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Country demographic and socio-economic structure and household consumption

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COUNTRY DEMOGRAPHIC AND SOCIO-ECONOMIC STRUCTURE AND HOUSEHOLD CONSUMPTION

by Francesca Carta* and Domenico Depalo*

Abstract

Since the second half of 2023 and throughout 2024, household consumption in the euro area has remained sluggish despite declining interest rates, resilient labour demand, and rising real wages. While cyclical factors play a key role, this paper investigates whether structural demographic and socio-economic trends have also influenced consumption patterns. We examine the impact of population ageing, immigration, female employment, atypical work contracts, remote work, and online shopping. Our analysis, based on a panel of euro-area economies from 2008 to 2023, shows that the inclusion of structural variables improves the explanatory power of traditional consumption models. Higher female employment boosts consumption, while immigration and remote work reduce it, although their effects remain smaller than those of disposable income and interest rates. After the pandemic, the positive contribution of female employment has diminished, while the negative effect of remote work has become more relevant. Immigration has also had a negative impact, but its overall contribution to aggregate consumption remains positive compared with a counterfactual scenario without immigration. Taking structural factors into account is essential for medium-term forecasts.

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* Bank of Italy, Directorate General for Economics, Statistics and Research.

1. Introduction[1]

In recent quarters, despite declining interest rates, resilient labour demand and rising real wages, household consumption in the euro area has remained sluggish, with significant differences across countries. While cyclical factors certainly play an important role, in this note we assess whether some structural (demographic and socio-economic) trends may also have exacerbated cyclical movements. In particular, we focus on the impact of three main factors: *i)* demographic characteristics, related to the ageing of the population and the increasing share of immigrants; *ii)* labour market conditions, in particular the increase in the female employment rate and the spread of atypical contracts; *iii)* changes in behaviours accelerated by the Covid-19 pandemic, namely the increased use of working from home and online shopping.

These variables may have affected consumption in different directions. On the one hand, the ageing of the population and the increase in the female employment rate may raise consumption, if older people disinvest to smooth consumption or if women, in order to work, outsource domestic production and opt for market-based services. On the other hand, the presence of a higher proportion of immigrants – at constant population – may reduce consumption, as they tend to be young and part of their consumption takes place abroad through remittances. Working from home can also reduce consumption, by lowering the demand for items associated with office work (e.g. transport or clothing).

To assess the role of these different factors, we estimate an equation of consumption as a function of the cyclical determinants commonly used in the literature (disposable income and interest rates), augmented with demographic and socio-economic variables (structural variables). We use data for a panel of euro area economies for the period 2008-2023.

By the mean of a within-countries fixed effect estimator, we find that the inclusion of structural variables improves the fit of a more classical equation that considers only the traditional determinants of aggregate consumption, namely disposable income and interest rates. The female employment rate increases consumption, while the presence of immigrants and the share of employees working from home significantly reduce it; however, their contribution is smaller than that provided by disposable income and interest rates. Compared to the pre-pandemic period (2015-2019), the positive contribution from female employment to consumption growth decreases in 2019-2023, while the negative contribution from remote work and immigration increases in absolute terms. The latter, however, taking into account the associated increase in population, would have a net positive impact on aggregate consumption. Although the proposed model does not fully explain the weakness in consumption registered in the post-pandemic years, medium-term forecasts of consumption should take into account non-traditional determinants. All these findings are robust to a number of robustness checks that take into account possible confounding factors.

The paper is organized as follows. Section 2 presents some stylized facts that motivate the analysis. Section 3 reviews the role of the demographic and socio-economic structure, also offering a cross-countries perspective. Section 4 introduces the data that we use in the empirical analysis of Section 5. Section 6 offers some concluding remarks.

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2. Some stylized facts

Before the outbreak of the Covid-19 pandemic, consumption and disposable income in the euro area followed roughly the same dynamics (Figure 1), resulting in a saving rate that was consistently around 12%. In 2020, private consumption fell sharply, partly due to lockdown measures, while disposable income remained relatively stable, thanks to the massive government intervention to support incomes (for Italy see Carta and De Philippis, 2021). The saving rate spiked to around 25% in the second quarter of 2020 (Figure 2, panel a). After 2020, it started to decline gradually towards pre-pandemic levels. However, from 2022 onwards it started to increase again; in the last two years, despite falling inflation, recovery of real wages and sustained labour demand, the saving rate is still above the pre-pandemic levels and on an upward trend; private consumption has yet to recover and shows a sluggish growth (Figure 2, panel b).

*Figure 1: Trends in consumption and gross disposable income (yearly; euro)*
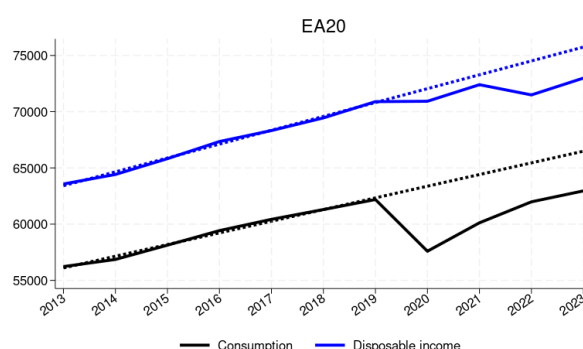
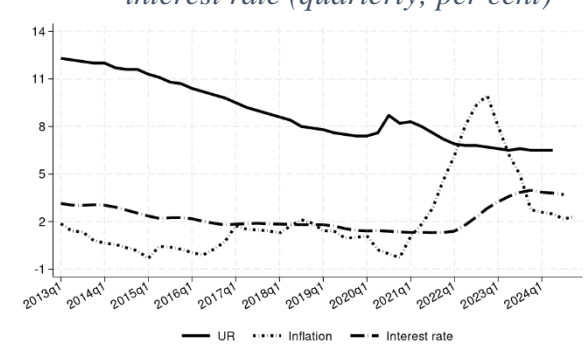**Source**: Eurostat, National Accounts.
Notes: Consumption and disposable income are in real terms and indexed to 2013 values. Sector: Households and non-profit institutions serving households. If we look at net disposable income, the picture is qualitatively the same.

