPTURE" AND THE SPANISH CASE

To the best of our knowledge, there is currently no research that systematically analyzes the consumption of meat in Spain during the second half of the 20th century. Nevertheless, the topic has been addressed to a limited extent in some studies, such as research on the livestock sector or the consumption of other food products (Domínguez Martín, 2001b; Cussó & Garrabou, 2007). Meat and milk consumption in Spain increased during the interwar period, primarily driven by income growth (Langreo & Germán, 2018: 171). Despite this, Spanish citizens' meat intake during the early 20th century was lower

in comparison to that of most European countries (Bernabeu-Mestre *et al.*, 2007: 13), However, fish consumption in Spain was among the highest in Europe (Simpson, 1995: 179). The Spanish Civil War (1936-39) and the subsequent post-war period resulted in a severe deterioration of both the Spanish economy and population's diet, leading to a significant decrease in food intake (Cussó & Garrabou, 2007: 89-90). As a result, food shortages led to a significant reduction in the standard of living for Spanish citizens (Martinez-Carrion, 2016). Even in the 1950s, a decade after the Civil War, Spanish residents were consuming less meat than citizens of Turkey or Greece (Clar, 2010: 192, see note 1).

In the 1960s, the situation underwent a significant change. As the Spanish population began to align with European standards, they abandoned their traditional Mediterranean diet[8] and adopted a more Westernized dietary pattern (Clar, 2008: 134; Moreno, Sarría & Popkin, 2002). That is, prior to the 1960s, meat was primarily viewed as a food for special occasions (Marrodan, Montero & Cherkaoui, 2012: 59), However, in a short period of time, meat consumption in Spain experienced a significant increase, alongside other livestock products such as milk (Collantes, 2014, 2019a; Hernández Adell, Muñoz Pradas & Pujol-Andreu, 2019) and to a lesser extent, fish (Moreno, Sarría & Popkin 2002: 994), although the latter began from higher levels of consumption. Therefore, the Spanish population underwent the modern nutritional transition within a few decades (Moreno, Sarría & Popkin, 2002; Cussó & Garrabou, 2007) with meat becoming a widely consumed product. However, not all types of meat experienced equal growth in this process. In fact, while beef and lamb consumption decreased in the Spanish diet, poultry and particularly pork became the primary meats consumed by Spanish citizens (Domínguez Martín, 2001a; Langreo, 2008). According to literature, the average Spanish consumer chose to increase meat consumption based on the more affordable and standardized types of meat, which were associated with the more intensive and industrialized livestock sector: poultry and pork (Clar, 2005, 2008). In both cases of dairy products and fish, the trend was similar, with an increase in the consumption of standardized products that allowed for mass consumption (Giráldez Rivero & Espido, 2021; Collantes, 2014).

However, in the literature on meat consumption trends, a degree of ambiguity emerged in the 1980s. Two distinct perspectives have been identified. The first perspective posits

8. It is worth noting that the concept of the "Mediterranean diet" has been romanticized. On one hand, there has never been a historical moment in which any region solely based its diet on Mediterranean products. Additionally, there are other healthy culinary traditions, such as those in China or Japan, that have not received as much recognition (DuPuis, 2016: 107-8). Furthermore, as literature on the Spanish case has shown, even during periods when the diet was thought to be Mediterranean, many groups of consumers experienced deficiencies in several micronutrients (Medina-Albaladejo & Calatayud, 2020; Collantes, 2015b; Garrabou & Cussó, 2009; Cussó, 2005).

a "great acceleration" in meat consumption, with intake continuing to increase until the early 21st century. The second perspective, on the other hand, suggests a discontinuity in the 1980s and a subsequent stagnation or decline in meat consumption until the present day. The literature on the proposed "great acceleration" in meat consumption is particularly prominent in agroecological studies. One such study, which examined the ecological footprint of agriculture and food in Spain during the latter half of the 20th century, found that "per capita meat consumption has increased by 7,1 times since 1955, jumping from 14 kilograms to 114 in 2000" (Carpintero, 2006: 40). A decade later, another agroecological study stated that "The consumption of meat has more than quadrupled, from 56 g/capita/day in the 1960s to 243 g/capita/day today (2017)" (González de Molina *et al.,* 2017: 6). It should be noted that the authors acknowledge that their objective is not to investigate actual food consumption, but rather apparent consumption (see page 2). However, the aforementioned study has been cited in subsequent studies as evidence of a fourfold increase in meat consumption in Spain during the latter half of the 20th century (González de Molina, García & Casado, 2017: 45; Infante *et al.,* 2018: 500; González de Molina *et al.,* 2020: 207). In addition to agroecological studies, other works from various disciplines also support the perspective of a "great acceleration" in meat consumption. For example, Clar (2010: 177) using data from the FAO, states that the per capita consumption of meat in Spain increased from 21,5 kg in 1961 to 123 kg in 2001. Other international studies also support this trend (Kanerva, 2013: 9). In a book chapter, the argument of the "great acceleration" is presented in clear terms, stating that after a period of expansion in meat consumption in Spain until 1985, the expansion "has not finished thereafter but it has continued, placing Spain in the second position, just after Austria, with a quantity nearly 95 kg in 2010, having reached even 107 kg per person and year around 2005" (Clar, 2017: 414). Finally, Bernabeu-Mestre (2008: 125) states that the diet in Spain in recent decades is characterized by "high fat intake, an increase in the daily consumption of meat".

