



**SECTORAL COMPOSITION OF CONSUMPTION
EXPENDITURE: A REGIONAL ANALYSIS**

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Title: SECTORAL COMPOSITION OF CONSUMPTION EXPENDITURE: A REGIONAL ANALYSIS

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Sectoral Composition of Consumption Expenditure: A Regional Analysis

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Abstract

This paper analyses the evolution of the sectoral composition of consumption expenditure in the Italian regions in the period between 1996 and 2013. The purpose is to verify whether such a composition at the regional level converged towards the national average and to identify which factors have mostly contributed to this convergence. Empirical data show that while regional performance converged towards the national average during the first half of the analyzed time span, the opposite occurred during the second half. Simulations suggest that: *i*) regional price dynamics do not have a large impact on the evolution of regional differences; *ii*) income effect explains rather well both the phases of the observed dynamics; and *iii*) consumer preferences have contributed to the increase in the differences among regions particularly since the beginning of the recent economic crisis.

Keywords: Consumption-expenditure composition; Regional economics; Regional comparison.

Jel Classification: D12, R13.

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1. Introduction

A recent stream of the macroeconomic literature has extensively investigated the historical evolution of the economic structure focusing on a three-sectors classification, namely agriculture, manufacturing and services, finding a rather similar pattern in many countries during the last century (for a comprehensive review see Herrendorf *et al.*, 2014). While most of the contributions focus on this three sectors and on the United States economy, few contributions analyse data referring to different geographical area. Clements *et al.* (2006) use international evidence to assess the role of price elasticity and income elasticity on the dynamics of sectoral consumption quantities, while Comin *et al.* (2015) apply a general equilibrium approach to international data in order to identify the determinants of the sectoral consumption expenditure shares and sectoral employment shares.

Within this thread of the literature, we still focus on different geographical areas, belonging to the same country. Specifically, this work analyses the evolution of the sectoral composition of consumption expenditure, at Coicop at 2-digit level, in the Italian regions in the period between 1996 and 2013. The objective is to identify the determinants of the composition of the consumption expenditure in order to assess those that contributed to a convergence among the different regions as well as those determinants that acted in the opposite direction. Under this last perspective, our contribution is in line with Lyons *et al.* (2009) who compare Ireland consumption composition to the composition in other OECD countries.

2. Data and Methodology

Consumption Expenditure data at regional level are issued by the Italian National Institute of Statistics (Istat), providing sectoral time series both at current and constant prices. As an indicator of the distance between the Italian regions' performance, we consider the absolute value of the difference, for each of the twelve Coicop 2-digit codes, between the sectoral expenditure shares observed at national and at regional level.

In order to assess the effect of regional sectoral prices, income and consumer preferences on the composition of total consumption expenditure we follow the approach proposed by Comin *et al.* (2015), since it allows us to separate the contribution of the income effect from the prices dynamics.¹ Similarly to Addessi *et al.* (2017), we refer to the explicit form of the utility function in order to elicit the dynamics of the consumer preferences from the residuals of the econometric estimations.

3. Results

The yearly overall distance between the Italian regions is calculated as the sum of the distances emerged in each region for each Coicop sector. Figure 1 shows that a clear trend towards a decrease in the overall distance between regions characterizes the first part of the period while the reverse occurs in the second half.

¹ Generally, the non-homotheticity of the utility function has been introduced through the Stone-Geary form which makes the effect of the income effect depend on the relative prices.

For each region, the econometric estimation is run using the system of equations implied by the approach presented by Comin *et al.* (2015). Specifically, the aggregate consumption bundle, C_t , is defined as follows:

$$\sum_{i=1}^n \omega_i^\sigma C_{i,t}^{1-\sigma} = 1, \quad (1)$$

where i indicates a specific sector, n the number of sectors (in our case $n = 12$), t refers to the time period, σ is the elasticity of substitution, ω_i is the sectoral preference weight, ε_i is the sectoral elasticity to the aggregate level of consumption, and $C_{i,t}$ is the sectoral consumption. Estimation results are reported in Table 1. Consistently with most of the estimates reported in the cited literature, the elasticity of substitution is lower than one.