Figure 2: Main macro trends

panel a: saving rate (quarterly; per cent)
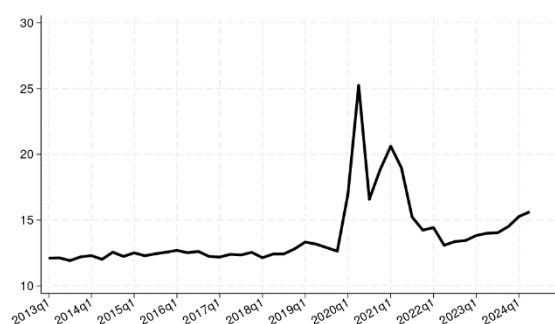
panel b: unemployment, inflation and interest rate (quarterly; per cent)

Source: Eurostat, National Accounts and Labour Force Survey; our elaborations on ECB data.
Notes: The saving rate is calculated for the sector of households and non-profit institutions serving households; the interest rate is the cost of borrowing for households for house purchase; inflation is the annual change in the Harmonised Index of Consumer Prices (HICP).

However, the average developments in consumption and disposable income in the euro area mask important differences between countries. While in some countries household consumption and

disposable income have returned to their pre-pandemic trend (as in the case of France), in other economies – such as Germany, Italy, and Spain[2] – this has not been the case (Figure 3).

Figure 3: Trends in consumption and gross disposable income for the main economies in the euro area (yearly; euro)

These countries differ along a number of dimensions that may affect income and consumption patterns. In this note we examine the role of trends in the demographic and socio-economic structure in explaining current consumption patterns in the euro area, while taking into account differences across countries.

3. The role of the demographic and socio-economic structure

According to the traditional consumption theory (Flavin, 1981; Hall, 1978), the main determinants of consumption are income and interest rates. Other drivers considered in the literature are wealth and expectations (Ando and Modigliani, 1963; Carrol et al., 2011; Aron et al., 2012; Muellbauer et al., 2023).

However, also the demographic and socio-economic structure of a country can influence household consumption patterns. We highlight three possible factors: the demographic structure, the labour market conditions, and the behavioural change triggered by the Covid-19.

As for the first factor, there are two main demographic trends affecting the European economies: population ageing, due to longer life expectancy and falling fertility rates, and the increasing share of immigrants in the population. The overall impact of these trends on consumption is ambiguous, both because the empirical evidence is not conclusive and because they may compensate each other. An ageing population could be associated to higher levels of consumption because, according to the standard life-cycle model, individuals disinvest and consume more at later ages than at younger ages

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[2] However, unlike Germany and Italy, Spain is on an upward trend.

(Deaton, 1992; Browning and Lusardi, 1996; Campbell and Shiller, 1987). However, this theoretical prediction is often not supported by empirical studies (Battistin et al., 2009; Miniaci et al., 2010 for evidence based on Italy).[3] A higher share of immigrants, who are typically of working age, may have the opposite effect on consumption compared to an ageing population. Moreover, due to the role of remittances, part of their consumption takes place abroad, in the donor country.

The second main set of factors relates to the labour market. The increase in female employment rates over time and across countries may help to explain observed consumption patterns (Browning and Meghir, 1991). Indeed, higher female participation in the labour market not only increases family income, but may also be associated with the outsourcing of services that would otherwise be directly produced within the household (e.g. childcare, care of the elderly, housework, cooking) and are not captured in consumption statistics.[4,5] Then, for a given family income, the expenditure patterns of single-earner households may differ dramatically from those of dual-earner households, so that a higher female employment rate could be associated with higher consumption levels. Conversely, the spread of atypical contracts, such as temporary jobs, could reduce consumption through its effect on uncertainty and risk-aversion.

Finally, the third group of factors relates to the legacy of the Covid-19 pandemic. In this note we focus on working from home (WFH) and on-line shopping, where there was a clear break with respect to the past. WFH may have changed consumption patterns by reducing consumption of some items related to office work (e.g. clothes, transportation) and increasing consumption of others (e.g. durable goods related to the location/home of workers). These changes may have affected short and long term consumption patterns. On the one hand, on-line shopping is easy and fast and can even lead to over-consumption (Frick and Matthies; 2020); on the other hand, it gives the possibility to consumers access to lower prices and generate savings (Pozzi, 2013). The pandemic increased the propensity to use on-line shopping and consumers may have relied on this even more in a context of high inflation.

3.1 The different evolution of demographic and socio-economic characteristics among countries

Along the above mentioned channels, we observe different dynamics in the main euro-area economies in the four years before and after 2019.

Focusing on demographic variables, euro area economies are ageing and characterized by an increasing presence of immigrants. The ageing process (Figure 4) was faster in France throughout the period considered, particularly between 2015 and 2019 (a percentage point above the euro area average). In the four years after 2019, the ageing process accelerated in Germany and Italy relative to what was observed in 2015-2019, while it slowed down in Spain and in the euro area average. As for the share of immigrants (Figure 5), after the Covid-19 pandemic it increased sharply in the euro area average and in Spain, unlike in the four years before. In Germany, France and Italy we do not observe any major change after the crisis.

