



**Gran Sasso Science Institute, Social Sciences; PhD in Urban Studies and
Regional Sciences**

Well-being, Multinational Companies and Cultural Consumption: A Regional and Urban Perspective

Piergiorgio Pilo

A thesis submitted to the Area of Social Science of the Gran Sasso Science Institute
for the degree of Doctor of Philosophy, L'Aquila, December 2022.

Declaration

I certify that the thesis I have presented for examination for the PhD degree in Urban Studies and Regional Sciences of the Gran Sasso Science Institute (GSSI) is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

The copyright of this thesis rests with the author. Quotation from it is permitted, provided that full acknowledgement is made. This thesis may not be reproduced without my prior written consent.

I warrant that this authorisation does not, to the best of my belief, infringe the rights of any third party.

I declare that my thesis consists of 50,618 words (references included).

Statement of conjoint work

I confirm that Chapter 1 is jointly co-authored with Bianca Biagi (Associate Professor at the University of Sassari and GSSI, Italy) and Andrea Ascani (Assistant Professor at the GSSI, Italy). I contributed 50% of the work in Chapter 1.

I also confirm that Chapter 3 is jointly co-authored with Alessandro Crociata (Associate Professor at the GSSI, Italy), and I contributed to 66% of this work.

L'Aquila, 31st December 2022

Piergiorgio Pilo

Abstract

The importance of subjective well-being (SWB) as a crucial dimension of regional development to supplement purely economic indicators has grown considerably in recent decades in both academic and policy debates. In this setting, this thesis focuses on a set of determinants of SWB that have received scant scientific attention, namely (i) the implications of globalisation processes, specifically focusing on the role of multinational companies (MNCs), and (ii) the implications of the local cultural context by considering individuals' consumption of cultural amenities. The structure of the thesis includes a general introduction aimed at guiding the reader through the thesis and providing a broad conceptual framework and two analytical sections focusing on (i) the role of globalisation and MNCs on SWB (Chapter 1). It also examines the degree of economic embeddedness of MNCs in the local economic structure, the sectoral and activity heterogeneity in which MNCs are involved in, and the cultural openness of local communities (Chapter 2), as well as (ii) the linkages between individuals' cultural consumption behaviours and their SWB dimension by disentangling the types of cultural activities and the two components of SWB (life satisfaction and happiness).

Part I discusses how, as part of a global phenomenon, MNCs engender economic, social, environmental, and institutional impacts on their locations. The multidimensionality of these impacts is understudied by previous literature. In particular, the evidence suggests that the presence of MNCs might have both positive and negative impacts. On the one hand, the local economy might benefit from MNCs' technology and knowledge spillovers, thus enhancing local SWB. On the other hand, specific types of MNCs activities might also contribute, for instance, to increased pollution and environmental degradation that can lower local SWB. Specifically, Chapter 1 focuses on the SWB and life satisfaction of individuals where they reside as a predictor of the complexity of these impacts (i.e., it aims to reveal the [net] territorial impact of the presence of MNCs). Specifically, the work provides a theoretical framework and empirical evidence on the link between the presence of MNCs and SWB at the regional level. The dataset combines data from the European Social Survey for the average regional life satisfaction and Orbis-Bureau Van Dijk for

the presence and size of MNCs, including information for 190 NUTS 2 regions in 24 European countries over the years 2010–2016. The findings indicate that, on average, the presence of MNCs is associated with lower levels of SWB. Furthermore, these results show high regional heterogeneity. Chapter 2 aims to understand the overall impacts of MNCs on urban life satisfaction, disentangling the heterogeneity of the related economy from MNCs and the local context. To do so, the chapter focus on the following aspects: whether the embeddedness of MNCs in the local economic structure has a positive relationship with urban life satisfaction compared to less-embedded MNCs; whether sectoral heterogeneity matters in the relationship between MNCs' embeddedness and urban life satisfaction; and whether the cultural context matters in the relationship between MNCs' embeddedness and urban life satisfaction. The dataset combines data from Eurostat – Perception Survey for urban life satisfaction, Orbis Bureau van Dijk for the MNCs, and the Eurobarometer for the cultural context, including information for over 100 European cities for 2012, 2015, and 2019. Moreover, the novel indicator of embeddedness proposed in the analysis is built using the World Input-Output Dataset. The empirical analysis uses panel fixed and random effects models. The results suggest that urban life satisfaction might be positively associated with MNCs' embeddedness. However, this might also depend on MNCs' sectoral and activity heterogeneity and the cultural context. Areas with a closed cultural context seem to benefit less from the presence of embedded MNCs.

Part II (Chapter 3) discusses how the role of culture as a socio-economic driver has grown considerably in the last few years. In particular, regarding the stream of well-being literature, the clinical and psychological literature has highlighted the role of cultural consumption and participation in enhancing SWB in patients affected by physical and psychological diseases. This chapter aims to understand the implications of culture on SWB by operationalising and disentangling the effects of types of cultural consumption on SWB components, life satisfaction, and happiness by looking at the Italian case study. More specifically, the first aim is to test the link between cultural consumption and general SWB over a seven-year period; the second is to investigate whether there is a significant difference between different types of cultural consumption and the two components of SWB, namely life satisfaction and happiness.

The dataset is from the Multiscopo—Aspetti della vita Quotidiana of the Italian National Institute of Statistics (ISTAT) survey and covers 2013 to 2019. The econometrics strategy employed is quantitative: it first employs pooled OLS, ordered probit, and ordered logit; second, sensitivity analysis; and third, treatment effect approaches. The results highlight that cultural consumption positively impacts SWB. However, the effect on happiness appears negative and heterogeneous according to cultural activities and individual characteristics. The robustness checks also confirm these results.

Contents

Contents	6
Acknowledgements.....	10
Introduction.....	14
I. Overview	14
II. Background Literature on SWB.....	18
III. Gaps and Motivations of the thesis	19
Part I—Globalisation, MNCs, and Their Implications for Regional and Urban SWB	20
Part II—The Role of Cultural Consumption in SWB	25
IV. Concluding remarks	27
References	32
Part I: Globalisation, MNCs, and their implication on Regional and Urban SWB ...	38
Chapter 1 – Globalisation, Multinational companies, and Regional Subjective Well-Being.....	39
1. Introduction.....	39
2. Literature Review.....	42
2.1 Determinants of life satisfaction and subjective well-being	42
2.2 Contextual factors shaping life satisfaction and subjective well-being ..	44
2.3 Exposure to globalisation, life satisfaction, and subjective well-being ..	45
3. The conceptual framework and hypothesis.....	47
Figure 1 - Conceptual Framework.....	48
4. Data and descriptive analysis	48
4.1 Dependent variable (SWB)	49
4.2 Independent variable (MNCs)	49
4.3 Control variables	50
Table 1 - Summary statistics	51
Table 2 - Variables, description, and data sources	52
Figure 2 - Regional life satisfaction. Four years average.....	54
Figure 3 - Change in regional life satisfaction. Four years average.....	54
Figure 4 - Number of MNCs. Four years average.....	55
Figure 5 - Number of MNCs. Four years average.....	55

5.	Methodology and empirical model	56
6.	Results.....	56
6.1	Baseline results.....	56
	Table 3 – Regional SWB regressions for the Number of MNCs	58
6.2	Checking for different definitions of MNCs	59
	Table 4 – Regional SWB regressions for the MNCs’ value of the production ..	60
	Table 5 – Regional SWB regressions for the Employment MNCs.....	61
7.	Conclusion	61
	References	64
	Appendix	70
Chapter 2 – Multinational Companies and Urban Life Satisfaction: disentangling the Heterogeneity of the Effect, and Role of MNCs' economic embeddedness.....		
1.	Introduction.....	74
2.	Literature review and state of the art	77
2.1.	Subjective well-being and Life Satisfaction.....	77
2.2.	MNCs and their implications	79
2.3.	MNCs’ embeddedness.....	81
2.4.	MNCs/globalization and life satisfaction	83
3.	Underlying Mechanism and Hypotheses.	84
	Figure 1: Underlying Mechanism between MNCs and Life Satisfaction	88
4.	Data, descriptive statistics, and methodology	89
	Table 1 – Variables Descriptions.	90
	Figure 3 – MNCs’ Embeddedness Matrix.....	97
5.	Empirical models	97
6.	Results.....	99
	Table 3 – Hypothesis 1 – Log value of MNCs’ embeddedness	101
	Table 4 – Hypothesis 2 (a;b) – Log value of MNCs’ embeddedness.....	103
	Table 5 – Hypothesis 3 (a;b) – Log value of MNCs’ embeddedness.....	106
6.1.	Robustness checks	107
	Table 7 – Hypothesis 3 (a;b) Absolute value of MNCs’ embeddedness and dummy variables	109
	Table 8– Hypothesis 3 (a;b) Log value of MNCs’ embeddedness and dummy variables.....	110