However, other studies, less related to economic history, do not concur with this perspective, but rather indicate a break in meat consumption, characterized by stagnation and subsequent decline in its consumption from the 1990s. For example, in Langreo (2008: 50), where the meat production system in Spain is analyzed, it is stated that:

> "meat consumption within Spain has hardly risen since joining the EEC (1986), even significant falls have occurred; the take-off that is detected from the beginning of the nineties (referring in this case to total consumption, not per capita) responds to the increase in population, due mainly to the growing presence of immigrants [...] in general terms, it should be noted that there is a trend towards a decrease in per capita consumption, parallel to an increase in fish consumption".

The same author also points to a stagnation in consumption between 1987 and 2000 (Langreo, 2002: 44). Ríos-Núñez and Coq-Huelva (2015: 528) in reference to the period 1985-2005, state that "One of the reasons for the lower intensity of agrarian growth processes was the stagnation of domestic consumption of some products; for instance, meat and milk". In Mili, Mahlau, and Furitsch (1998: 162), trying to study consumers' preferences towards meat, it was stated that "Taking into consideration the survey results, we estimate that in 1992 a level of meat consumption has been reached close to saturation, since numerous consumers do not seem to have the intention of increasing meat consumption for health reasons, even in the case of an increase in their purchasing power". Finally, from a sociological perspective, Furitsch (1992: 224), also argues that "meat consumption in Spain has become stagnant in the years between 1987 and 1990, despite a positive evolution of real incomes".

By presenting, for the first time, a systematic database that includes various sources of meat consumption in Spain since 1952, we aim to reconcile the conflicting perspectives on the trends in meat consumption in Spain during the second half of the 20th century. Additionally, the high level of data disaggregation allows us to distinguish between two different food consumption models, where processed meat is becoming increasingly prevalent.

4. EVOLUTION OF MEAT CONSUMPTION IN SPAIN: A COMPREHENSIVE VIEW

After compiling data from all sources (as outlined in section 2), Figure 1 illustrates the annual per capita meat consumption in Spain from 1952 to 2019. Upon initial examination, at least two notable aspects can be observed in the data presented. Firstly, there is a significant discrepancy between data from FAO and data from other sources starting from the 1980s. Furthermore, this discrepancy is not only in terms of quantity, but also in terms of trends. While the data provided by FAO suggests a significant increase in meat consumption in Spain up until the early 21st century and a recent resurgence, the remaining data series indicate a notable increase until the early 1980s, followed by a decline thereafter.

The large discrepancies between data from the FAO and surveys and the panel in Spain regarding meat consumption require further examination. To understand this discrepancy, three key considerations must be taken into account. Firstly, as previously noted, it must be acknowledged that actual consumption and apparent consumption measure different things, thus it is logical that they present different data. Secondly, differences in actual meat intake and apparent consumption are not exclusive to Spain, as several studies have high-

lighted (Yu & Abler, 2014; Hallström & Börjesson, 2013; Naska *et al.*, 2009; Serra-Majem *et al.*, 2003). In third place, the discrepancy between both series appears in the 1980s, which rules out several hypotheses such as, for example, that FAO includes the weight of bones and the surveys and the panel do not, as if this explained the differences it would do so throughout the entire period.

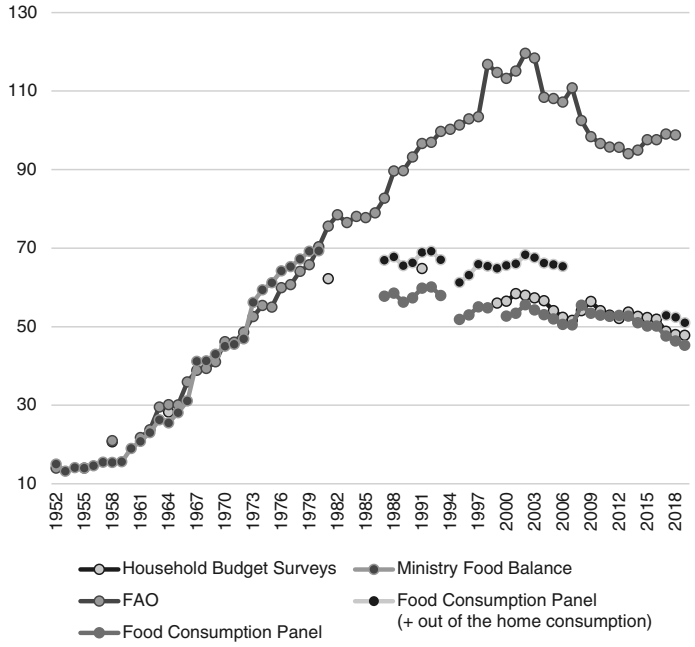
The differences between the two series may be attributed to various factors. Firstly, some studies suggest that it is primarily due to non-home consumption (Alexandratos, 2006: 115; Naska *et al.*, 2009: 169), as the weight of this has increased in recent decades and the surveys do not measure this dimension of consumption. However, the panel does. The total consumption of meat (home + non-home) according to the panel in 2001 was 66,1 kg per capita, meanwhile, the FAO shows 115 kg per capita for the same year. Therefore, non-home consumption, although it is not the main cause of these differences, has some influence. Another potential explanation is the production aspect. In the case of China, it has been shown that differences between actual and apparent meat consumption are due to an overestimation of production figures used to calculate apparent consumption. This overestimation is attributed to perverse incentives in the collection of statistics by officials (Fueller, Hayes & Smith, 2000; Yu & Abler, 2014). Collantes (2014) notes that in the case of dairy products in Spain, adulteration based on watering down the milk overestimated production. In the case of meat, there was a methodological change for the calculation of national meat production in 1986, which led to a significant increase in production figures (Ministerio de Agricultura, Pesca y Alimentación, 1987). However, although it is likely that this had some influence, it cannot be definitively stated that the new production figures are incorrect.