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[3] Empirical studies often find the opposite, i.e. that individuals reduce their consumption at retirement. Among the possible explanations are a reduced demand for work-related items; an increase in housework; and an increase in precautionary and bequest-related savings. For the case of Italy, see Ventura and Horioka (2020).

[4] Unpaid and voluntary household services are not included in the National Accounts data. For a more detailed explanation, see the European system of national and regional accounts.

[5] Notice that a higher share of immigrants may favour this channel, as they could help parents, especially women, to work by providing services otherwise domestically produced (Cortés and Pan, 2013; Barone and Mocetti, 2011).

Figure 4: Old age dependency ratio

panel a: differences between the ratio
of 2019 vs 2015 and 2023 vs 2019
(percentage points)

panel b: levels (per cent)
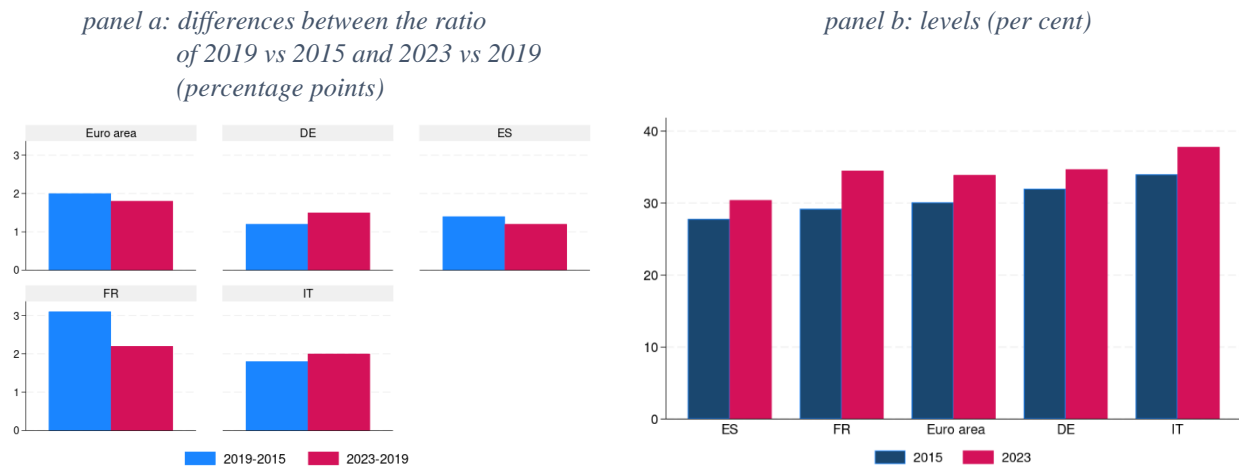
Source: Eurostat.

Figure 5: Immigrants as a percentage of total population

panel a: difference between the shares
of 2019 vs 2015 and 2023 vs 2019
(percentage points)

panel b: levels (per cent)
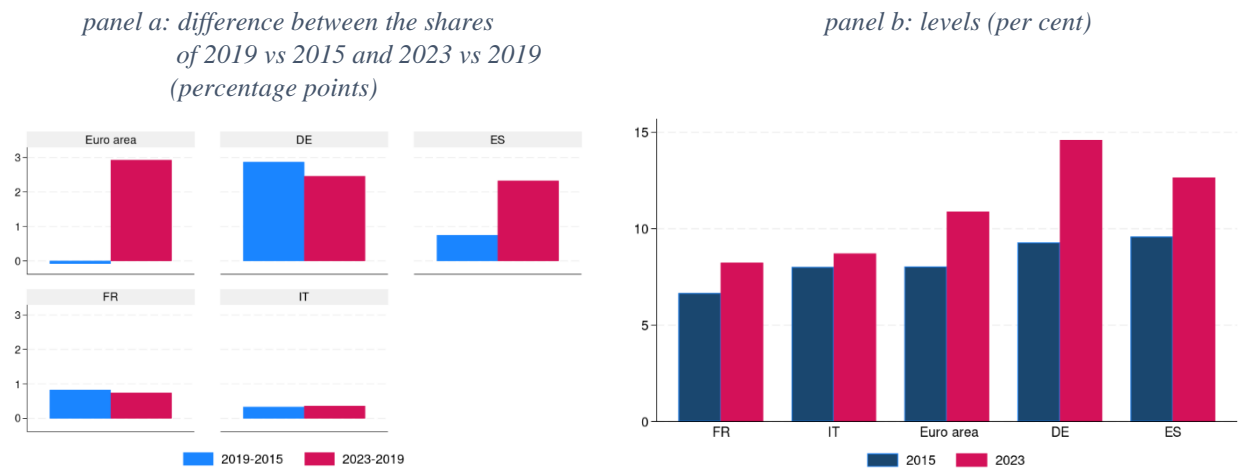
Source: Eurostat.

As for the labour market conditions, in all the main euro area economies, with the exception of France, the female employment rate grew faster in 2015-2019 than in the period 2019-2023 (Figure 6). In the pre-Covid years, the largest increases were in Spain and Italy, where the female employment rate was substantially lower than in France and Germany.

