EXTENDED ABSTRACT

Title: Disposable income and CPI: an analysis for Spain by CGE

Authors and e-mail of all:

Luz Dary Beltrán Jaimes, ldbeltran@uloyola.es
María Pilar Campoy Muñoz, mpcampoy@uloyola.es
M. Carmen Delgado López, mcdelgado@uloyola.es

Department: Department of Economics

University: Universidad Loyola Andalucía

Subject area: *Desigualdad y cohesion social de los territorios*

Abstract:

Spain has been one of the most unequal countries in Europe in recent decades. Between 2015 and 2019 it was the fifth most unequal country in the EU-27. Since the 2008 crisis, the worst performance has been recorded for the lowest incomes and the best for the highest incomes. As a result, Spain is the EU country where the differences between the highest and lowest incomes have increased the most. The growth of inequality in Spain in recent decades is due to the evolution of labour and capital income, and to the limited redistributive capacity of taxes and benefits, which has increased very little since 1990 (Ayala & Cantó, 2022).

Early evidence on the economic effects of the pandemic points to a higher increase in inequality and poverty than in the rest of the EU-27. In addition, after years of low prices, the abrupt rise in inflation is compounding the already chronic inequality, with low-income households struggling with the loss of purchasing power. Since 2007, there have been five years with falling average prices, four years with inflation below the 2% target of the European Central Bank (ECB), and six years with levels equal to or above this target. Wages, however, have lagged. The Tax Agency puts their average growth

between 2007 and 2020 at 10.2%, while inflation rose, according to the INE, by 20.3%, practically double the rise in wages. Turning our attention to the anchored poverty rate by gender between 2007 and 2013, the gap between men and women is narrowing, albeit due to a further deterioration in the situation of men, i.e. the percentage of men who do not manage to reach a minimum income has increased, while for women this figure hardly changes (Cantó et al., 2019).

The literature on poverty and social exclusion suggests a clear positive relationship between poverty risk and gender in many developed countries. According to Cebrián and Moreno (2015a) and Bettio et al. (2013), in rich countries, the lower disposable income of households with a higher proportion of women is closely linked to the gender gap in the labour market, which also implies lower entitlements to benefits and pensions, and therefore affects and therefore has a negative impact on women's economic capacity throughout their life cycle.

Focusing the study on the Spanish case, Cebrián y Moreno, 2008; Gradín et al., 2010; Bárcena-Martín y Moro-Egido, 2013; Del Río y Alonso-Villar, 2014; Cebrián y Moreno, 2015b argue that the differences between men and women in the labour market have traditionally manifested themselves in a persistent gap in employment and unemployment rates, a greater weight of part-time work and temporary contracts in female employment, wage discrimination and unemployment rates.

The gender gap in the labour market has traditionally manifested itself in a persistent gap in employment and unemployment rates, a higher share of part-time work and temporary contracts in women's employment, wage discrimination and unemployment rates, a higher share of part-time work and temporary contracts in women's employment, wage discrimination against women and a significant segregation of women in lower paid occupations. In this context, Canto et al. (2016) say that it seems reasonable to think that households with a higher proportion of women who were already more vulnerable previously to a recession might have suffered a greater increase in their poverty risk in this last period.

However, the literature also argues that the impact of an economic crisis on a given group does not depend exclusively on their previous risk of poverty. For example, Canto et al. (2015) says that the effect that a recession will have on certain demographic groups will be strongly conditioned by the way in how the crisis has impacted on their job opportunities, their wages, and benefits, and, somewhat more marginally, by their demographic evolution in the population.

Thus, the increase in electricity prices and the lack of supplies to produce certain products could have a strong impact on the disposable income of Spanish households. Possibly to those who could be more vulnerable. This is the motivation of our research. To analyse the impact generated by the increase in the Consumer Price Index (CPI) in 2022 on the disposable income of Spanish households disaggregated by income deciles and differentiated by gender of the main income earner. To do this, we employ a CGE calibrated with a SAM disaggregated by income deciles and gender. We simulate the impact of the CPI increase considering different numeraires. In this way, we could ascertain de impact of CPI in labour and capital income.