In a recent and interesting study (Cerrillo *et al.*, 2023), it is claimed that the panel data is erroneous and meat consumption in Spain in 2017 is 50% higher than indicated by this source. However, this would imply that not only is the panel data undervalued, but also other independent studies, such as household budget surveys or the ANIBES study (Ruiz *et al.*, 2016), which reach similar consumption data, are also undervalued. Furthermore, even if this were true and meat consumption were 50% higher, there would still be significant disparities between the FAO data and the survey and panel data. In fact, one of the limitations of the aforementioned study is that to calculate losses along the value chain, they use a work from the FAO (Gustavsson, Cederberg & Sonesson, 2011). In this study, coefficients of loss along the value chain are calculated for each continent. Therefore, it is likely that the coefficients used for Europe are significantly different from those of Spain.

Indeed, it is likely that for the Spanish case, losses in the value chain were especially pronounced from the 1980s onwards. This is due to the fact that production in the 1980s,

after a slight stagnation, increased significantly once again. However, this strong increase was no longer for the domestic market, as it had reached a saturation point. Thus, production was now intended for the external markets, resulting in Spain becoming one of the world's leading pork exporters. This probably implied an increase in meat waste in the value chain proportionally greater. Therefore, this factor and the aforementioned ones, would be the main candidates to explain the discrepancies between the "available meat" as reported by the FAO and the actual consumption as reported by surveys and the panel.

FIGURE 1
Meat consumption in Spain, 1952-2019



Source: see Section 2.

The second salient feature of Figure 1 is the presence of two distinct patterns of meat consumption in Spain, with a clear break around the 1980s. Beginning from a relatively low value in the 1950s (approximately 10-15 kg per capita), meat consumption experienced a dramatic expansion in the 1960s that persisted until the 1980s. During that decade, consumption per capita reached around 60 kg, representing a substantial quantity. In other words, consumption in Spain grew threefold within a span of twenty years. This increase in average meat consumption masks major changes in terms of disparities. Before the 1970s and 1980s, there were significant disparities in access to meat, with it being a lux-

ury item for the majority of the population. However, with the observed increase in the 1980s, these disparities disappeared, both in terms of income and regions within the country (Delgado & Pinilla, 2022). Therefore, like in the case of dairy products (Collantes, 2015b), the large increase in meat consumption can be explained by the increase in lower incomes and regions with lower consumption (such as Andalusia). However, the trend from the 1980s onwards is quite different. From that decade, meat consumption stagnated for a decade, before subsequently declining. The patterns of dairy product and meat consumption in Spain during this same time period are notably similar (Collantes, 2014). The trend of increasing fish consumption has persisted, albeit to a lesser extent, however, a decline in consumption has been observed in recent years (González-Laxe, 2018).

TABLE 1
Consumption of meat in different European countries (kg per capita)

	1981-85	1986-90	1991-95	1996-2000	2001-2005	2006-2012
Spain	62.2 (1981)	57.7* (1987)	64.8 (1991)	54. 8* (1998)	54.2** (2003)	52.1** (2012)
Greece	54.8 (1981)	63.5 (1987)		54.4 (1998)	58.0 (2004)	56.2 (2012)
United Kingdom	54.4 (1985)	54.0 (1988)		48.6 (1998)		
France	62,0 (1985)		59.5 (1991)			
Finland	51.1 (1985)	47.5 (1990)		54.4 (1998)		
Estonia					62.0 (2004)	
Portugal		52.2 (1990)	59.5 (1995)	58.4 (2000)	53.0 (2000)	

Notes: * Food Consumption Panel. ** Household Budget Surveys.

Source: author's elaboration from DAFNE-ANEMOS, Food Consumption Panel and Household Budget Surveys.