Table 9 – Hypothesis 3 (a;b) – First Difference GMM (Absolute of MNCs’ embeddedness.....	111
7. Discussion and Conclusion	112
References	116
Appendix.....	125
Part II – The Role of Cultural Consumption on SWB.....	130
Chapter 3 – Well-Being, Life Satisfaction and Happiness: Does culture matter?...131	
1. Introduction.....	131
2. Background literature.....	134
2.1. Predictors and factors affecting SWB	134
2.2. Culture and SWB.....	137
3. Conceptual framework.....	140
Table 1 – Example of Types of cultural activities according to the active and passive experience	141
Figure 1 – Underlying Mechanism.....	142
4. Data.....	143
Figure 2 – General statistics	144
Table 2 – Variables of datasets.....	145
Figure 3 – Histogram by cultural activity	146
Figure 4 – Kernel density: Life Satisfaction vs Happiness	147
Figure 5 - Kernel density: Life satisfaction vs Museum; Happiness vs Theatre 148	
5. Empirical strategy	148
Figure 6 - Kernel Density for propensity score (treated/untreated)	153
6. Results.....	153
6.1. Preliminary Results: pooled OLS, ordered probit, ordered logit	153
Table 3 - Cultural consumption and SWB – HYPOTHESIS 1; pooled OLS, ordered probit, ordered logit.....	155
Table 4 - Cultural consumption and SWB – HYPOTHESIS 2; Pooled OLS, ordered probit, ordered logit.....	158
6.2. Sensitivity analysis on Hypothesis 2	160
Figure 7 – Conditional (Adjusted) predicted probability of museum at means respect to LS and HP	161

Figure 8 – Conditional marginal effects of museum at means respect to LS and HP	162
6.3. Robustness checks – Treatment Effects Approach	163
Table 5 – Average Treatment Effects ATE of cultural treatment on Life Satisfaction – HYPOTHESIS 1	165
Table 6 – Average Treatment Effects ATE of cultural treatment on Life Satisfaction and Happiness – HYPOTHESIS 2	165
7. Discussion and Conclusion	166
References	170
Appendix	176

Acknowledgements

I would like to thank Bianca Biagi and Andrea Ascani for their outstanding supervision and encouragement. Thanks also to Alessandro Crociata for the collaboration of the third chapter of the thesis.

Thanks to my parents and family members for their love and support. Thanks to my sister Paola Pilo, for the love, help, and support during my whole PhD career.

Thanks to Francesca Ghinami, Massimo Bertolin, Leonardo Vargiu, and Maria Teresa Rossi for help, advice and ideas along the way.

I also would like to thank Claudio Detotto (University of Corsica) and Marco Delogu (University of Sassari) for their feedback and suggestions.

Thanks also to my friends (old and new) and colleagues for their support during my PhD journey.

Previous versions of the chapters of this thesis were presented at the following conferences and congresses: XLI Associazione Italiana di Scienze Regionali (AISRe) Web Conference (September, 2020); 60th European Regional Science Association (ERSA) Web Congress (August, 2021); XLII AISRe Web Conference (September, 2021); 6th Global Conference on Economic Geography (GCEG), Trinity College Dublin/ University College Dublin (June, 2022); 61th ERSa Congress, University of Pécs, Hungary (August, 2022); XLIII AISRe Conference, Politecnico of Milano (September, 2022); various PhD Work-in-Progress (Middle term and Final year assessment) seminars in Social Sciences, GSSI. Thanks to the participants and discussants for their helpful feedback.

Part of this research has been conducted with micro-data dispensed by the Italian National Institute of Statistics (ISTAT).

All errors and omissions remain my own.

*"If I can't be your most beautiful page,
at least I'll be the most intense one."*

A.C.

Introduction

I. Overview

The link between globalisation and regional well-being is scarcely studied. Globalisation might generate complex spatial effects, and the localisation of Multinational Companies (MNCs) constitutes an important aspect of global processes. This represents a relevant area of inquiry as witnessed by the growing anti-globalisation sentiments of recent years and the resulting complex geography of discontent that emerged (e.g., McCann, 2016; Los et al., 2017). Within this debate, limited attention is paid to the specific mechanisms underlying the link between globalisation forces and local outcomes. However, MNCs can play a significant role in shaping the economic and social landscapes of their operating regions. The presence of MNCs can have both positive and negative impacts on regional well-being. On the one hand, the presence of MNCs can bring economic benefits to host regions, including job opportunities, increased access to goods and services, and economic agglomeration and growth. This can improve the overall quality of life for individuals and communities and may contribute to higher levels of subjective well-being (SWB). On the other hand, MNCs can also negatively impact SWB. For example, the presence of MNCs can lead to income inequality and social and economic disruption, which can negatively impact regional well-being. Moreover, the MNCs can enhance the local economy also through their degree of embeddedness in the local economic structure, establishing collaboration and relationships with local actors and generating economic and social ties that can positively impact the local well-being. Additionally, from a theoretical standpoint, cultural consumption is identified as a common factor that drives cultural openness within the local community with respect to foreign actors, such as MNCs. Particularly, through artistic and cultural engagement, individual cultural consumption can enhance individual cognitive and perception of who we are in the world, also elevating individual well-being.

The main aim of this thesis is to investigate the determinants of subjective well-being (SWB) by focusing on two relevant—albeit scarcely analysed—factors: on the one

hand, how aspects of globalisation and, in particular, the presence of multinational companies (MNCs) are related to regional and urban SWB (proxied by life satisfaction) and, on the other hand, how local cultural consumption can contribute improving individual SWB. Although the thesis investigates the impact of MNCs and cultural consumption on SWB separately, the conceptual framework and methodology employ a progression of the approaches from general to specific. Presenting a broader view of the phenomena, the first two parts of the thesis provide a macro-level analysis to understand better the connections between MNCs and SWB from a territorial perspective (i.e., regional and city level). The third part of the thesis provides a micro-level analysis that allows for a more granular exploration of the factors that drive cultural openness. Specifically, Chapter 1 analyses the phenomena at a regional level (i.e., average life satisfaction of 190 EU regions for a total of 24 EU countries), Chapter 2 focuses on an urban/city level (i.e., average life satisfaction of 101 EU cities for a total of 27 EU countries), and Chapter 3 provides a micro perspective (i.e., individual life satisfaction for the case of Italy). In the first two chapters, the thesis aims to fill a gap in the literature by cross-fertilising the research strand on globalisation with measures of well-being, such as life satisfaction and happiness, which go beyond the purely economic aspects. Specifically, the thesis provides a novel conceptual framework that provides a preliminary understanding of the linkages between the presence of MNCs and regional SWB (Chapter 1). In addition, the thesis disentangles the effects of the presence of MNCs on urban SWB by looking at the MNCs' embeddedness in the local economic structure, the heterogeneity related to the sectors and activities involved, and the relationship with the cultural context at the urban level (Chapter 2). In these two chapters of the thesis, it was not possible to address the recent evolutionary theory of global production network (GPN) (e.g., Yeung and Coe, 2015). However, the critical perspective provided by this field of research can certainly enable a better understanding of the local impacts of global dynamics in different sectors of the economy and society, including the SWB of individuals at the local level. For instance, this literature might provide a further conceptualisation of the causal drivers of GPN in terms of

competitive dynamics and risk environments, which can enrich the critical aspect related to the future development of this work.

A further objective of this thesis is to investigate the role of individual behaviours in terms of cultural consumption on SWB and its components, namely life satisfaction and happiness, from a regional perspective. The focus is on investigating how aesthetic experiences and cultural beauty, such as visiting museums or monuments, affect individuals' emotional and cognitive spheres, enhancing individual well-being (Chapter 3). The thesis consists of the present introduction, three empirical chapters, and general conclusions. Each chapter entails an introduction, a literature review, a conceptual framework with the development of hypotheses, a description of the data and the methodology adopted, a discussion of the results, and a final section dedicated to concluding remarks that discusses potential implications for policy, the main limitations of the work, and an agenda for future research.

Thanks to growing interest from scholars and international institutions in employing unconventional measurements (which complement, at the same time, mainstream ones), the well-being literature has developed significantly in recent years by exploring the factors that matter most in enhancing (or decreasing) people's well-being (Lambiri et al., 2007). The well-being topic also relates to the 17 goals fixed by *Agenda 2030*, which includes 169 tasks that 193 countries and national institutions plan to achieve before 2030. In this regard, improving people's well-being is one of the challenges that countries will presumably fulfil, together with the other Sustainable Development Goals. Therefore, studying SWB for its own sake is important beyond the purposes of academia; political interest (national and international) fuels debate in intellectual circles. Hence, it is also relevant to better understand the factors and mechanisms that drive well-being (and quality of life), thus improving living standards, especially within the paradigm of regional and urban studies.

The definition of SWB adopted in this thesis adheres to the perspective offered in the seminal literature, where SWB is measured through surveys and questionnaires, and individuals assess their perception of life satisfaction and/or happiness; these last two concepts are considered as the components of SWB and are a further object of

study in this thesis. More specifically, even though they are often employed synonymously, the difference between life satisfaction and happiness is well established in the seminal literature and relates to the circumstances in which individuals are asked to give their assessment (see Diener et al., 2003; Helliwell & Putnam, 2004). As a matter of fact, individuals consider life satisfaction to pertain to a general and wider perspective of their life, while they relate happiness to specific and more volatile circumstances, such as mood and emotional or affective components. Moreover, the role of geography, in terms of regional and urban dimensions, represents a fundamental common thread that runs throughout the thesis. Indeed, recent contributions have dedicated attention to individual socio-economic features, including the geographical and territorial perspectives typical of regional and urban studies (e.g., Easterlin, 1974, 1995; Diener & Biswas-Diener, 2002; Di Tella et al., 2001; Alesina et al., 2004; Ferrer-i-Carbonell, 2005; Bjørnskov et al., 2008; Lenzi & Perucca, 2018). Specifically, the evidence highlights that local (regional and urban) well-being depends on aspects that are specific to the local context, such as social capital and local endowment (e.g., Sabatini, 2005; Ballas & Tranmer, 2012; Ballas, 2013; Sørensen, 2013; Brambilla et al., 2013; Lenzi & Perucca, 2018; Ala-Mantila et al., 2018; Biagi et al., 2018; Graziano et al., 2019).