For this purpose, we take as a methodological framework the multisectoral modelling based on a Social Accounting Matrix (SAM). This was constructed for Spain with base year 2016 (SAMSPA16). A SAM captures the generation, allocation and use of national income, relating production to the various institutional sectors of an economy (government, households, and firms), as well as to the rest of the world, based on a robust national accounting framework.

This is disaggregated into 63 productive activities, 20 types of households differentiated by income decile and gender of the main income earner, considering their income and expenditure structure for disaggregation. It includes 10 accounts that disaggregate the other institutional sectors, which represents the Spanish economy for the base period under the assumption that the economic structure of a region does not change in a five-year period. The SAM, by allowing the closure of the circular flow of income, by itself is a fundamental tool for analysing the effects of exogenous shocks among the different economic agents.

The above database satisfies the basic macroeconomic and microeconomic identities. It respects the underlying equilibrium conditions (Sancho and Cardenete, 2014), which when linked with a CGE shows the causal relationships between variables (Thorbecke, 1985).

With the SAM for Spain, we calibrate an applied general equilibrium model (CGE) that contemplates the interaction of four differentiated agents (consumers, producers, the government, and the external sector) in five blocks that define the behaviour of productive activities, the government, the external sector, households and the behaviour of prices.

The above framework allows us to analyse the response of Spanish households' disposable income to CPI increases. As households are differentiated by income decile and gender of the main income earner, it is possible to analyse the variation presented in households depending on these characteristics. The analysis will serve as a tool for decision makers to define different strategies to mitigate the impact, especially in vulnerable households.

In this sense, the simulation takes as a reference the annual average of the inflation forecast reported by FUNCAS (2022), considering the consensus of all the institutions participating in the panel of 5.4%, the maximum forecast of 7.8% and the minimum of 3.2%.

However, an important element of the research is related to the choice of the numeraire. As Robinson (1989) and Willenbockel (1994) have shown, the introduction of fixed wage rates breaks the zero-homogeneity presented in Walrasian neoclassical models. Thus, in the absence of zero homogeneity, the results after a simulation with a structuralist CGE model may differ quantitatively when the numeraire is fixed, as Hosoe (2000) has shown. Therefore, starting from the assumption of fixed prices adopted in the CGE, we will present the reported changes in disposable income when the price of labour is taken as the numeraire, followed by the changes presented when the price of capital is taken as the numeraire.

Among the main results we find that, taking the price of labor as the numeraire and in the face of a 5.4% increase in the CPI, in nominal and real terms there is an increase in the disposable income of decile I, and a progressive reduction in the disposable income of the remaining deciles.

If we analyse the variation presented in the deciles disaggregated by gender, in real terms the increase in prices generates a negative impact on the disposable income of households progressively as they belong to higher deciles.

On the other hand, decile I shows a different behaviour, as its disposable income would increase. This is explained by the composition of the income of households belonging to this decile, since 52.63% of their income corresponds to social transfers and other benefits, compared to the lower participation of their income generated by their own account (9.11%) and that of others (25.92%) in total income.

From the point of view of the gender of the main income earner, we conclude that the increase in prices in Spain has a greater impact on those households whose main income

earner is female, especially in deciles II, III and IV. However, the greatest reduction is seen in households with a female main income earner in decile IX (-5.08%) and a slight difference between types of households in deciles VI and X, no greater than 3%. With respect to decile I, households with female main income earners are the greatest beneficiaries.

On the other hand, taking the price of capital as a numeraire, in the face of a 5.4% increase in the CPI, in nominal and real terms there is a reduction in the disposable income of households broken down by income decile, increasing progressively as the decile increases, that is, the higher the income level, the greater the negative impact generated by the increase in prices.

The results show a similar trend to the previous case. Both deciles I and X show a different behaviour from the rest of the deciles. Decile I would benefit from the rise in prices since its income composition depends more on government transfers and other benefits than on the income generated by its work. On the other hand, decile X, while seeing its disposable income decrease, does so to a lesser extent than decile IX.