Table 1, based on data obtained from DAFNE-ANEMOS (as outlined in Section 2), presents an illustration of the consumption of meat in several European countries from 1980 to 2012. In the early 1980s, Spain and France were among the countries with the highest consumption of meat in the sample. As previously mentioned, during these years, Spain achieved peak consumption and completed the modern nutritional transition. However, while France began to lower its consumption in the 1990s, Spain remained at its peak. In the following years, all countries in the sample were consuming similar amounts of meat (approximately 55-60 kg per capita), with Portugal being the country with the highest consumption of meat. In fact, during the first decade of the 21st century, Spain became one of the least meat-consuming countries in the sample, with Greece and Estonia consuming more meat than Spain. As illustrated in Figure 1, the downward trend continued after 2010, with Spaniards currently consuming around 45 kg of meat. It is evident that not all countries experienced this "rupture" at the same time. For example, Chile experienced a significant increase in the consumption of chicken meat and milk in the 1990s (Llorca

et al., 2020), while countries like Spain and France had begun to lower their consumption of animal products during that time. On the other hand, other countries such as the United Kingdom had begun reducing their consumption of meat a few years prior. The differences between each country are attributed to a variety of factors such as supply factors (relative prices of meat), demand factors (income, urbanization, etc.) and preferences (Milford *et al.*, 2019).

In summary, real meat consumption in Spain since the latter half of the twentieth century did not experience a significant acceleration. As a result, the trend in "real" consumption does not align with that of "available food" for meat, particularly from the 1980s onward. This discrepancy is the main difference between previous studies and the current analysis. Following the shift in the 1980s, Spanish dietary patterns have exhibited first stagnation and then a decline in meat consumption. The notion of a "great acceleration" in meat consumption is not supported by the data. While consumption may still exceed recommendations from scientific consensus, it is not as high as previously reported by the Ministry of Consumer Affairs in Spain (approximately 90 kg per capita per year in 2018, according to FAO data) and the trend is moving in the direction of a more sustainable and healthy level of meat consumption, although the pace of change is not pronounced enough.

5. CONSUMPTION OF MEAT: A DISAGGREGATED POINT OF VIEW

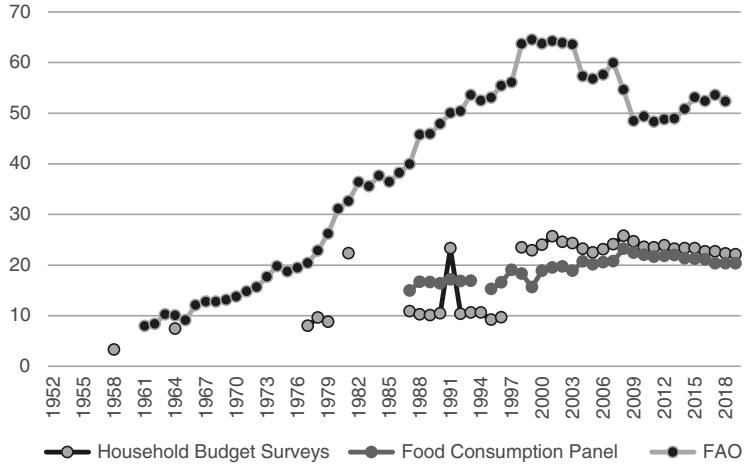
With regard to the consumption of meat from a disaggregated perspective, in the second part of this study, an attempt is made to obtain a more detailed view. Is there a rupture in all types of meats? Are there differences between FAO and other series for all types of meat? What are the possible causes behind these patterns? And, in line with the general trend in food consumption in high-income countries, has the consumption of processed meat increased over time at the expense of standardized meat? To answer these questions, our database is utilized to analyze the evolution of consumption based on both the type of animal and the type of meat elaboration (see methodology section).

5.1. From the type of animal: the traditional perspective

Most authors analyzing the evolution of meat consumption in Spain during this time frame base their conclusions on either an aggregate perspective or by the type of animal. This is mainly due to the fact that they usually use data from FAO, which only provides data in this manner. Within this section, we present the evolution of pork consumption

through Figure 2, whereas the trends in beef, lamb, "other meats" and poultry, are available for observation within the Appendix (figures A2, A3, A4 and A5).

FIGURE 2
Consumption of pork in Spain



Source: see Section 2.

In general, there are at least three notable characteristics present in all figures. Firstly, as expected, data from the FAO is significantly different compared to other sources, although not throughout the entire period. Secondly, the absolute quantity consumed varies greatly among the different types of meats. Thirdly, not all meats display the rupture at the same time, and some show a more pronounced break than others.

The evolution of beef consumption in Spain over time can be observed to display an inverted U-shape pattern (see Appendix Figure A2). Beginning at a level of approximately 6-8 kg per capita in the period between 1958 and 1964, consumption of beef grew notably until the 1980s, reaching 11 kg per capita during that decade. It can be noted that prior to the identified rupture point in the 1980s, beef consumption displayed a similar behavior to the aggregate consumption of meat in Spain. However, from the 1990s, an accentuated downward trend can be observed, lasting until the present day, with current consumption per year being even lower than levels seen in the 1960s, at less than 6 kg per capita. In contrast, the consumption of sheep meat displays a substantially different pattern over time (see Appendix Figure A3). From the starting point in 1958, the trend has been consistently downward, with consumption levels being almost non-existent today at around 1 kg per capita. The FAO data for sheep meat is found to be accurate until around 1980 and from 2007 until the present day. In the years between these two points,

the FAO data displays an expansion, deviating from the trends observed in other sources. With regard to other types of meat (see Appendix Figure 4), such as rabbit meat and other fresh meats, there is no identified rupture point. Instead, a consistent upward trend can be observed throughout the benchmark period. In the 1980s and 1990s, rabbit meat was the most consumed product in this category. However, beginning in the 21st century, categories such as "other fresh meats" or "remains" have grown in popularity, expanding the category of "other meats" while rabbit meat has lost significance in the Spanish diet.