Figure 6: *Female employment rate*

*panel a: difference between the rates
of 2019 vs 2015 and 2023 vs 2019
(percentage points)*

panel b: levels (per cent)
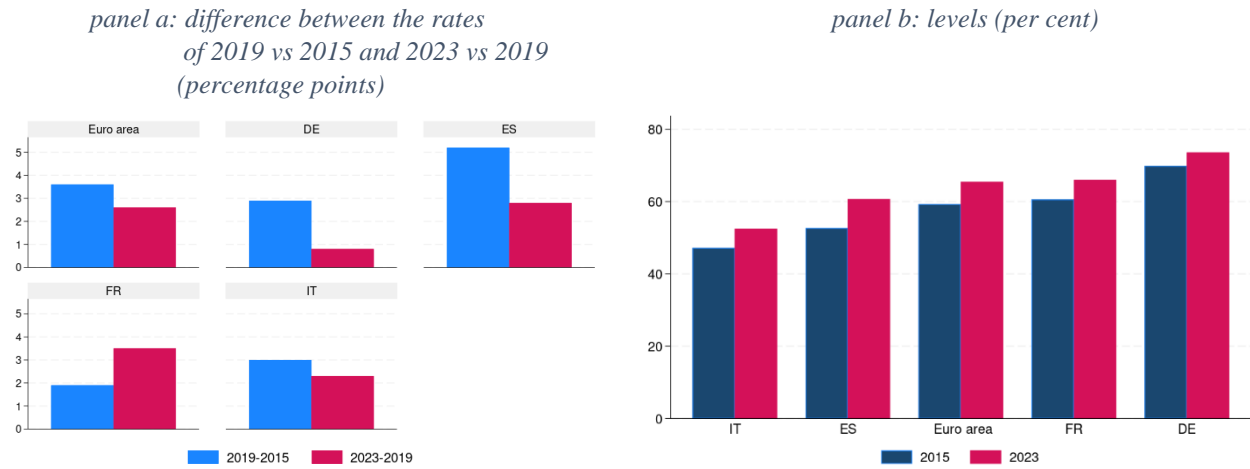
Source: Eurostat.

Finally, before the outbreak of the Covid-19 pandemic, WFH was not widespread. In the years 2015-2019, the share of workers who usually worked from home in the reference weeks did not change much (Figure 7; see Section 3 for the variable description). The pandemic dramatically changed it: in Italy WFH was more than three times higher in 2020 than in 2019, and in the other main euro area economies it was higher more than twice. After 2020, it started to fall in Italy and Spain, while it continued to rise in France and Germany. Looking at the period 2019-2023, Germany experienced the largest increase in the share of employees working from home, followed by France and the euro area average; it was more modest in Italy and Spain. Looking at levels (Figure 7, panel b), in 2023 the share of WFH was more than double the pre-pandemic level in Germany, 50% higher in France and Spain, and 25% higher in Italy (Barrero et al., 2021, 2023).

Figure 7: *Working from home*

*panel a: difference between the shares
of 2019 vs 2015 and 2023 vs 2019
(percentage points)*

panel b: levels (per cent)
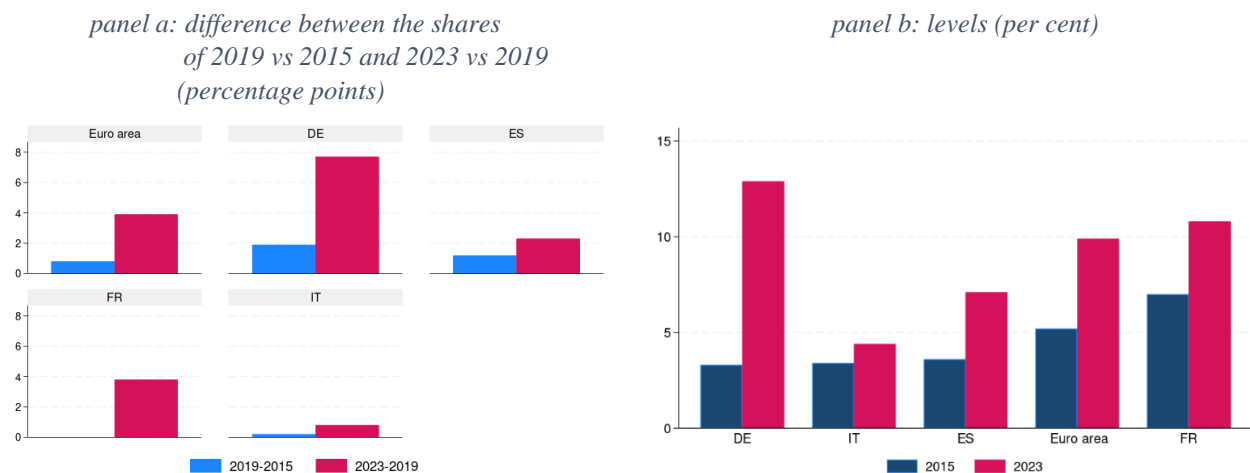
Source: Eurostat.

4. Data

We use annual data from Eurostat and the ECB for the period from 2008 to 2023, the latest year available, for the euro area countries.[6] Consumption and disposable income data are referred to households and non-profit institutions serving households. As for the standard variables suggested by the theory, we use disposable income and interest rates. The household disposable income, both gross and net of taxes and transfers, is adjusted to take into account social transfers in kind. For interest rates, we use the cost of borrowing by households for house purchase, collected on a monthly basis (January 2003 to September 2024, the latest observation available).