The focus of this thesis is to understand how SWB can be related to the following: first, the presence of MNCs and their role in the local economic system as global actors (Part I; Chapters 1 and 2); and second, the role of individual cultural consumption as an intangible asset that influences the emotional and cognitive sphere of individuals (Chapter 3). These aspects are studied either from a regional or urban perspective. Therefore, this introduction aims to summarise the background literature, discuss the motivations, and explain the research aims and main content of Part I (Chapters 1 and 2) and Part II (Chapter 3). More specifically, the following section discusses the basic concepts and definitions of SWB, MNCs, and cultural activities with reference to the background literature, discussing the gaps in this literature and the motivation of the thesis, the data and methodologies employed, the results with their main implications, and the limitations of the work. Subsequently, a summary of the thesis structure for each chapter is presented, including the methodology, results,

and implications. In the thesis, labels such as *paper*, *research*, and *work* refer to a single chapter.

II. Background Literature on SWB

From an academic point of view, well-being studies incorporate concepts and definitions from various areas, from economics to psychology and sociology, providing a more comprehensive framework for theoretical and empirical analysis. Even though the dimensions used in mainstream approaches are primarily objective, the well-being literature also employs subjective dimensions (e.g., Easterlin, 1974; Diener et al., 2003; Helliwell & Putnam, 2004). On the one hand, objective dimensions are measurable and assessable with accuracy because they are observable and countable. An example of objective measurement is the Human Development Index, employed as a proxy for quality of life (e.g., Tsai, 2007). On the other hand, subjective dimensions are measured through individual self-evaluation and generally collected through surveys and questionnaires (e.g., the European Social Survey). An example of subjective measurement is individual life satisfaction, which represents a well-established indicator (proxy) of SWB and whose definition will be discussed later in this paragraph. A more comprehensive definition provided by the well-being literature describes SWB as a wider concept of individual self-perception concerning a multitude of circumstances which depend on several exogenous and endogenous factors of the individual's life (Costanza et al., 2007; Dolan et al., 2008). This literature organises the factors (or determinants) of SWB according to the following domains: *economic*, which includes variables such as income, work status, and work position; *socio-demographic*, which includes variables such as age, education, sex, civil status, and family condition; *health*, which entails variables such as the presence of mental or physical disease but also, at the aggregate level, mortality rate and life expectancy at birth; and *social*, in which are included variables that proxy social capital, such as general and institutional trust, as well as cultural openness. Furthermore, man-made and natural amenities are considered drivers of SWB. Examples of artificial amenities include the presence of museums or monuments and useful services for public utility, such as public transport or post offices. An example of natural amenities is proximity

to natural places or green areas. The literature also accounts for disamenities that decrease SWB. Some typical examples of disamenities are the presence of criminality, overcrowding, and dirtiness of public spaces (Costanza et al., 2007; Dolan et al., 2008). Another definition considers SWB as the combination of life satisfaction and happiness, which differ mainly based on individual circumstances: life satisfaction refers to an overall sense of satisfaction, which means that in their assessment, individuals consider a general and wider perspective of their life (including mid- to long-term assessment); happiness is more relatable to specific and more volatile circumstances such as mood and emotional or affective components (precluding short-term assessment) (Diener et al., 2003; Helliwell & Putnam, 2004). Therefore, the definition of happiness should not be confused with the objective definition provided by other streams of literature that provide a more objective perspective rather than subjective (or perceptual) (for further definition and classification of confounders of happiness, see the World Happiness Report, 2023 and Ballas 2020). Therefore, from the seminal contribution of Easterlin (1974) until now (e.g., Easterlin 1995; Diener & Biswas-Diener, 2002; di Tella et al., 2001; Alesina et al., 2004; Ferrer-i- Carbonell, 2005; Bjørnskov et al. 2008; Lenzi & Perucca, 2018), the well-being literature has developed and focused on individual socio-economic features, including the geographical and territorial perspectives typical of regional and urban studies. Specifically, in recent contributions, the evidence highlights that local (regional and urban) well-being is dependent on the geographical context (e.g., Sabatini, 2005; Ballas & Tranmer, 2012; Ballas, 2013; Sørensen, 2013; Brambilla et al., 2013; Lenzi & Perucca, 2018; Ala-Mantila et al., 2018; Biagi et al., 2018; Graziano et al., 2019).

III. Gaps and Motivations of the thesis

Although the body of well-being literature is highly developed and well-established, from the standpoint of regional and urban studies, some aspects remain neglected and have not been deeply investigated. The next section (Part I) summarises the thesis content related to the linkages between MNCs and SWB (see Chapters 1 and 2). The implications of MNCs for the local context can be multifaceted, impacting different domains (economic, social, environmental, and institutional)

simultaneously, thus determining the standard of living of local communities and their well-being. However, the regional and urban literature has not yet investigated the implications of globalisation and MNCs for SWB. More specifically, the literature highlights how the role of MNCs can differ depending on regional characteristics and heterogeneities related to the local economy or social capital (Iammarino & McCann, 2013; Casì & Resmini, 2017). The same reasoning can be applied to the second aspect studied in this thesis, which is related to the implications of cultural consumption for the SWB dimension (Part II). More particularly, regional heterogeneity can also be identified in territorial drivers that determine differences in individual cultural consumption and SWB (e.g., economic wealth, social capital, and family background). Therefore, the current thesis studies these scarcely explored aspects, stressing the role of regional/urban heterogeneity and how this dimension can shape SWB.

Part I—Globalisation, MNCs, and Their Implications for Regional and Urban SWB

Regarding the role of globalisation and MNCs, at the global level, the number of parent MNCs from 1970 to 2000 increased roughly from 7,000 to 38,000, and the most recent estimation regarding non-financial transitional corporations was 82,000 in 2008. Another source suggests that the number of foreign-affiliated MNCs was approximately 230,000 in 2014 (OECD, 2018)¹. Whether these estimations are precisely accurate or not, the overall trend suggests that there will be a constant increase in the nominal number of MNCs over time due to an increase in investments, especially regarding green/sustainable technologies.

From the point of view of academic research, the literature that investigates the role of MNCs can be organised into four main channels that impact SWB: economic, social, environmental, and institutional. From the *economic* standpoint, the literature investigates the link between MNCs and economic growth (at both country and regional levels) and the role of MNCs in the diffusion of technology and knowledge to domestic firms (e.g., Gorg & Greenaway, 2004; Nicolini & Resmini,

¹ OECD, May 2018, *Multinational enterprises in the global economy. Heavily debated but hardly measured*

2010; Iammarino & McCann, 2013). From the *social* standpoint, some contributions highlight a relationship between MNCs' presence and (wage and interregional) inequalities (e.g., Lee & Vivarelli, 2006; Dollar & Kraay, 2004; Ezcurra & Rodríguez-Pose, 2013). Regarding *environmental* implications, depending on the MNCs' activity, there are positive or negative effects on the environment (e.g., Cole et al., 2017; Cole, 2005; Waldkirch & Gopinath, 2008; Wagner & Timmins, 2009; Cainelli et al., 2012; Martin et al., 2014; Zugravu-Soilita, 2017). Moreover, MNCs seem to contribute to improving local institutions (*institutional* channel) (e.g., Coe et al., 2009; Demir, 2016). Given the multifaceted implications of MNCs, the association between them (or, in general, globalisation) and SWB (or quality of life) is not expected to be straightforward. In this regard, some scholars have debated how globalisation can enhance the quality of life and well-being (e.g., Sirgy et al., 2004). The evidence suggests a positive association between the degree of globalisation and well-being (or quality of life) in some cross-country studies (Tsai, 2007; Bjørnskov et al., 2008). Moreover, some contributions highlight a positive correlation between the job satisfaction (or quality of work life) and life satisfaction (or quality of life) of multinational workers (Bretones & Gonzales, 2011; Strotmann et al., 2019). Despite empirical evidence that suggests a positive association between the phenomena in question, this frame of literature fails to provide a comprehensive theoretical framework that explains how SWB might be associated with the degree of globalisation, the presence of MNCs, and the role of the four channels discussed so far (economic, social, environmental, and institutional) in regional and urban frameworks. More particularly, as already mentioned, the territorial perspective is absent, which means that the body of regional and urban literature does not consider the geographical dimensions when investigating the phenomena under study. In addition, aspects debated in the MNCs literature, such as the economic integration of MNCs into the local economic structure (also defined in this thesis as MNCs' embeddedness) and the heterogeneity of the sector in which MNCs operate have still not been covered. These two aspects seem to contribute to determining the effect on local development and, in turn, on SWB. On the one hand, the degree of MNCs' embeddedness can contribute to local economic development through collaboration,

relationships, and enlarging and reinforcing ties with local actors. Consequently, local communities would experience a better standard of living and, in turn, higher well-being (Granovetter, 1973, 1985; Mattes, 2013; Iammarino & McCann, 2013). On the other hand, the sector and the activities that MNCs conduct can contribute to a decrease (or increase) in the local standard of living and, consequently, well-being. In particular, activities from manufacturing tend to pollute more than those of the service sector. At the same time, more labour-intensive or unskilled-oriented tasks or jobs can also matter for the local standard of living and, thus, well-being (Costanza et al., 2007; Dollan et al., 2008; Wagner & Timmins, 2009; Cainelli et al., 2012; Martin et al., 2014). Notwithstanding all of the literature discussed earlier, an additional element to be included herein relates to the body of literature that debates the conflicts between MNCs and the local community, anti-establishment, and territorial discontent that has characterised recent years (Calvano, 2008; Casi & Resmini, 2017; McCann, 2019; Rodriguez-Pose, 2018; Rodrik, 2018). Expressed epigrammatically, MNCs are considered part of the (not-well-defined) *establishment* responsible for "destroying" local socio-economic assets by following their economic interests (Calvano, 2008; Rodriguez-Pose, 2018). Therefore, local communities' cultural context and openness are also elements that will be considered in this thesis. To clarify, Chapters 1 and 2 complement each other in constructing the framework in which MNCs are linked to regional and urban SWB.