Pork and poultry, while they are currently the primary types of meat consumed in Spain, display distinct patterns of evolution over time. Pork exhibits a long-term expansion trend (Figure 2). Beginning in the 1950s, the rate of growth was particularly spectacular, with consumption levels being minimal at the start of the period. From that point, although the rate of growth was less pronounced, the expansion continued until the first decade of the 21st century. In recent years, a slight downward trend has been observed. In contrast, the identified rupture point for poultry consumption occurred a few years later than for aggregate meat consumption (see Appendix Figure A5). From the 1950s, per capita consumption grew significantly until the 1980s. From that point, a downward trend has been observed, resulting in an inverted U-shape pattern. However, unlike aggregate meat consumption, from 2007, consumption levels have tended to plateau. The data from the FAO series is found to be consistent with other sources until 1986, at which point it deviates, displaying an uninterrupted expansion until the present day.

TABLE 2

Proportional weight of various meats in overall meat consumption (%)

	1964	1981	1991	2000	2010	2018
Beef	25.9	15.3	18.8	15.6	12.5	10.6
Lamb	19.1	6.7	6.9	5.0	3.2	2.3
Pork	26.6	35.9	31.5	41.0	44.6	46.7
Poultry	18.9	35.1	37.5	27.1	25.3	28.3
Other meat	9.6	7.0	5.3	11.0	14.4	12.1

Source: Household Budget Surveys.

Table 2 provides a relative perspective of the amount consumed of each type of meat in relation to all meat consumed. In 1964, the diversification rate of meat consumed was relatively high, with the Spanish population tending to consume similar amounts of each type of meat. However, during the 1980s and 1990s, beef and lamb lost significance in the Spanish diet, while pork and poultry gained importance, accounting for approximately 70% of all meat intake. As a result, meat consumption became more standardized around pork and poultry, as these livestock sectors were based on industrial intensive pro-

duction. After the rupture, poultry consumption decreased in significance and currently represents approximately 27% of all meat consumed. Notably, pork consumption has been steadily increasing since the 1950s, currently representing nearly half of all meat consumed in Spain. The consumption of pork is further analyzed in Table 3, which illustrates the evolution of pork consumption disaggregated into cold meats and other pork products (mainly fresh and frozen pork).

TABLE 3
Proportional weight of fresh, frozen, and cold pork meat in overall pork consumption (%)

	1964	1981	1991	2000	2010	2018
Fresh and frozen pork	27.2	45.2	40.3	33.8	34.8	35.9
Cold meats	72.9	54.8	59.7	66.3	65.3	64.1

Source: Household Budget Surveys.

Before the 1980s, most pork consumption was in the form of cold meats (such as chorizo). However, during the period of high meat consumption (before the rupture), fresh and frozen pork gained significance, accounting for 45% of all pork consumption. After the rupture, cold meats regained significance and currently account for approximately two-thirds of all pork consumed. This highlights the increasing consumption of processed pork products in the Spanish diet.

The possible causes behind these patterns are complex and multifaceted. However, for the purpose of simplification, we will examine three main factors: supply capacity (prices), demand capacity (income). In this section, we will focus primarily on the first two factors, while the third will be examined in the following section. Appendix Figure 6 illustrates the relative prices of the four types of the four types of meat analyzed thus far. Between the 1950s and 1980s, we observe distinct patterns in the meats whose production was industrialized first versus those whose production was still primarily based on extensive livestock farming. The relative prices of the former (pork and chicken) experienced a significant decrease, while the prices of the latter either increased (lamb) or decreased to a lesser extent (beef). While the extent to which this influenced a greater consumption of pork and chicken at the expense of beef and sheep is uncertain, it is evident that these changes in price played a role. Despite the stabilization of prices for the four meats in question, the prices of pork and chicken remained notably lower. As a result, these two meats, despite a decrease in absolute consumption, remained the primary types of meat consumed (Table 2). On the demand side, between the 1950s and 1970s, there was a significant growth in Spanish income (see Appendix Figure A7). During this period,

Spain transitioned to a fully developed country and income levels converged with those of Europe. This further encouraged a greater consumption of meat in line with Western patterns. However, it would appear that from the 1980s, income played a less significant role in meat consumption. This is because, despite the fact that income continued to grow, with some interruptions due to economic crises such as those of the 1970s, the early 1990s, and 2007, meat consumption did not. Therefore, this suggests that preferences played a more significant role from the 1980s.