In line with recent literature, in robustness checks we also control for wealth, using data on household financial and non-financial assets, and for household expectations/confidence, using the Business and Consumer Surveys of the European Commission. We examine two different definitions of confidence, one based on unemployment expectations for the next 12 months and one on a composite index based on the financial situation, the general economic situation, and major purchases for the next 12 months, recorded on a monthly basis from January 1985 to October 2024. For variables available on a monthly basis, we use their annual averages.

All the monetary aggregates are deflated using a price index, as summarized by the HICP on all items.[7]

Our main contribution is to explore additional non-traditional channels, namely the demographic structure, the labour market conditions, and the behavioural change triggered by the Covid-19. For the former, in addition to the total population, we take into account the number of immigrants and the population structure, i.e. the number of persons aged 0-19, 20-65, and over 65.

As regards labour market conditions, we use the unemployment rate, the share of temporary contracts, the female employment rate, and the total number of hours worked.

Finally, the Covid-19 pandemic triggered a relevant behavioural change, with the increased use of working from home and online shopping. We have data on the shares of employees who usually worked from home during the reference period of four weeks, which is a specific question in the Labour Force Survey,[8] and of individuals who have bought something online purchase in the last 12 months.[9]

Table A1 in the Appendix summarizes data sources and the definition of each variable.

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[6] We prefer to work with annual data for several reasons. From a practical point of view, not all the information is available at higher frequency, e.g. population data. With monthly or quarterly data, it may not be appropriate to use seasonally adjusted data to test a theory, as the adjustment may obscure some patterns (Hylleberg et al, 1990). On the other hand, using non-seasonally adjusted data may complicate the statistical approach and the interpretation, e.g. a relationship may hold in one month/quarter but not in others. Taking all these considerations together, we believe that annual data are the most appropriate frequency for this note.

[7] We use HICP on all items to avoid that the choice of different deflators may affect the results (for an example, see Fabiani and Torrini, 2024).

[8] According to the official documentation, "usually working from home" means doing at home any productive work related to the current main job for at least half of the days worked in a reference period of four weeks.

[9] There is a break in the series in 2021. More information is available on the official website.

5. Empirical analysis

5.1 Empirical approach

We estimate a consumption equation:

$$c_{it} = \alpha_i + \delta\, T_i + X'_{it}\, \beta + u_{it} \tag{1}$$

Where, for each country i observed in year t, c is the log of household consumption in real terms; α are country-specific intercepts to control for unobservable time-invariant differences across countries; T is a linear time trend with coefficient δ; X is a set of covariates that takes into account differences in the characteristics both across countries and over time (see Section 2), and β is a vector of coefficients; u is a mean zero random variable. Our set of covariates include the log of disposable income and the interest rates. Also, we add the logs of total population and its 65+ and immigrant components (demographic characteristics), the share of temporary contracts and the female employment rate (labour market condition), and the share of remote workers (the behavioural change due to the Covid-19 pandemic).[10] Notice that the βs should be interpreted as elasticities for logarithm variables and as semi-elasticities for the others.

We estimate equation 1 using a standard Least Square Dummy Variable estimator, i.e. within-countries fixed effect estimator. This preserves the panel nature of our data. This feature is a strength of our approach because the parameters of interest (β) are consistently estimated even under model misspecification, if the omitted variables remain constant over time. These omitted variables include, for example, country-specific propensity to consume. We also weight the observations so that countries with larger populations contribute more to the estimates.[11]

5.2 Results

Our aim is to show how much of the consumption pattern can be explained by standard and non-standard drivers. Table 1 reports the results of estimating different model specifications. We proceed step-by-step.

First, we estimate a standard version of the consumption function (Column 1), where the regressors are gross disposable income and interest rates. Both parameters have the expected sign: a 10% increase in disposable income determines a 7% increase in consumption; a higher interest rate reduces current consumption.

Second, the coefficients of the standard regressors fall slightly when we include demographic variables as covariates (Column 2). The number of inhabitants over-65s is positively correlated with consumption patterns, meaning that, holding the population constant, the presence of a larger number of over-65s increases consumption, in line with the life-cycle theory, according to which individuals disinvest at later ages and tend to consume more.

Column 3 reports the coefficients of a more generalized consumption equation that includes standard drivers as well as demographic and socio-economic characteristics, or "complete model" in what follows. The introduction of these variables improves the overall fit of the model. Therefore, we

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[10] Following the existing literature, we use the covariates observed at time t. This implies that their current values affect current consumption. To support this assumption, in a regression with lagged covariates, we do not reject the null hypothesis that their coefficients are jointly equal to zero (F-stat.=1.12; p-value=0.349).

[11] In our preferred specification, we use population as the weighting variable. However, the results are robust when we use GDP as the weight or when we let the country-specific intercepts (α_i in equation 1) to account for these differences, i.e. the unweighted regression (Table A2).

choose this as our preferred specification. The addition of variables measuring labour market characteristics and behavioural changes further reduces the coefficients associated to standard variables, implying that the exclusion of the labour and behavioural variables masks the importance of other channels. A 10% increase in disposable income determines an increase in consumption of about 5.5% (in line with Muellbauer et al., 2023; Guglielminetti and Rondinelli, 2024). The positive and significant coefficient associated with the female employment rate suggests that the presence of a second earner has a positive effect on consumption not only through income – as captured by disposable income – but also per se, probably because it affects the consumption habits of the household. The share of temporary workers has a statistically insignificant effect on consumption, suggesting that the precautionary saving motive may be less relevant than the monetary channel. The variable working from home has a negative effect on consumption, as individuals have less need of goods and services like transportation or clothes.[12] In this specification, a larger population increases consumption, although the effect is not precisely estimated because, as the population is a variable that changes slowly, its effect is absorbed in the country fixed effects. The coefficient associated with the number of immigrants residing in the country is negative and significant, meaning that, holding the population constant, a higher number of immigrants is associated with lower consumption, perhaps because of the role of remittances.[13] All these results are confirmed when we add an autoregressive component (Column 4), which, however, reduces the number of observations and whose estimator is less efficient than in the previous column.[14]