Therefore, considering the scholarly state of the art of this theme, Chapter 1 aims to conduct an exploratory analysis based on the multifaced body of the literature that studies the implications of globalisation and MNCs for the different aspects of the economy and society. Thus, we advance the following research question for Chapter 1: *What is the relationship between the presence of foreign MNCs in a region and local well-being?* Consequently, the expected outcomes for this chapter are twofold: (i) across all domains, if the effect is positive, MNCs, overall, generate a net benefit on life satisfaction and regional well-being; (ii) across all domains, if the effect is negative, MNCs generate net harm on life satisfaction and regional well-being. Hence, there is no clear expectation regarding the direction of the relationship between the two phenomena in question, and the expected results would appear as a *mosaic*,

in accordance with the regional heterogeneity (Iammarino & McCann, 2013; Casi & Resmini, 2017).

Thus, compared to the evidence from Chapter 1, Chapter 2 focuses more on the details of the role played by MNCs in urban SWB. As mentioned earlier, the degree of MNCs' embeddedness can provide local development, increasing ties with local actors and communities. This aspect can contribute to improving the standard of living and local well-being. Moreover, the heterogeneity of the sector, activities of MNCs, and local cultural context (cultural openness) can contribute to the relationship. Therefore, the second chapter aims to answer the following research questions: *1) Do more deeply embedded MNCs have a positive relationship with life satisfaction than MNCs that are less deeply embedded in the local economic system? 2) Does sectoral and activity heterogeneity matter in the relationship between MNCs' embeddedness and urban life satisfaction? 3) Does the cultural context matter in the relationship between MNCs' embeddedness and urban life satisfaction?* Here, the expected direction for the embeddedness is generally positive due to the beneficial effects related to the integration of MNCs into the local economic structure (Mattes, 2013; Iammarino & McCann, 2013). However, the effect of MNCs' embeddedness can differ according to the sectoral/activity heterogeneity exhibited by MNCs and the cultural context in which MNCs are placed. For the sectoral/activity heterogeneity, the expected result is that MNCs from manufacturing or low-valued-added and unskilled-oriented activities would contribute less to enhancing urban SWB. However, MNCs from the service sector or high-value-added and skilled-oriented activities are expected to contribute more to enhancing urban SWB (Costanza et al., 2007; Dollan et al., 2008; Wagner & Timmins, 2009; Cainelli et al., 2012; Martin et al., 2014). For the cultural context, the expected results are as follows: given the level of MNCs' embeddedness and sectoral/activity heterogeneity, less open communities do not fully benefit from the presence of MNCs (Calvano, 2008; Crescenzi et al., 2018). Indeed, local communities, despite the economic benefits related to the presence of MNCs, would perceive and evaluate MNCs' presence according to certain non-economic aspects (e.g., traditional culture, local identity, and protecting the natural environment). In this case, the expected results are multiple. First, embedded

MNCs contribute more to urban SWB, while less-embedded MNCs do not. Second, MNCs in manufacturing, low-tech, and low-knowledge (or labour-intensive and unskilled-oriented) activities negatively contribute to the relationship compared to the service sector and high-tech/knowledge activities. Third, places with closed cultural contexts benefit less from MNCs' presence than those that are more culturally open.

The empirical strategy applied in these chapters is quantitative. The data come from different sources, such as the European Social Survey (Chapter 1), Eurostat and the Organisation for Economic Co-operation and Development (OECD) databases (Chapters 1 and 2), and Eurobarometer (Chapter 2). In the first chapter, the dataset includes 190 European NUTS 2 regions for the years 2010, 2012, 2014, and 2016; the second chapter includes 100 European cities for the years 2012, 2015, and 2019. The econometric and statistical models employed can be identified in pooled OLS, panel data (fixed effect and random effects), and GMM (system and difference). It is important to note that the data used in Chapter 1 was originally collected at the micro-level and then aggregated at the regional level. Therefore, the methodology employed in Chapter 1 aims to provide a preliminary identification of the phenomena by approaching it from a specific meso-perspective of self-reported regional and urban well-being. This perspective has not yet been extensively explored in the research field, and the methodology aims to simplify the approach. However, there is potential to expand and strengthen the methodology, for example, by incorporating a multilevel approach, which may be included in the future development of the work. In Chapter 2, the data is already aggregated at the urban/city level; thus, the multilevel methodology is not applicable.

In general, the results provided by Chapters 1 and 2 highlight that there is no linear association between the presence of MNCs and SWB (represented in both chapters through life satisfaction). In particular, in Chapter 1, SWB seems to have a heterogeneous association with the presence of MNCs in accordance with the regional characteristics, as expected by the hypotheses. Regarding Chapter 2, the SWB dimension seems positively associated with MNCs' embeddedness. However, there is no evidence that SWB is negatively associated with MNCs manufacturing, which is also true for low-value-added and unskilled-oriented activities. Moreover, a closed

local cultural context seems to decrease SWB, but the degree of MNCs' embeddedness mediates the negative association.

Part II—The Role of Cultural Consumption in SWB

Regarding the implications of cultural consumption, a recent report by the OECD highlights the absence of comparable statistics on cultural activities at the international level; for this reason, the phenomenon remains largely under-investigated. However, the data suggest that the importance of the cultural sector in national economies has grown significantly in the last few years, especially in Western countries. The yearly sectoral revenues are estimated at 2.25 trillion US dollars (€2.17 trillion), with approximately 29.5 million related jobs.² Indeed, the trend suggests that there will be constant growth in the cultural sector due to both public and private investment that will increase over time, thanks also to *Agenda 2030* goals (OECD, 2021)³.

Sacco (2011) emphasises the role of culture as a driver in several aspects of the economy and society. Indeed, culture is considered a pivotal factor that leads to economic development, general welfare, sustainability, and social inclusion (Sacco, 2011; Campagna et al., 2020; Crociata et al., 2015; Quaglione et al., 2019). Recent contributions have focused on how cultural activities are linked to individual quality of life and well-being (in terms of consumption and participation). The evidence provided by the pertinent literature shows a positive association between consumption and participation in cultural activities and well-being (e.g., Konlaan et al., 2000; Hyypä et al., 2006; Hacking et al., 2008; Konlaan et al., 2000b; Grossi et al., 2019; Grossi et al., 2011, 2012; Hand, 2018; Reyes-Martínez et al., 2021a). However, there are still some aspects that this body of literature does not cover, as the research field, that links cultural economy and well-being, is still limited and mostly related to epidemiology and psychology. This literature provides a detailed picture of specific case studies mainly related to individuals with physical or mental diseases, providing

² EY. (2015). *Cultural times: The first global map of cultural and creative industries*, CISAC. New York, NY: The International Confederation of Societies of Authors and Composers.

³ OECD, 2021; *Economic and social impact of cultural and creative sectors*.

a comprehensive understanding of the phenomena to be employed in the well-being framework. However, the same literature still does not provide an underlying mechanism that explains the linkages between cultural activities and SWB components (such as life satisfaction and happiness) in the regional and urban framework. In particular, cultural consumption might be correlated with regional social capital that could change across regions (see Sabatini, 2005, for the case of Italy). Moreover, the definitions and measurements employed frequently diverge from the seminal literature on well-being (Diener et al., 2003; Helliwell & Putnam, 2004). Finally, from a methodological perspective, the contributions reviewed do not provide empirical analysis addressing endogeneity issues, such as reverse causality and omitted variable bias. In light of the above, the third chapter aims to answer the following research questions: 1) Does culture consumption affect SWB? 2) Do different domains of cultural consumption perform differently for life satisfaction and happiness? Cultural consumption is expected to affect SWB and its components positively. The theoretical explanation behind this is that the aesthetic experience associated with visiting a cultural place or actively participating in and consuming culture (for instance, by attending concerts, art exhibitions, or reading books) could stimulate well-being and mental health through a renewed and empowered "sense of who we are in the world" (Eakin, 2003; Campagna et al., 2020). However, according to the different definitions of life satisfaction and happiness based on the circumstances to which they refer, there might be a significant difference between them. Indeed, due to the semantics of the survey's questions, individuals' assessments of life satisfaction and happiness can significantly differ. Here, the expected results are as follows: (i) given the individuals' background, cultural activities positively impact SWB; (ii) given the individuals' background, cultural activities positively affect life satisfaction rather than happiness.

The empirical strategy applied in this chapter is quantitative. The data come from the Italian National Institute of Statistics—Istat (third chapter). The dataset includes 320,000 individuals from 20 Italian NUTS 2 regions from 2013 to 2019. The econometric and statistical models employed include pooled OLS, panel data (fixed effect and random effects), ordered models (such as probit and logit), and treatment

effect models. The results suggest that individuals' cultural consumption positively impacts life satisfaction, but there is a heterogeneous effect on happiness, underlining the difference between the two SWB components. The results also highlight that there is heterogeneity across regions. Nevertheless, the work provides consistent results in line with the hypothesis that consuming more culture would enhance SWB, specifically life satisfaction.