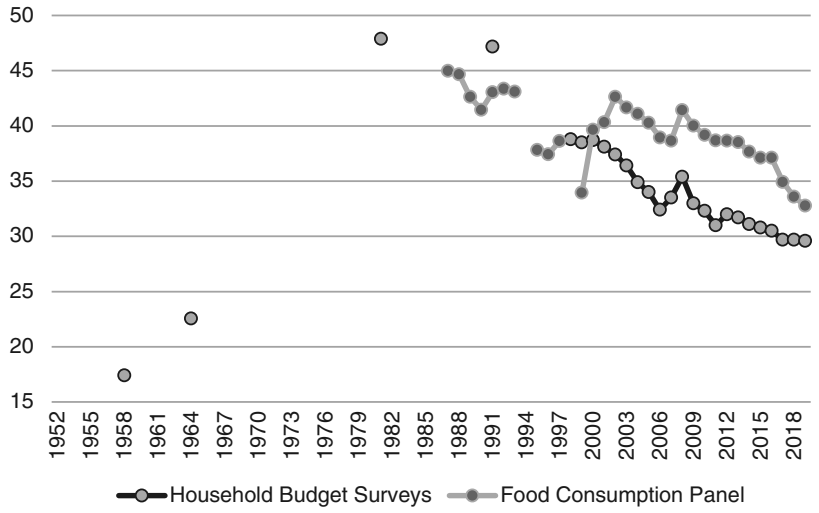
In summary, only beef and poultry displayed similar trends to overall meat consumption, whereas pork experienced a significant increase in consumption and lamb displayed a prolonged decline over the past 70 years. The prolonged expansion of pork consumption following the rupture can be attributed to the consumption of processed meats, which leads us to the final section of the study. Factors such as prices and income played a crucial role in the increase in pork and chicken meat consumption until the 1980s, while consumer preferences became increasingly important from that decade onwards.

5.2. From the consumer point of view: A different perspective

In this section, we aim to examine the consumption of meat from a consumer perspective, specifically by analyzing the consumption of fresh and processed meat in Spain. Utilizing data obtained through direct methods, as the FAO does not provide data on the degree of elaboration, we aim to determine if the trend of increased consumption of processed food in high-income societies is also reflected in meat consumption in Spain.

Figures 3 and 4 depict the evolution of fresh/refrigerated and processed meat, respectively. The data for fresh and refrigerated meat (Figure 3) illustrates that it has been the most consumed form of meat over time. Additionally, its evolution clearly demonstrates the rupture observed in overall meat intake (Figure 1), with a significant increase until the 1980s and a decline thereafter. The trend of decreasing consumption after the rupture is more pronounced compared to overall meat consumption, forming a distinct inverted U-shape. Presently, Spanish citizens consume approximately 30 kg per year of this type of meat, representing a substantial reduction from the 1980s (around 50 kg). This pattern supports the argument that standardized meat (in this case, fresh meat) played a significant role in the acceleration of meat consumption until the 1980s. It was primarily consumed in the form of chicken and pork, the most industrialized livestock sectors. However, following the rupture, the consumption of standardized meat has been decreasing in the Spanish diet.

FIGURE 3
Consumption of fresh and refrigerated meat in Spain



Source: see Section 2.

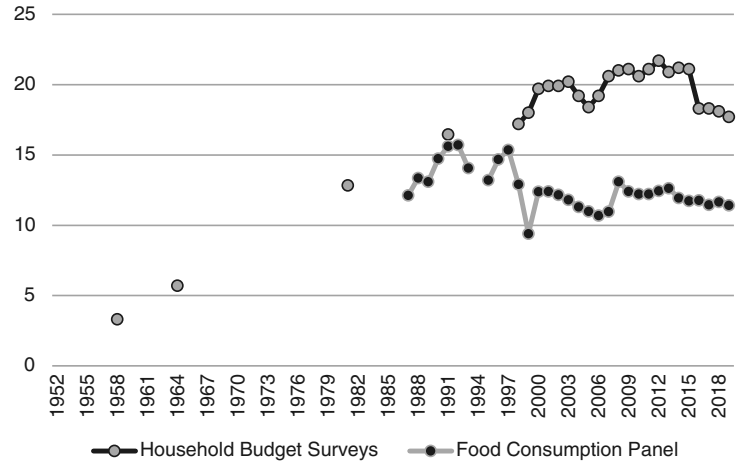
The consumption of processed meat exhibits a distinct pattern, as shown in Figure 4. Specifically, the trend of increasing consumption of processed meat persisted at least until the early 21st century. According to HBS, this growth in consumption continued throughout the second decade of the 21st century. In the most conservative scenario, processed meat consumption appears to have plateaued in the 2000s. Like pork, the decline in processed meat consumption occurred relatively recently. As a result, the patterns of consumption for processed and fresh meat appear to be inversely related. While processed meat was relatively insignificant in the 1960s, it has gained increasing significance over time. Therefore, the overall decline in meat consumption has not been as pronounced due to the relatively minor decrease in processed meat intake.

TABLE 4
Proportional weight of various meats in overall meat consumption (%)

	1958	1964	1981	1991	2000	2010	2018
Refrigerated/fresh meat (HBS)	84.1	79.7	74.5	72.8	63.9	58.6	59.8
Refrigerated/fresh meat (FCP)					75.3	74.0	72.5
Frozen meat (HBS)	n/d	0.1	2.5	1.9			
Frozen meat (FCP)					1.2	2.9	2.4
Processed meat (HBS)	15.9	20.1	23.0	25.4	36.1	41.4	40,2
Processed meat (FCP)					23.6	23.0	25.2

Source: Household Budget Surveys.

FIGURE 4
Consumption of processed meat in Spain



Source: see Section 2.