As a synthetic measure of the relevance of our additional channels that we test, we rely on the F-statistics of the null hypothesis that their coefficients are jointly equal to zero. We always reject the null hypotheses. Therefore, all the channels that those variables capture are relevant to explain the consumption patterns. Not considering the demographic structure, the labour market condition, or the behavioural change related to the pandemic leads to an omitted variable bias, apart from very special circumstances.

Table 1: Estimates of consumption, different model specifications

	Standard (1)	+ Demographic (2)	+ Labour & behavioural (3)	+AR(1) (4)
Gross disp. income	0.680 ***	0.680 ***	0.570 ***	0.536 ***
	(0.042)	(0.052)	(0.073)	(0.075)
Interest rates	-0.017 ***	-0.014 ***	-0.012 ***	-0.016 ***
	(0.003)	(0.003)	(0.003)	(0.003)
Population		0.083	0.166	0.003
		(0.132)	(0.136)	(0.149)
Population 65+		0.251 **	0.153	0.267 *
		(0.093)	(0.114)	(0.161)

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[12] In 2023 the expenditure for transportation or clothes was slightly below the pre-pandemic trend; in 2022, it was 6% lower than in 2019.

[13] According to Eurostat, remittances have grown continuously since 2014, reaching a record level of 43.5 billion euros in 2022 – the latest available data –, an increase of 13.9% since 2021 (38,2 billion).

[14] We used the GMM estimator in Arellano and Bover (1995) to correct for endogeneity, which in panel data arises mechanically with the auto-regressive component. The GMM is less efficient than the estimators in columns 1–3 (Arellano, 2003). Also, in finite samples, the AR coefficient suffers from downward bias (Kiviet, 1995). Accordingly, if we implement the (biased) LSDV estimator (not shown), the AR component is twice as large as that in column 4 and highly significant; likewise, the coefficient on temporary employment becomes negative and non-significant.

	(1)	(2)	(3)	(4)
Immigrants		-0.046 **	-0.056 **	-0.057 ***
		(0.019)	(0.024)	(0.019)
Temporary empl.			-0.001	0.004 **
			(0.002)	(0.002)
Female empl. rate			0.006 ***	0.006 ***
			(0.001)	(0.002)
Work from home			-0.002 ***	-0.003 ***
			(0.001)	(0.001)
AR(1)				0.136
				(0.099)
Obs.	275	275	275	227
R2	0.881	0.900	0.918	-
F-stat. standard	135.8 ***	85.9 ***	32.9 ***	52.8^a ***
F-stat. demo		3.8 **	2.8 *	10.6^a **
F-stat. lab.			9.9 ***	41.5^a ***

Note: Each estimate controls also for country dummies and time trend. Population weighted regressions. Standard errors robust to heteroschedasticity in parentheses. ***(**)[*] refer to 1(5)[10] percent confidence levels. "F-stat." is test that the coefficients of standard, demographic, and labour characteristics are jointly equal to zero. Column 4 uses the GMM estimator in Arellano and Bover (1995). ^{a} This test is from χ^2.

To assess the explanatory power of the model over time we analyze the residuals. To do this, we plot the time series of the residuals of both the standard and the full specification (Figure 8). The residuals of the complete model are always smaller in absolute value than those of the standard model, confirming the improvement of our approach over the traditional one. Most importantly, the observed consumption is always lower than that predicted by the models during the sovereign debt and Covid-19 crises and their early recovery periods (2008-2013; 2020-2023). In 2023, actual consumption is close to, but lower than, the predicted value.[15]

Figure 8: Residuals of the complete model vs. standard specification

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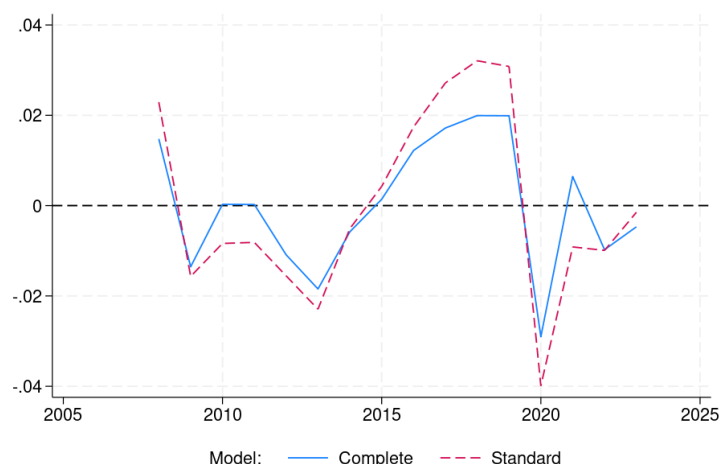
[15] Also, we augmented the basic model specifications to allow for the Covid-19 period, with either dummies for the years 2020 and 2021 or the interaction between the regressors of the complete model and the dummies for 2020 and 2021. Both specifications allow to draw conclusions similar to those discussed above.