IV. Concluding remarks

The main aim of this thesis is twofold. To investigate how subjective territorial well-being (SWB) is affected by globalisation and, in particular, by the presence of multinational companies (MNCs). To analyse how local cultural consumption can contribute to improving individual SWB.

In Chapter 1, the work proposes a novel conceptual framework based on the existing literature and a preliminary empirical analysis of how local SWB might be associated with the presence of MNCs. Here, the expected outcomes have a twofold direction (positive or negative, given the overall effect of MNCs). The results confirm that for the sample of EU regions under analysis, an overall negative impact of MNCs on SWB emerges. The negative impact would indicate the need to consider other outcomes of globalisation, as indicated by anti-globalisation discourse and other streams of research. Further evidence suggests that the relationship also depends on regional heterogeneity (local development and general economic structure) and perhaps on how MNCs are related to the local context, for instance, in terms of the activities they perform and how they are interconnected. In Chapter 2, there is a major examination of how MNCs might be linked to urban SWB, employing a novel measurement of MNCs' embeddedness, controlling for the sectors and activity to which MNCs belong, and the cultural context. The results show how MNCs' embeddedness positively contributes to local SWB. Moreover, MNCs' embeddedness seems to mitigate the negative effect linked to the closure of cultural context, which negatively impacts local SWB. The evidence is insufficient to claim that SWB is negatively associated with manufacturing or, specifically, labour-intensive and unskilled-oriented activities (also defined as low-tech/knowledge activities). The

main explanation of this linkage between MNCs' embeddedness and local well-being can be defined as the set of collaborations and relationships established with the local economy that would incentivise local development and, in turn, enhance local well-being. Chapter 3 presents a more comprehensive underlying mechanism related to the link between cultural activities and SWB components, disentangling the effects of types of cultural consumption on life satisfaction and happiness. The results underline a positive relationship between cultural consumption and SWB—but with an exception. While cultural consumption positively impacts life satisfaction, happiness is affected heterogeneously. The main explanation behind this difference in signs and magnitude can also be identified in terms of definitions from the seminal literature, in which life satisfaction refers to mid-/long-term individual circumstances, while happiness refers to short-term circumstances. Therefore, due to the semantics related to the questions in the surveys, individuals assess life satisfaction and happiness differently.

This work has a twofold implication for research and policy perspectives for both aspects studied (MNCs vs. SWB and cultural activities vs. SWB). For MNCs, the evidence reveals how their presence, their integration into local economic structures, the types of activities they engage in, and the cultural context can contribute to enhancing or decreasing local SWB (Calvano, 2008; Crescenzi et al., 2018). However, considering MNCs' embeddedness as defined in the thesis (Chapter 2), there might be a gateway to a new stream of literature focusing on the measurement and operationalisation of embeddedness that allows us to translate and better understand a concept mainly adopted from qualitative research. Here, the policy implications of this evidence can provide a more analytical perspective related to policies that incentivise MNCs to integrate their activities into the local economic structure. Indeed, a high degree of embeddedness would promote strong ties across MNCs to the local context, improving the standard of living of local inhabitants and their well-being (Granovetter, 1973, 1985; McCann, 2007; Iammarino & McCann, 2013; Mattes, 2013). In particular, policymakers should incentivise MNCs that engage with local communities, and the regional innovation system (RIS) should incentivise different types of embeddedness.

Regarding the implication of cultural consumption, from the research perspective, the present work makes a major contribution to the distinction between the two components of SWB (i.e., life satisfaction and happiness), which several previous studies define as synonymous (Diener et al., 2003; Helliwell & Putnam, 2004): for semantic reasons, the two concepts embed different values attributed by individuals' assessments. The results also highlight that cultural consumption and SWB are dependent on geographical and spatial contexts (Ballas & Tranmer, 2012; Ballas, 2013; Sørensen, 2013; Brambilla et al., 2013; Lenzi & Perucca, 2018; Ala-Mantila et al., 2018; Biagi et al., 2018; Graziano et al., 2019). Moreover, the present work provides more consistent estimations that overcome certain issues related to the endogeneity from which previous work has suffered. The policy implication, in this case, can be generally identified as a direct incentive for the economic sector of culture to promote social inclusion and maintenance of cultural heritage, along with an indirect implication related to the prevention of mental health issues and enhanced SWB (Sacco, 2011; Grossi et al., 2011, 2012; Grossi et al., 2019)

The limitations of Chapters 1 and 2 can be identified in terms of the availability of data and methodology. The first chapter's main limitation pertains to empirical analysis that reports initial evidence of the phenomenon under study with limited data and an empirical model that remains deliberately generic for exploratory purposes. For the second chapter, the information employed to describe MNCs' sectoral and activity heterogeneity might not be of sufficient quality to be representative. Moreover, in both the first and second chapters, there might be issues related to endogeneity whereby MNCs can locate their activities in places where people are already satisfied. However, to address this issue, the data on MNCs are lagged, and the empirical results provide some robustness checks (such as different variables employed as a proxy for the presence of MNCs and GMM models).

Regarding the limitations of Chapter 3, the data employed are partially censored because of privacy protection. Hence, information regarding the location (available only at NUTS 2 and NUTS 1) and individual income are unavailable. In addition, a certain endogeneity might be related to the fact that more satisfied people consume more culture than less satisfied people. The latter aspect might be caused by

omitted variables bias linked to family background, attitude, personality, and social status. However, using a large sample, a comprehensive empirical model with several individual control variables (e.g., education, work position, age) and more advanced econometric models would provide more consistent estimations that confirm the hypotheses examined.

References

- Ala-Mantila, S., Heinonen, J., Junnila, S., & Saarsalmi, P. (2018). Spatial nature of urban well-being. *Regional Studies*, 52(7), 959–973.
<https://doi.org/10.1080/00343404.2017.1360485>
- Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and happiness: Are Europeans and Americans different? *Journal of Public Economics*, 88(9–10), 2009–2042. <https://doi.org/10.1016/j.jpubeco.2003.07.006>
- Ballas, D. (2013). What makes a “happy city”? *Cities*, 32.
<https://doi.org/10.1016/j.cities.2013.04.009>
- Ballas, D. (2020). The economic geography of happiness. *Handbook of Labor, Human Resources and Population Economics*, 1-24.
- Ballas, D., & Tranmer, M. (2012). Happy people or happy places? a multilevel modeling approach to the analysis of happiness and well-being. *International Regional Science Review*, 35(1), 70–102.
<https://doi.org/10.1177/0160017611403737>
- Biagi, B., Ladu, M. G., & Meleddu, M. (2018). Urban Quality of Life and Capabilities: An Experimental Study. *Ecological Economics*, 150(November 2017), 137–152. <https://doi.org/10.1016/j.ecolecon.2018.04.011>
- Bjørnskov, C., Dreher, A., & Fischer, J. A. V. (2008). Cross-country determinants of life satisfaction: Exploring different determinants across groups in society. *Social Choice and Welfare*, 30(1), 119–173. <https://doi.org/10.1007/s00355-007-0225-4>
- Brambilla, M., Michelangeli, A., & Peluso, E. (2013). Equity in the City: On Measuring Urban (In)equality of Life. *Urban Studies*, 50(16), 3205–3224.
<https://doi.org/10.1177/0042098013484539>
- Bretones, F. D., & Gonzalez, M. J. (2011). Subjective and Occupational Well-Being in a Sample of Mexican Workers. *Social Indicators Research*, 100(2), 273–285.
<https://doi.org/10.1007/s11205-010-9616-5>
- Calvano, L. (2008). Multinational corporations and local communities: A critical analysis of conflict. *Journal of Business Ethics*, 82(4), 793–805.
<https://doi.org/10.1007/s10551-007-9593-z>
- Campagna, D., Caperna, G., & Montalto, V. (2020). Does Culture Make a Better Citizen? Exploring the Relationship Between Cultural and Civic Participation in Italy. *Social Indicators Research*, 149(2), 657–686.
<https://doi.org/10.1007/s11205-020-02265-3>
- Casi, L., & Resmini, L. (2017). Foreign direct investment and growth: Can different regional identities shape the returns to foreign capital investments? *Environment and Planning C: Politics and Space*, 35(8), 1483–1508.
<https://doi.org/10.1177/2399654417690906>
- Coe, D. T., Helpman, E., & Hoffmaister, A. W. (2009). International R&D spillovers and institutions. *European Economic Review*, 53(7), 723–741.
<https://doi.org/10.1016/j.eurocorev.2009.02.005>
- Cole, M. A., & Elliott, R. J. R. (2005). FDI and the capital intensity of “dirty” sectors: A missing piece of the pollution haven puzzle. *Review of Development Economics*, 9(4), 530–548. <https://doi.org/10.1111/j.1467-9361.2005.00292.x>