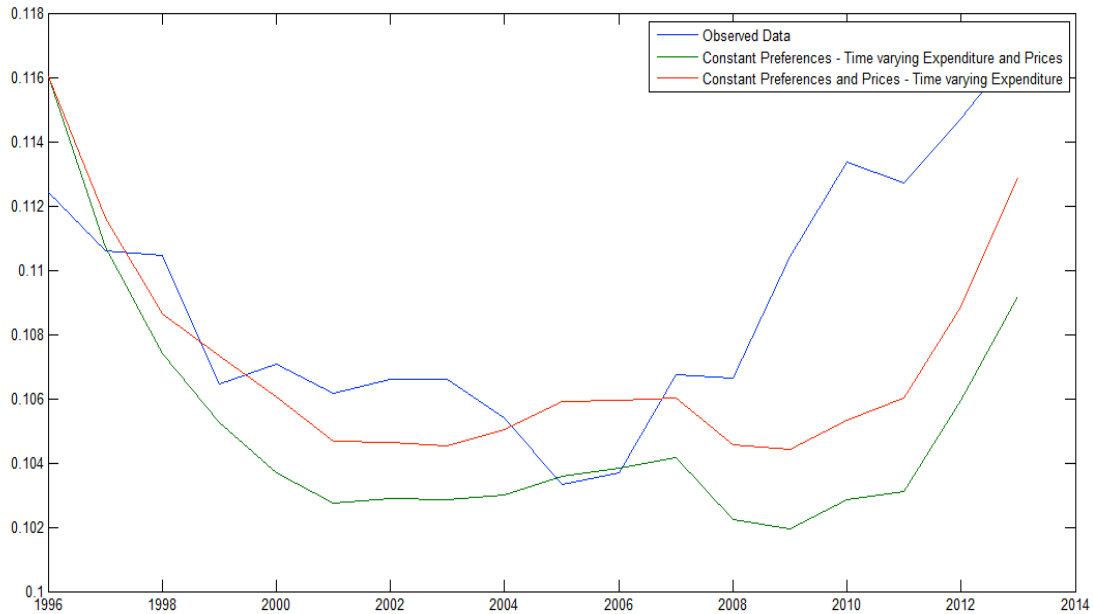
Post-estimation simulations are run and expenditure shares are calculated for each Coicop sector in each region and, on the basis of such simulations, the overall indicator of distance between regional performances and national average is calculated. Figure 1 reports the evolution of the simulated distance on the basis of two possible scenarios. In the first scenario sectoral preferences are maintained constant to their average while the total consumption per capita and sectoral relative price dynamics are taken from the original time series. In the second scenario, both preferences and relative prices are maintained constant, while the total consumption expenditure is still taken from the observed time series.

Table 1. Estimation Results

	Average	Std		Average	Std
ω_1	0.28	0.13	$\varepsilon_{2,1}$	0.41	0.20
ω_2	0.06	0.05	$\varepsilon_{3,1}$	0.21	0.57
ω_3	0.07	0.06	$\varepsilon_{4,1}$	0.97	0.32
ω_4	0.20	0.22	$\varepsilon_{5,1}$	0.26	0.66
ω_5	0.08	0.07	$\varepsilon_{6,1}$	0.05	0.31
ω_6	0.07	0.05	$\varepsilon_{7,1}$	0.68	0.41
ω_7	0.07	0.07	$\varepsilon_{8,1}$	2.67	0.42
ω_8	0.0001	0.0002	$\varepsilon_{9,1}$	0.64	0.63
ω_9	0.06	0.10	$\varepsilon_{10,1}$	0.04	0.45
ω_{10}	0.03	0.05	$\varepsilon_{11,1}$	1.22	0.51
ω_{11}	0.05	0.12	$\varepsilon_{12,1}$	0.73	0.73
ω_{12}	0.04	0.03	σ	0.90	0.14

Notes: Average indicates the average of the regional estimates for the corresponding parameter. $\varepsilon_{i,1}$ ($i = 2, 3, \dots, 12$; the sequence of i corresponds to the sequence of the Coicop 2-digits codes) indicates the relative elasticity to the aggregate consumption level of sector i with respect to sector 1 ($\varepsilon_i - \varepsilon_1$). Std indicates the standard deviation of the regional estimates.

Figure 1. Observed and simulated average regional distance



The simulations provide the following implications. First, price dynamics did not significantly affect the overall distance among the regions. The two simulated series reported in Figure 1 differ only for the inclusion, or not, of the observed price dynamics, and they appear to be rather similar, suggesting that price dynamics provided a small contribution to the reduction of the distance. Second, total consumption dynamics alone explain a significant part of the observed evolution of the distance, capturing both the decreasing and the increasing phase. Finally, preference dynamics are particularly important to explain the increase in the distance in the aftermath of the economic crisis.

4. Conclusions

This paper provided an investigation on the determinants of the composition of consumption expenditure in the Italian regions, showing that demand side factors (related to the characteristics of the utility function) resulted to be more relevant than the supply-side factors (price dynamics) to explain the evolution of the distance between the different regions. We consider this topic worthwhile being further investigated in order to assess the welfare effects of the different compositions of the consumption bundle.

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