Finally, we use the complete model to show the contribution of selected variables to the difference in consumption between 2019 and 2015 and between 2023 and 2019 observed for the average of the euro area (Figure 9). We find that, in both periods, disposable income, female employment and, to a much lesser extent, the elderly population make the largest positive contribution to boosting consumption relative to the reference year. During the period analysed, while the relative contribution of disposable income increases, that of female employment decreases; the latter reflects the more modest growth in female employment rate in 2019-2023 relatively to that in 2015-2019. Conversely, the contribution of the number of immigrants is negative, and its magnitude increases over time, reflecting the increase in the percentage of immigrants over the total population.[16] In addition, the increase in interest rates and in the share of individuals working from home, both of which were both extremely low before the outbreak of Covid-19, makes a negative and significant contribution to consumption dynamics between 2019 and 2023.

Figure 9: Complete model specification – contributions to the evolution of consumption between 2015 and 2019 and between 2019 and 2023 (cumulative values) of selected covariates
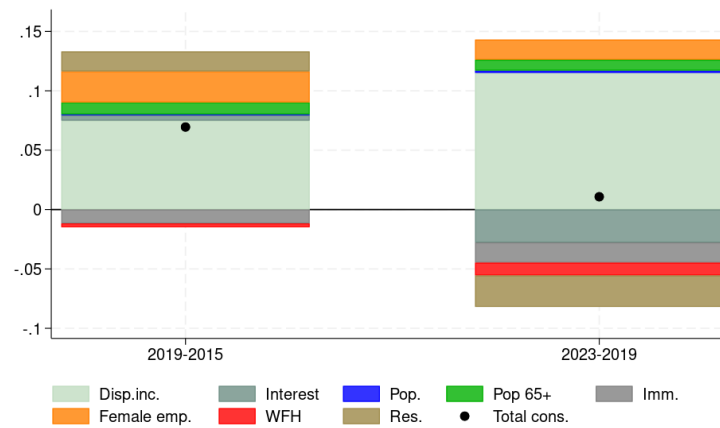
Note: We plot the contribution of disposable income, interest rates, sizes of population and of population aged 65+, immigrants, female employment rate, share of work from home (WFH), and residuals ("Res."). For a clearer presentation of the different contributions in the figure, some variables are not shown, the most important of which is the time trend. Superimposed is the observed growth in total consumption. Differences are between 2019 and 2015 and between 2023 and 2019.

5.3 Robustness checks

We perform several robustness checks covering: variable definitions, estimator, and model specification. Regarding the variable definitions, we repeated the analysis on levels and per-capita variables rather than on the logarithm. As for the estimator, we tested the sensitivity of the results to some countries, namely excluding Germany, France, Italy, or Spain. Finally, in terms of model specification, we added several variables: financial and non-financial assets, as an alternative and additional source of income; the hours worked, to capture the current income; the consumer confidence, measured as the expected unemployment rate or the composite overall index, to capture

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[16] To take into account for the fact that immigrants increase the total population, we estimate our model distinguishing between natives and immigrants and removing the total population as a regressor. We compare the benchmark model with a zero immigrantion scenario. For the period 2019-2023, we find that the contribution of immigrants to aggregate consumption is positive, but the magnitude of this contribution is very small, reflecting the fact that immigrants tend to be younger and to consume abroad due to the role of remittances.

additional precautionary behaviour. Among the demographic variables, we also control for household size, whose downward trend may increase consumption due to the loss of economies of scale in consumption that occur in large families (Fehr et al., 2016). As an additional variable representing the behavioural change in consumption habits brought about by the Covid-19 experience, we include the share of individuals who have chosen to shop online instead of the WFH variable.

The results for alternative specifications[17] show that the coefficients of our preferred specification remain stable and significant across all the alternative models (Table 2). The coefficient on gross disposable income is only slightly reduced when we add financial and non-financial wealth, which have a positive effect on total expenditure. This result implies that wealth affects consumption as an alternative form of income; in support of this interpretation, we note that the coefficient associated with interest rates remains stable.

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[17] The other checks are successfully tested (results available upon request).

Table 2: *Estimates of consumption, robustness checks*

	Main	Net disp. Income	Assets	Expected Unempl.	Overall confidence	Perceived inflation	Worked hours	HH size	Online shopping
Gross disp. income	0.570 ***		0.415 ***	0.632 ***	0.626 ***	0.573 ***	0.567 ***	0.570 ***	0.624 ***
	(0.073)		(0.062)	(0.069)	(0.076)	(0.071)	(0.080)	(0.071)	(0.029)
Interest rates	-0.012 ***	-0.011 ***	-0.014 ***	-0.013 ***	-0.009 ***	-0.010 **	-0.012 ***	-0.012 ***	-0.008 ***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.002)
Pop.	0.166	0.109	0.196	0.162	0.178	0.159	0.206	0.161	0.137 **
	(0.136)	(0.135)	(0.157)	(0.124)	(0.134)	(0.136)	(0.137)	(0.134)	(0.065)
Pop. 65+	0.153	0.160	0.295	0.100	0.119	0.152	0.105	0.157	0.146 ***
	(0.114)	(0.113)	(0.170)	(0.094)	(0.095)	(0.111)	(0.097)	(0.109)	(0.045)
Imm.	-0.056 **	-0.053 **	-0.027	-0.049 *	-0.052 **	-0.059 **	-0.057 **	-0.059 **	-0.057 ***
	(0.024)	(0.024)	(0.021)	(0.023)	(0.023)	(0.024)	(0.022)	(0.021)	(0.009)
Temp. empl.	-0.001	-0.001	0.001	-0.003	-0.001	-0.001	-0.001	-0.001	-0.002 **
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
Female empl. rate	0.006 ***	0.007 ***	0.010 ***	0.005 ***	0.004 *	0.006 ***	0.006 ***	0.006 ***	0.005 ***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
WFH	-0.002 ***	-0.003 ***	-0.003 ***	-0.001 *	-0.002 **	-0.002 ***	-0.002 ***	-0.002 ***	
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	
Net disp. income		0.517 ***							
		(0.072)							
Non-fin. asset			0.016 ***						
			(0.004)						
Fin. asset			0.070 *						
			(0.035)						