- Cole, M. A., Elliott, R. J. R., & Zhang, L. (2017). Foreign Direct Investment and the Environment. *Annual Review of Environment and Resources*, 42(1), 465–487. <https://doi.org/10.1146/annurev-environ-102016-060916>
- Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., Danigelis, N. L., Dickinson, J., Elliott, C., Farley, J., Gayer, D. E., Glenn, L. M. D., Hudspeth, T., Mahoney, D., McCahill, L., McIntosh, B., Reed, B., Rizvi, S. A. T., Rizzo, D. M., ... Snapp, R. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological Economics*, 61(2–3), 267–276. <https://doi.org/10.1016/j.ecolecon.2006.02.023>
- Crescenzi, R., Di Cataldo, M., & Faggian, A. (2018). Internationalised at work and localistic at home: The ‘split’ Europeanization behind Brexit.’ *Papers in Regional Science*, 97(1), 117–132. <https://doi.org/10.1111/pirs.12350>
- Crociata, A., Agovino, M., & Sacco, P. L. (2015). Recycling waste: Does culture matter? *Journal of Behavioral and Experimental Economics*, 55(November), 40–47. <https://doi.org/10.1016/j.socec.2015.01.005>
- De Backer, K., & Sébastien, M. (2018). Multinational enterprises in the global economy Heavily debated but hardly measured. In OECD Publishing.
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, Culture, and Subjective Well-Being: Emotional and Cognitive Evaluations of Life. *Annual Review of Psychology*, 54(1), 403–425. <https://doi.org/10.1146/annurev.psych.54.101601.145056>
- Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 29(1), 94–122. <https://doi.org/10.1016/j.joep.2007.09.001>
- Dollar, D., & Kraay, A. (2004). Trade, Growth, and Poverty. 114, 22–49.
- Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior and Organization*, 27(1), 35–47.
- Easterlin, R. A. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence. In *International Journal of Managing Projects in Business* (Vol. 7, Issue 3, pp. 449–472). <https://doi.org/10.1108/IJMPB-01-2013-0003>
- Ezcurra, R., & Rodríguez-Pose, A. (2013). Does Economic Globalisation affect Regional Inequality? A Cross-country Analysis. *World Development*, 52, 92–103. <https://doi.org/10.1016/j.worlddev.2013.07.002>
- Ferrer-i-Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics*, 89(5–6), 997–1019. <https://doi.org/10.1016/j.jpubeco.2004.06.003>
- Granovetter, M. (1985). Economic Action and Social Structure: the Problem of Embeddedness. *American Journal of Sociology*, 91(3), 481–510. <https://doi.org/10.17323/1726-3247-2002-3-44-58>
- Granovetter, M. (1973). The Strength of Weak Ties. *American Journal of Sociology*, 78(6), 1360–1380.
- Graziano, P., Rizzi, P., Piva, M., & Barbieri, L. (2019). A Regional Analysis of Well-Being and Resilience Capacity in Europe. *Scienze Regionali*, 18(Special Issue), 551–574. <https://doi.org/10.14650/94667>
- Grossi, E., Blessi, G. T., Sacco, P. L., & Buscema, M. (2012). The Interaction Between Culture, Health and Psychological Well-Being: Data Mining from the

- Italian Culture and Well-Being Project. *Journal of Happiness Studies*, 13(1), 129–148. <https://doi.org/10.1007/s10902-011-9254-x>
- Grossi, E., Sacco, P. L., Blessi, G. T., & Cerutti, R. (2011). The Impact of Culture on the Individual Subjective Well-Being of the Italian Population: An Exploratory Study. *Applied Research in Quality of Life*, 6(4), 387–410. <https://doi.org/10.1007/s11482-010-9135-1>
- Grossi, E., Tavano Blessi, G., & Sacco, P. L. (2019). Magic Moments: Determinants of Stress Relief and Subjective Wellbeing from Visiting a Cultural Heritage Site. *Culture, Medicine and Psychiatry*, 43(1), 4–24. <https://doi.org/10.1007/s11013-018-9593-8>
- Hand, C. (2018). Do the arts make you happy? A quantile regression approach. *Journal of Cultural Economics*, 42(2), 271–286. <https://doi.org/10.1007/s10824-017-9302-4>
- Helliwell, J. F., Layard, R., Sachs, J. D., De Neve, J.-E., Akinin, L. B., & Wang, S. (Eds.). (2023). *World Happiness Report 2023*. New York: Sustainable Development Solutions Network.
- Hyypä, M. T., Mäki, J., Impivaara, O., & Aromaa, A. (2006). Leisure participation predicts survival: A population-based study in Finland. *Health Promotion International*, 21(1), 5–12. <https://doi.org/10.1093/heapro/dai027>
- Iammarino S., McCann P. (2013). *Multinationals and Economic Geography: Location, Technology and Innovation* -. Edward Elgar.
- Konlaan, B. B., Björby, N., Bygren, L. O., Weissglas, G., KaSWBson, L. G., & Widmark, M. (2000). Attendance at cultural events and physical exercise and health: A randomised controlled study. *Public Health*, 114(5), 316–319. <https://doi.org/10.1038/sj.ph.1900670>
- Konlaan, B. B., Bygren, L. O., & Johansson, S. E. (2000). Visiting the cinema, concerts, museums or art exhibitions as determinant of survival: A Swedish fourteen-year cohort follow-up. *Scandinavian Journal of Public Health*, 28(3), 174–178. <https://doi.org/10.1177/14034948000280030501>
- Lambiri, D., Biagi, B., & Royuela, V. (2007). Quality of life in the economic and urban economic literature. *Social Indicators Research*, 84(1), 1–25. <https://doi.org/10.1007/s11205-006-9071-5>
- Lee, E., & Vivarelli, M. (2006). The social impact of globalisation in the developing countries. 145(3).
- Lenzi, C., & Perucca, G. (2018). Are urbanised areas source of life satisfaction? Evidence from EU regions. *Papers in Regional Science*, 97(March 2018), S105–S122. <https://doi.org/10.1111/pirs.12232>
- Eakin, M. (2003). Arts and health. *Journal of Public Health Medicine*, 25(1), 84–85. <https://doi.org/10.1093/PUBMED/FDG018>
- Martin, R., Muûls, M., Laure, L. B., & Wagner, U. J. (2014). Industry compensation under relocation risk: A firm-level analysis of the EU emissions trading scheme. *American Economic Review*, 104(8), 2482–2508. <https://doi.org/10.1257/aer.104.8.2482>
- Mattes, J. (2013). The Regional Embeddedness of Multinational Companies: A Critical Perspective. *European Planning Studies*, 21(4), 433–451. <https://doi.org/10.1080/09654313.2012.722919>

- McCann, P. (2019). Perceptions of regional inequality and the geography of discontent: insights from the UK. *Regional Studies*, 0(0), 1–12. <https://doi.org/10.1080/00343404.2019.1619928>
- OECD. (2021). Economic and social impact of cultural and creative sectors Note for Italy G20 Presidency, Culture Working Group1. July, 1–22. <https://www.g20.org/wp-content/uploads/2021/08/Economic-and-Social-Impact-of-Culture-OECD-note-.pdf>
- Quaglione, D., Cassetta, E., Crociata, A., Marra, A., & Sarra, A. (2019). An assessment of the role of cultural capital on sustainable mobility behaviours: Conceptual framework and empirical evidence. *Socio-Economic Planning Sciences*, 66(May 2018), 24–34. <https://doi.org/10.1016/j.seps.2018.07.005>
- Rafael, B., Tella, D., Macculloch, R. J., & Oswald, A. J. (2001). Preferences over Inflation and Unemployment : Evidence from Surveys of Happiness Author (s): Rafael Di Tella , Robert J . MacCulloch and Andrew J . Oswald Source : The American Economic Review , Vol . 91 , No . 1 (Mar . , 2. The American Economic Review, 91(1), 335–341.
- Reyes-Martínez, J. (2021). Cultural Participation and Subjective Well-Being in Latin America: Does Ethnic-Racial Ascription Matter? *Scientific Annals of Economics and Business*, 68, 53–70. <https://doi.org/10.47743/SAEB-2021-0031>
- Reyes-Martínez, J., Takeuchi, D., Martínez-Martínez, O. A., & Lombe, M. (2021). The Role of Cultural Participation on Subjective Well-Being in Mexico. *Applied Research in Quality of Life*, 16(3), 1321–1341. <https://doi.org/10.1007/s11482-020-09811-8>
- Rodríguez-Pose, A. (2018). The revenge of the places that don't matter (and what to do about it). *Cambridge Journal of Regions, Economy and Society*, 11(1), 189–209. <https://doi.org/10.1093/cjres/rsx024>
- Rodrik, D. (2018). Populism and the Economics of Globalization. *Ssrn*, 1(1), 12–33. <https://doi.org/10.2139/ssrn.2992819>
- Sirgy, M. J., Michalos, A. C., Ferriss, A. L., Easterlin, R. A., Patrick, D., & Pavot, W. (2006). The quality-of-life (QOL) research movement: Past, present, and future. *Social Indicators Research*, 76(3), 343–466. <https://doi.org/10.1007/s11205-005-2877-8>
- Sørensen, J. F. L. (2013). Rural–Urban Differences in Life Satisfaction: Evidence from the European Union. *Regional Studies*, 48(9), 1451–1466. <https://doi.org/10.1080/00343404.2012.753142>
- Tsai, M. C. (2007). Does globalisation affect human well-being? *Social Indicators Research*, 81(1), 103–126. <https://doi.org/10.1007/s11205-006-0017-8>
- Wagner, U. J., & Timmins, C. D. (2009). Agglomeration effects in foreign direct investment and the pollution haven hypothesis. *Environmental and Resource Economics*, 43(2), 231–256. <https://doi.org/10.1007/s10640-008-9236-6>
- Waldkirch, A., & Gopinath, M. (2008). Pollution control and foreign direct investment in Mexico: An industry-level analysis. *Environmental and Resource Economics*, 41(3), 289–313. <https://doi.org/10.1007/s10640-008-9192-1>
- Yeung, H.W.-c. and Coe, N.M. (2015), GPN Theory. *Economic Geography*, 91: 29–58. <https://doi.org/10.1111/ecge.12063>