When comparing Spanish households disaggregated by gender of the main income earner, the rise in prices has a greater negative impact on the income of female households in deciles II to IV (slightly in decile VI). A similar behaviour is shown by deciles IX and X, with a greater impact on disposable income for households with female main income earners in decile IX. On the contrary, the positive impact presented in decile I is mainly due to the behaviour of households with female main income earners, highlighting that these households are the ones that receive government transfers and other benefits to a greater extent, so their labour income is less affected.

When comparing both scenarios, it is observed that the fact of setting different numeraries effectively produces different quantitative results; let us see that the impact is accentuated when the price of capital is set, however, both in real and nominal terms the trend remains the same.

From the results obtained, we can conclude that with the different numeraries selected and under the assumptions of the classic CGE model, the increase in prices produces a strong impact on the disposable income of households, especially in those that depend in greater proportion on wage remuneration. It is also observed that households with female income earners have a greater loss of purchasing power, making them more vulnerable and increasing their risk of poverty.

Keywords: Consumer Price Index, gender inequality, Computable General Equilibrium Model, disposable income.

JEL codes: C68, E16, E31

References

Ayala, L., & Cantó, O. (2022). *"Radiografía de medio siglo de desigualdad en España". Cultura para la esperanza: instrumento de análisis de la realidad, (119), p. 44-45.*

Bárcena-Martín, E. & Moro-Egido, A.I. (2013). *"Gender and Poverty Risk in Europe". Feminist Economics, 19(2): 69-99.*

Bettio, F., Tinios, P. & Betti, G. (2013). *"The gender gap in pensions". European Commission.*

Cantó, O., Cebrián, I. & Moreno, G. (2015). *"Género y pobreza". En Castaño, C. (ed.): Mujeres en la Gran Recesión, Madrid: Ed. Cátedra.*

Canto, O., Cebrian, I., & Moreno, G. (2016). *"The Gender Poverty Gap During the Great Recession in Spain". Estudios de Economia Aplicada, 34(1), p. 179-203.*

Cebrián, I. & Moreno, G. (2008). *"La situación de las mujeres en el mercado de trabajo español: desajustes y retos, en Economía industrial". Nº 367, 2008 (Ejemplar dedicado a: Retos y oportunidades para el sistema productivo español), p. 121-137.*

Cebrián, I. & Moreno, G. (2015a). *"Tiempo cotizado, ingresos salariales y sus consecuencias para las pensiones: diferencias por género al final de la vida laboral". Cuadernos de Relaciones Laborales, vol 33, 2.*

Cebrián, I. & Moreno, G. (2015b). *"The Effects of Gender Differences in Career Interruptions on the Gender Wage Gap in Spain". Feminist Economics. 2015, vol 21, núm 4.*

Del Río, C. & Alonso-Villar, O. (2014). *"Mujeres ante el empleo (y el desempleo) en el Mercado laboral español, 1996-2013". AREAS, Revista Internacional de Ciencias Sociales, nº 33, Desigualdades de género en España: continuidades y cambios.*

Gradín, C., Del Río, C. & Cantó, O. (2010). *"Gender wage discrimination and poverty in the EU". Feminist Economics, vol. 16(2), p. 73-109.*

Robinson, S. (1989). Multisectoral models, in Handbook of Development Economics, Vol. 2 (Eds) H. Chenery and T.N. Srinivasan, Chapter 18, North-Holland, Amsterdam.

Sancho, F. & Cardenete, M. (2014). Instrumentos multisectoriales para la detección de sectores clave en el análisis regional. Revista de estudios regionales, (100), p. 131-146.

Thorbecke, E. (1985). The social accounting matrix and consistency-type planning models. En Pyatt G. y Round J. (Eds.), Social accounting matrices: a basis dor planning. Washington D.C.: World Bank.

Willenbockel, D. (1994). Applied General Equilibrium Modeling, Chapter 3, Wiley, Chichester.