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Share home owners									
Expect. unemp.				-0.001 *** (0.000)					
Cons. confid.					0.001 *** (0.000)				
Perc. infl.						0.000 (0.000)			
Hours worked							0.016 *** (0.005)		
HH size								-0.025 (0.070)	
Online shop.									-0.001 *** (0.000)
Obs.	275	275	192	275	275	275	275	275	275
R2	0.918	0.911	0.911	0.925	0.924	0.915	0.923	0.915	0.936
F-stat. standard	32.9 ***	27.8 ***	25.8 ***	42.0 ***	34.3 ***	32.8 ***	26.6 ***	33.9 ***	236.9 ***
F-stat. demo	2.8 *	2.2	5.5 ***	2.3	2.5 *	2.9 *	4.2 **	3.2 **	19.5 ***
F-stat. lab.	9.9 ***	13.7 ***	17.4 ***	5.0 **	3.6 **	9.6 ***	10.4 ***	11.4 ***	48.6 ***

Note: Each estimates controls also for country dummies and time trend. Population weighted regressions. Standard errors robust to heteroschedasticity in parentheses. ***(**)[*] refer to 1(5)[10] percent confidence levels. "F-stat." is test that the coefficients of standard, demographic, and labour characteristics are jointly equal to zero.

6. Conclusions

Demographic and socio-economic factors are playing an increasingly important role in consumption trends in the euro area. While traditional drivers such as income and interest rates remain central, non-traditional determinants – population ageing, immigration, female employment, and remote work – contribute significantly to explaining recent observed patterns. This evidence highlights the need to incorporate structural factors into medium-term consumption projections.

Policymakers need to take these evolving trends into account to better understand and support future consumption growth. Further research is needed to assess their long-term implications for economic resilience and demand dynamics.

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Appendix. Data description and additional results

Table A1: Characteristics and sources of the variables.

Macro-component	Data	Description	Source
Consumption	Total	Non-financial transactions; Final consumption expenditure	Eurostat
	Food	Final consumption expenditure of households by consumption purpose (COICOP 3 digit)	Eurostat
	Durables	Final consumption aggregates by durability: durables	Eurostat
	Non-durables	Final consumption aggregates by durability: non-durables	Eurostat
Standard hypotheses	Net/gross disposable income	Non-financial transactions; Adjusted disposable income, net/gross	Eurostat
	Financial asset	Financial balance sheets; Total financial assets/liabilities	Eurostat
	Non-financial asset	Household non-financial assets, looking through investment fund shares	ECB
	Homeownership rates	Distribution of population by tenure status, type of household and income group	Eurostat
	Interest rates	Cost of borrowing for households for house purchases	ECB
	Consumer confidence	Confidence Indicator (synthetic indicator including: financial situation in the past and the next 12 months, general economic situation over next 12 months,	Eurostat

		and major purchases over next 12 months)	
	Unemployment expectations	Unemployment expectations over next 12 months	Eurostat
	Price index	HICP - annual data (average index)	Eurostat
Demographic characteristics	Population (total and by age)	Population structure indicators at national level	Eurostat
	Immigrants	Immigration by age group, sex and citizenship	Eurostat
Labour market conditions	Unemployment rate	Unemployment by sex and age – annual data	Eurostat
	Female employment	Employment by sex, age and citizenship (1,000)	LFS
	Share of fixed-term workers	Temporary employees as percentage of the total number of employees, by sex, age and country of birth (%)	LFS
Behavioural change	Share of work from home	Employed persons working from home as a percentage of the total employment, by sex, age and professional status (%)	LFS
	Share of online shopping	Internet purchases by individuals	Eurostat

Table A2: *Unweighted estimates of consumption, different model specifications*

	Standard (1)		+ Demographic (2)		+ Labour & behavioural (3)	
Gross disp. income	0.679	***	0.682	***	0.572	***
	(0.042)		(0.053)		(0.074)	
Interest rates	-0.017	***	-0.014	***	-0.012	***
	(0.004)		(0.003)		(0.004)	
Population			0.074		0.163	
			(0.128)		(0.136)	
Population 65+			0.257	**	0.152	
			(0.093)		(0.114)	
Immigrants			-0.046	**	-0.055	**
			(0.018)		(0.023)	
Temporary empl.					-0.001	
					(0.002)	
Female empl. rate					0.006	***
					(0.001)	
Work from home					-0.002	***
					(0.001)	
Obs.	275		275		275	
R2	0.880		0.900		0.916	
F-stat. standard	135.2	***	83.7	***	32.6	***
F-stat. demo			3.9	**	2.7	*
F-stat. lab.					9.9	***

Note: Each estimate controls also for country dummies and time trend. Unweighted regressions. Standard errors robust to heteroschedasticity in parentheses. ***(**)[*] refer to 1(5)[10] percent confidence levels. "F-stat." is test that the coefficients of standard, demographic, and labour characteristics are jointly equal to zero.