Zugravu-Soilita, N. (2017). How does Foreign Direct Investment Affect Pollution? Toward a Better Understanding of the Direct and Conditional Effects. In *Environmental and Resource Economics* (Vol. 66, Issue 2). Springer Netherlands. <https://doi.org/10.1007/s10640-015-9950-9>

**Part I: Globalisation, MNCs, and their
implication on Regional and Urban SWB**

Chapter 1 – Globalisation, Multinational companies, and Regional Subjective Well-Being

Abstract

As part of a global phenomenon, multinational corporations (MNCs) engender economic, social, environmental, and institutional impacts in the areas where they locate. The puzzling results of recent waves of discontent have further underscored the complexity and spatial interconnectedness of these impacts, which go beyond the purely economic ones. The multidimensionality of these impacts is understudied by previous literature. This paper uses the subjective well-being (SWB) and life satisfaction of individuals in the places of living as a predictor of the complexity of these impacts, i.e., it aims to reveal the (net) territorial impact of the presence of MNCs. Specifically, the work provides a theoretical framework and empirical evidence on the link between the presence of MNCs and SWB at the regional level. For a total of 190 NUTS 2 regions in 24 European countries over the years 2010-2016, the dataset combines the average regional life satisfaction provided by the European Social Survey and the presence and size of MNCs provided by Orbis-Bureau Van Dijk. Findings indicate that, on average, the presence of MNCs is associated with lower levels of SWB. Furthermore, these results show high regional heterogeneity.

Keywords: regional subjective well-being; globalisation; multinational companies.

JEL Classification: R11, I31, F60

1. Introduction

Multinational Companies (MNCs) play a relevant role in enhancing local and regional economic development and generating spillovers and innovation (Balasubramanyam et al., 1996; de Mello, 1999; Javorcik, 2004; Crespo et al., 2009; Nicolini & Resmini, 2010; Ascani & Gagliardi, 2015, Iammarino & McCann, 2013; Crescenzi & Iammarino, 2015). Due to the intense regional competition to attract this type of investment, a relevant stream of studies focuses on understanding the drivers of MNCs' location decisions. This literature confirms the relevance of, among others, the structure of the local economy and specifically wages, labour skills, technologies,

and institutions (Crespo & Fontoura, 2007; Ascani, 2018; Iamsiraroj & Ulubaşoğlu, 2015; Villaverde & Maza, 2015; Ascani et al., 2016; Chen & Kwan, 2000).

Overall, if, on the one hand, the studies on the economic impacts of MNCs agreed on the general positive effect on regional economies, on the other hand, different streams of research focus on further implications that go beyond the purely economic ones. A recent but growing literature in regional studies connects the "geography of discontent" (McCann, 2016, Los et al., 2017) with the regional dependence on the external markets and the "geography of voting patterns" (e.g., Los et al., 2017; Crescenzi et al., 2018; Rodríguez-Pose, 2018; McCann 2019; McCann & Argiles, 2021). This stream of studies starts with the work of Los et al. (2017) on the regional economic consequences of pro-Brexit results. The authors point out the puzzling positive relation between the vote "leave" and the regional economic dependence on International (European) trade. In the same line of research, Crescenzi et al. (2018) confirm this relationship for regions characterised by MNCs and low cultural openness. Rodríguez-Pose (2018) points out the linkage between the role of inequalities (see also McCann, 2019; Ballas, 2020; Rodríguez-Pose et al., 2021), low opportunities, and economic and social problems of declining regions with the consequence of a rise of anti-immigration and anti-globalisation sentiment. Recently, McCann & Argiles (2021) pointed out the misleading political narrative that proposed Brexit as the "solution" to regional inequalities. While socio-economic disparities are surely important in explaining discontent, what the literature has scarcely investigated pertains to the role -if any- that MNCs might play in fuelling discontent. Indeed, the presence of MNCs engenders a local economic impact that might also affect the social context via the reduction (Sirgy et al., 2004) or reinforcement of the inequalities (Lee & Vivarelli, 2006; Rodrick, 2018; Iammarino, 2018, Gagliardi et al., 2021) but the mechanism is not so straightforward. Other possible impacts regard the natural environment (Brock & Taylor, 2005; Rezza, 2015; Cole & Elliott., 2005; Cole et al., 2017) or the institutional setting (Blonigen, 2005; Busse & Hefeker, 2007; Coe et al., 2009; Iammarino & McCann, 2013; Ascani et al., 2016). The net effect of all these economic, social, institutional, and environmental impacts might generate satisfaction or discontent in local/regional life satisfaction. Moreover, the recent study by

Koeppe et al. (2020) emphasises the connections between subjective happiness indicators and political geography factors, revealing that underdeveloped regions are often referred to as "places that do not matter". Additionally, we acknowledge that the dimensions of inequality can be multifaceted and have different implications for societal aspects that can be linked to factors of discontent such as trust, life expectancy, obesity, education, and homicides (see Wilkinson & Pickett, 2009). However, in this work, we limit our analysis to the general aspect of economic inequality. Therefore, studying the complexity of these impacts is not an easy task. However, the life satisfaction of individuals in the places where they live can be a useful predictor. In fact, how people perceive their life in the place of living depends on personal conditions (age, gender, education, job) as well as on external factors (local prosperity and GDP, social aspects, services, and amenities: Lambiri et al., 2007; Ballas 2012; Brambilla et al., 2013 Lenzi & Perucca, 2016; Biagi et al., 2018; Graziano et al. 2019). Following this direction, this paper uses the subjective well-being (SWB) and life satisfaction of individuals in the places of living as a predictor of the complexity of these impacts, i.e., it aims to reveal the (net) regional impact of the presence of MNCs. Specifically, this work studies the relationship between the presence of MNCs in a location and life satisfaction (or subjective well-being, from now on SWB) for a sample of EU regions. The main purpose is to investigate whether and to what extent the prevailing net effect is positive, as many economic studies suggest, or negative, as the anti-globalisation narrative tends to suggest. Therefore, the research question of this paper is the following: *What is the relationship between the presence of foreign MNCs in a region and local well-being?* Therefore, the work explores two main hypotheses on the aggregate relationship between the presence of MNCs and local SWB: *H1) If a positive relationship prevails, it means that considering all domains, MNCs generate a net benefit on life satisfaction and regional well-being; H2) If a negative relationship prevails, it means that considering all domains, MNCs generate a net harm on life satisfaction and regional well-being.*

Specifically, considering a total of 190 NUTS 2 regions (NUTS 1 for the UK and Germany) in 24 European Countries over the years 2010-2016, the work employs a dataset that combines the regional average life satisfaction provided by the European

Social Survey (used as a proxy of the average SWB), and information on the presence and size of MNCs provided by the Orbis-Bureau Van Dijk. After performing OLS, panel data fixed effects, and linear generalised moment method (GMM) as a robustness check, findings indicate that, on average, in the EU regions analysed, the presence of MNCs is associated with lower levels of SWB. Moreover, these results show high regional heterogeneity. The data also suggest that regional SWB might depend on the type of regional economic structure. The paper is structured as follows. Section 2 offers a critical review of the existing literature and clarifies the originality of this work with respect to previous studies. Based on the premises offered in Section 2, Section 3 outlines the theoretical framework, hypotheses under analysis, and relationships studied in this paper. Section 4 illustrates the data and some descriptive analyses, while in Section 5 are outlined the methodology and the empirical model. Section 6 shows the results. Finally, Section 7 offers the main conclusions, policy implications, and limitations of the work.

2. Literature Review

2.1 Determinants of life satisfaction and subjective well-being

Extant works investigating well-being refer to several fields of social sciences, each focusing on different domains and nuances of the notion. Furthermore, some studies explore the idea of the quality of life (QoL) that has strong similarities with that of SWB (see Lambiri et al., 2007). In this section, we provide a review of this debate by both emphasising the multidimensional nature of the notion of well-being and also considering its individual as well as contextual determinants (Diener et al., 2003; Helliwell & Putman, 2004).

The seminal contribution of Easterlin (1974) highlights the prevalence of a positive relationship between income and level of happiness. Nonetheless, as income continues to grow, happiness does not increase further, suggesting that beyond a certain threshold of economic wealth, the relationship does not hold (i.e., Easterlin paradox). The subsequent literature mostly supports these findings (e.g., Easterlin, 1995; Diener & Biswas-Diener, 2002; Ferrer-i-Carbonell, 2005). Other economic factors, such as the level of unemployment and inflation rate, are also relevant for

SWB. Specifically, both factors negatively affect SWB according to most studies (Di Tella et al., 2001; Helliwell, 2003; Alesina et al., 2004) as they produce more volatile economic conditions that can be difficult to deal with for individuals (see also the work of Ballas & Thanis (2022) on well-being during the years of the economic crisis).