Table 4 presents an analysis of the evolution of meat consumption in Spain by quantifying the proportion of each type of meat in relation to the aggregate consumption of meat. The data illustrates a trend of increasing proportion of frozen meat, although its overall consumption remains relatively low, comprising approximately 2% of total meat consumption. Of particular interest is the comparison of refrigerated/fresh meat and processed meat. However, the proportions of these two types of meats vary depending on the source of the data. According to the HBS, in 1958, refrigerated and fresh meat accounted for 84% of total meat consumed, while processed meat accounted for only 16%. This trend remained consistent throughout the 1980s and 1990s, with fresh and refrigerated meat accounting for 73% and processed meat accounting for approximately 23%. However, from the early 21st century, the picture has undergone a significant change, with both types of meats approaching each other in terms of consumption. Processed meat now accounts for 40% of total meat consumed, while fresh and refrigerated meat accounts for around 60%. This pattern illustrates how the consumption of meat in Spain aligns with the two models of consumption observed in developed countries, one characterized by the consumption of standardized agro-industrial food products, and the other by an increase in the proportion of processed products.

Despite similarities in the overall patterns, the evolution of consumption of processed and fresh meat differs when utilizing data from the FCP as a source. While the trend towards an increasing proportion of processed meat is evident, the rate of this increase is less pronounced when compared to data from the HBS. According to FCP, 25% of to-

tal meat intake was in the form of processed meat, while HBS data indicates that this figure is 40%. It is likely that the actual consumption of processed meat falls somewhere between these two values. Furthermore, when considering not only processed meat (such as smoked, cured meat, or meat with added chemical preservatives) but also meat that has been prepared or processed in other ways, the trends become even more pronounced. In 2001, approximately 50% of chicken consumption was in the form of "whole chicken", while by 2019, this figure had dropped to 30%, with chicken in pieces and fillets (*i.e.* prepared chicken) accounting for 70%. Additionally, prepared dishes based on meat have been gaining in popularity (both in canned and frozen forms). According to the panel, consumption of these dishes was around 1 kg per capita per year in 2001, and by 2018, this figure had risen to 1,4 kg per capita. Conversely, other higher-quality products, such as certified meat, have shown a downward trend since 2009, although this trend appears to be reversing in recent years. It is plausible that this pattern is the result of the economic crisis of 2008. In summary, regardless of the source of data, it is clear that there is a growing trend of consumption of prepared, processed and elaborated meat, while standardized meat is becoming less important. This pattern is similar to the trends observed in dairy products, where the increase in processed cow's milk consumption between the 1950s and 1990s was followed by a decline in milk consumption and a corresponding increase in the consumption of dairy products that have undergone a higher degree of transformation.

As previously established, processed meat constitutes a significant proportion of total meat consumed, with estimates ranging between 25% and 40%. Table 5 provides a detailed analysis of the evolution of the primary components of processed meat, both in absolute and relative quantities.

Prior to the 1980s, chorizo, fuet, salami, cold cuts, and other processed meat products were the most commonly consumed in Spain. However, during the 1980s and 1990s, ham emerged as the fastest growing product and eventually became the preferred processed meat among the Spanish population. Despite a decline in absolute consumption over the past decade, ham still accounts for 7,3% of all meat consumed. In contrast, chorizo, fuet, and salami have tended to remain stagnant since the 1990s, while cold cuts and other processed meat products have gained in popularity in recent years. Additionally, while sausages and blood sausages currently only account for 3% of total meat intake, they have consistently grown in popularity since the 1960s. As can be observed, the majority of processed meat products are derived from pork. Therefore, it can be deduced that tables 3 and 5 are two sides of the same coin, and the extensive expansion of pork consumption can be attributed to an increase in cold meats intake, which in turn constitutes a significant portion of processed meat.

TABLE 5
Consumption of the principal processed meats

Kg per capita	1964	1981	1991	2004	2010	2018
Ham	0.9	4.2	4.9	4.1	4.0	3.4
Chorizo, fuet and salami	2.1	3.0	3.7	2.4	2.2	2.0
Sausages and blood sausage	0.0	1.4	1.7	0.9	1.5	1.4
Cold cuts and others	2.7	3.2	4.2	2.7	3.1	3.3
% of total meat intake	**1964**	**1981**	**1991**	**2004**	**2010**	**2018**
Ham	3.2	6.7	7.6	7.7	7.6	7.3
Chorizo, fuet and salami	7.4	4.8	5.7	4.5	4.2	4.3
Sausages and blood sausage	0.0	2.2	2.6	1.7	2.8	3.0
Cold cuts and others	9.5	5.1	6.5	5.1	5.9	7.1

Source: see Section 2.

Appendix Figure A8 illustrates the prices of processed and fresh meat from the mid-20th century until present. The data demonstrates a marked decline in prices for both types of meats, with a similar trend, up until the 2000s. Subsequently, prices tend to stabilize. However, it is noteworthy that throughout the entire period, the price of processed meat is consistently higher than that of fresh meat. This suggests that consumer preferences play a critical role in the relative increase in consumption of processed meat, particularly pork, as previously highlighted in Table 5.

While it is acknowledged that the dominant nutritional discourse advocates for a moderate consumption of red and processed meats, due to health and environmental concerns (Martínez *et al.*, 2020; Carvalho *et al.,* 2016), there is a distinct preference for processed meats, particularly cured meats, among the Spanish population (Furitsch, 1992; Clar, 2022; Marqués, 2022). This phenomenon can be attributed to two factors. Firstly, traditional high consumption of pork sausages, particularly in rural areas (Clar, 2022: 8; 2010: 180). Secondly, and likely with greater explanatory power for recent years, is the increasing influence of large-scale distribution in the value chain and industry strategies to expand the range of products and added value of the meat industry (Langreo, 2008: 167). The growing influence of distribution within the retail industry has been observed to occur first in durable products and subsequently in perishable products (Langreo & Germán, 2018). This trend is particularly evident in the consumption of fresh (perishable) and processed (durable) meats. According to data from the FCP, in the year 2000, 12% of fresh meat was purchased at hypermarkets, 32% at supermarkets, and 29% at butcher shops/delis. In contrast, the percentages for processed meat in the same year were 19%, 36%, and 15% respectively. In 2019, supermarkets continued to gain market share in all types of meats, while butcher shops/delis experienced a decline in market share, however, the differences in consumption patterns remain. As Langreo (2008) has noted, major companies within the meat industry, such as CampoFrío, Fortes, and Casa Tarradellas, are

characterized by heavy investment in advertising. This enables them to adapt to the demands of large-scale distribution, where product segmentation and differentiated quality are key factors. Even smaller companies have been successful in certain market segments by differentiating their products based on origin denominations. Therefore, despite consumer concerns for the health, environmental, and food safety effects of meat consumption –such as the "mad cow" crisis (Langreo, 2002))–, this has been partially offset by industry and large-scale distribution strategies, particularly for processed and prepared meats. Collantes (2019b) also notes similar trends in the dairy market, where late 20th century advertising campaigns for second transformation products emphasized the health benefits and modernity of these products, leading to a greater inclination towards consumption of these products at the expense of cow's milk. Additionally, the increasing incorporation of women into the workforce may also have contributed to the increase in consumption of processed meat, as this has led to a greater demand for prepared meals.

In addition to the relative increase in the consumption of processed meats, other factors may have mitigated a more rapid decline of overall meat consumption following the 1990s. As Langreo (2008: 50) posits, one possible contributing factor could be the increase in immigration during this period, as well as the growth in tourism. Additionally, demographic structures may have played a role in shaping consumption trends, particularly in regards to the aging population. Studies have shown that households where the primary purchaser is over 65 years old tend to have a higher consumption of meat (Martín Cerdeño, 2016: 80; 2018: 10), which is a similar pattern observed in dairy products (Collantes, 2015b).

In summary, similar to other developed nations, a distinction can be made between two distinct consumption models, one prior to the 1980s and another following it. Prior to the 1980s, the expansion of meat consumption was based on standardized forms such as fresh and refrigerated meats, with the fall in prices of fresh meat and the increase in income being the key drivers. However, following the 1980s, the decrease in overall meat intake was accompanied by a corresponding increase in processed and prepared meats. The rise in consumption of pork products such as ham, chorizo, and cold cuts may have played a role in mitigating the decline in overall meat consumption. These preferences, which are influenced by both the meat industry and socio-demographic factors, may have played a crucial role in shaping consumption patterns.

6. CONCLUSIONS AND FUTURE RESEARCH

The culmination of the modern nutritional transition in Spain entailed a rapid shift towards a westernized diet. Along with other socioeconomic changes, the Spanish popula-

tion became one of the largest meat consumers in Europe in a short period of time. During this process, standardized meat, specifically chicken and pork, was the most commonly consumed. At the same time, beef and lamb, which were based on extensive livestock, saw a decrease in consumption. In other words, from 1950 to 1980/90, meat became a mass consumer product. However, in the following years, the trend shifted and the Spanish average consumer began to consume less and less meat. Concurrently, processed and more sophisticated meats, particularly pork-based products, began to gain weight in total meat consumption while fresh and refrigerated meats saw a decrease in importance. Utilizing four sources of food consumption data has enabled us to explain this second phase of the history and reconcile differing perspectives on meat consumption trends during this period. As stated by both the Ministry of Consumer Affairs in Spain and literature, meat consumption is still relatively high. However, the trend towards decreased consumption must be taken into account in the design of an appropriate food policy. Additionally, from a public health perspective, an appropriate food policy should also focus on reducing the consumption of processed meats.

This result encourages the initiation of two different branches in future research. First, this work has made reference to the average meat intake per capita, but differences in income, region, and age must be considered (Collantes, 2015b; Cussó & Pujol-Andreu, 2013; Medina-Albaladejo & Calatayud, 2020; Hernández Adell, Muñoz Pradas & Pujol-Andreu, 2019). Second, while some hypotheses have been proposed, a quantitative understanding of the main drivers of both expansion and recession trends in meat consumption in Spain is not yet known. Factors such as income, meat prices, cultural and religious values, health and environmental concerns, urbanization, advertising, and dominant nutritionism opinions, among others, all play a role in consumer decision-making regarding meat intake. A better understanding of these variables would allow for a deeper understanding of consumer preferences with respect to meat.

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