At the micro level, most determinants of happiness and SWB pertain to demographic and family characteristics. For instance, regarding gender, a growing strand of works suggests that women are happier than men (Dolan et al., 2008, Alesina et al., 2004; Lenzi & Perucca, 2018). However, this evidence is not univocal, as other studies cannot detect any statistical difference across gender lines (Louis & Zhao, 2002; Costanza et al., 2007). More consistent findings emerge in relation to the role of age in determining SWB, suggesting that this relationship is positive but not linear. Specifically, most studies envisage a U-shaped path between age and SWB, thus suggesting that higher values of SWB characterise young age groups as well as individuals in the retirement age, while lower SWB is connected to people in their 30s, 40s, and 50s (Alesina et al., 2004; Dolan et al., 2008; Rözer & Kraaykamp, 2013). The level of education of individuals has also received thorough attention, but results indicate that the relationship with SWB can be quite articulated. In fact, some contributions find that more education increases SWB (e.g., Alesina et al. 2004), while others highlight how intermediate levels of education characterise the individuals with the highest SWB (e.g., Stutzer, 2004). Furthermore, at the country level, it seems that education is a more important predictor of SWB in low-income economies (e.g., Ferrer-i-Carbonell, 2005). As far as family characteristics are concerned, research suggests that married individuals are happier, whilst being separated, divorced, or widowed are connected with lower SWB (Helliwell, 2003; Dolan et al., 2008). Family size can also be related to individuals' SWB. Larger households are associated with lower values of SWB (e.g., Sørensen, 2014), although recent studies cannot detect significant effects in these terms (e.g., Biagi et al., 2018). A parallel strand of works analyses SWB by looking at the health conditions of individuals. Intuitively, people reporting bad health conditions experience significantly lower life satisfaction (Stutzer, 2004), especially in the case of psychological – more than physical – health

status (Dolan et al., 2008; Sørensen, 2014; Ferrer-i-Carbonell & Praag, 2002). For the sake of clarity, the dimension employed in this paper will not be at the individual level but aggregated at the regional level (Nuts 2) and the “spatial contextual” variable. See Section 4 for further information regarding the data and methodology.

2.2 Contextual factors shaping life satisfaction and subjective well-being

Recent contributions to the literature on SWB go beyond the traditional economic and demographic determinants of life satisfaction to embrace a wider set of considerations that have mostly remained at the margins of the academic debate. Most of these studies emphasise that contextual/local soft factors can play a very relevant role in shaping individual SWB. A rapidly growing strand of works emphasises that the presence of environmental as well as man-made amenities, including green areas and historical and cultural sites, can foster SWB. Individuals living in close proximity to these factors typically report higher SWB as compared to people that cannot enjoy these typologies of activities (Brambilla et al., 2013; Biagi et al., 2018). Nonetheless, the quality and accessibility of these amenities represent a strong conditioning factor in determining SWB. For example, Biagi et al. (2018) highlight that the positive role of amenities on SWB varies substantially with the accessibility to the amenities and with the individual allocation of time to these. A related stream of work instead focuses on the presence of disamenities in affecting life satisfaction. For example, living in the presence of high crime rates, CO₂ emissions, or overcrowding of urban areas generates detrimental effects on individuals' SWB (McCrea et al., 2006; Litchfield et al., 2012; Lenzi & Perucca, 2018; Biagi et al., 2018; Graziani et al. 2019). Along these lines, other studies analyse the link between life satisfaction and the local spatial structure by considering rural and urban divides. For instance, Sørensen (2014), using data from the European Value Study (EVS) of 2008, suggests that more rural than urban areas have a higher level of life satisfaction within the EU's richest countries. On the contrary, rural regions in the EU lagging behind countries are characterised by lower SWB than urbanised locations (Lenzi and Perucca, 2018; Ballas, 2013). We also suggest seeing Ballas (2020), that proposes a further

comprehensive definition and classification of happiness as a broader measure of well-being.

2.3 Exposure to globalisation, life satisfaction, and subjective well-being

Recent years have witnessed the emergence of a novel debate regarding the "geography of discontent" with specific reference to the so-called populist vote in the case of the US and Europe (McCann, 2016; Rodríguez-Pose, 2018; Ballas, 2020). One of the main features behind the narrative of discontent relates to a generalised anti-globalisation sentiment that underpins the dissatisfaction of many individuals with their quality of life. In this vein, for instance, the pro-Brexit vote has mainly characterised areas with more intense trade linkages with the EU (Los et al., 2017) as well as locations with a more relevant presence of foreign MNCs (Crescenzi et al., 2018). This evidence paves the way to integrate exposure to globalisation in the discussion regarding life satisfaction and, more specifically, regarding the role of MNCs as tangible and stable actors that are often identified with global markets. Early evidence on cross-country investigations suggests that more globalised countries are characterised by slightly higher life satisfaction (Sirgy et al., 2004; Tsai, 2007; Hessami, 2011). Although, other contributions could not detect any statistical relationship between the two (Bjørnskov et al., 2008). One common trait of these studies is the measurement of globalisation through composite indexes that account for several dimensions of the phenomenon, ranging from the economic to political and social aspects (see Dreher, 2006). On the contrary, the current debate lacks studies focusing on precise aspects of globalisation, which turn instead to be important to understand the specificities of the link between exposure to globalisation and life satisfaction. In this sense, analysing the role of MNCs can be a very relevant point of departure, as these firms represent precise and recognisable actors of the globalisation process, with a tangible and stable presence in the locations where they undertake their investments. In fact, different from other forms of globalisation, such as trade linkages, the presence of MNCs in a local economy is more visible, involving the local population. Through their activities, MNCs can influence local SWB through various mechanisms.

Consistently, the literature has highlighted many implications of the presence of MNCs that can, in turn, become both positive and negative in the subjective perception of individuals. From the economic standpoint, the presence of MNCs is typically associated with the inflow of new technologies, capital, and novel managerial practices that collectively can contribute to raising the productivity of the local economy (Javorcik, 2004; Crespo et al., 2009; Nicolini & Resmini, 2010; Iammarino & McCann, 2013), generating new jobs and business opportunities (Ascani & Iammarino, 2018) and ultimately leading to new growth paths (Romer, 1990). Overall, these virtuous processes may be associated with a healthier economic environment and, potentially, have a positive influence on the life satisfaction of individuals. At the same time, research also highlights that the economic impact of MNCs can be negative in some circumstances. For instance, the entry of MNCs into a market may increase the pressure to compete and, consequently, crowd out some incumbent companies, with the subsequent loss of jobs (Harrison & Aitken, 1999; Ascani & Gagliardi, 2020). The presence of MNCs can also affect inequalities along different lines, thus also shaping the social sphere of local economies and people's life satisfaction. While the conventional wisdom is that opening to the global economy should reduce inequalities due to the benefits of larger markets (Sirgy et al., 2004; Potrafke, 2015), other contributions highlight that the presence of MNCs and, more in general, the effect of globalisation on regional economies can contribute to widening interpersonal and interregional disparities (Zhang & Zhang, 2010; Lessmann, 2013; Ezcurra & Rodríguez-Pose, 2013). In these circumstances, narrowing or enlarging inequalities can translate into different life satisfaction for the concerned individuals.

A parallel and recent strand of literature investigates MNCs' implications on the environment, which can also affect individuals' perception of their life satisfaction. Differences in environmental regulation and monitoring across locations may influence MNCs' decision to operate their activities. For instance, less restrictive environmental laws may attract more pollutant industries (Cole et al., 2017). At the same time, MNCs may improve the local environment through the adoption of green technologies, more efficient production, and better management systems (see Brock

& Taylor, 2005; Rezza, 2015). Reasonably, the local perception of how MNCs deal with the local natural environment strongly shapes SWB, considering that the consumption of natural amenities represents a determinant of life satisfaction, as discussed above. Last but not least, MNCs can influence SWB through an institutional channel. In this respect, the literature also offers ambiguous suggestions. Standard expectations imply that the presence of MNCs may favour a transition to more inclusive, accountable, and business-oriented institutional frameworks (Blonigen, 2005; Coe et al., 2009; Long et al., 2015), which can ultimately favour economic and social transactions in an economy. Nonetheless, it is possible that MNCs, in some circumstances, are involved in non-transparent and corruptive behaviours to circumvent market rules (e.g., Ascani et al., 2016). In these cases, MNCs may lose legitimacy due to their lack of business ethics and be associated with negative feelings in the perception of society.

While the literature on MNCs offers many insights into the effects that these actors can trigger, disentangling the specific mechanisms that can shape SWB is well beyond the scope of this article, mostly for data limitations. Alternatively, this rich literature is taken into account from a conceptual point of view, as its many potential factors can connect MNCs and SWB in various ways.

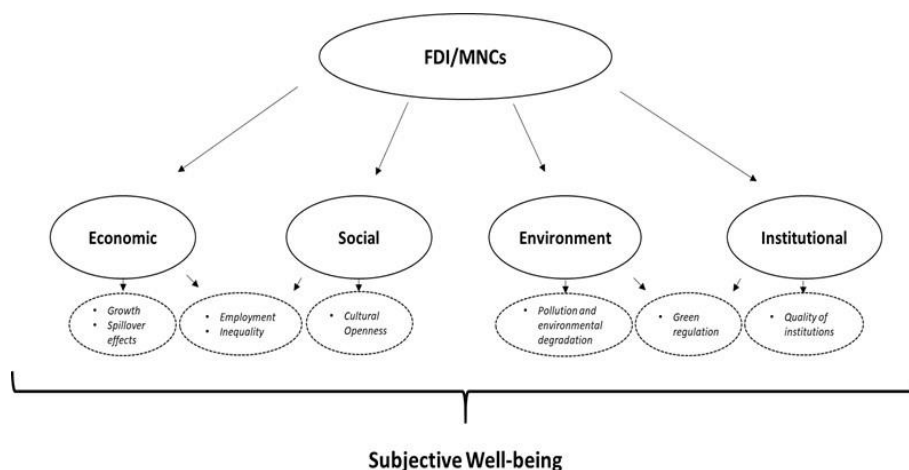
3. The conceptual framework and hypothesis

Figure 1 shows how the link between MNCs and SWB depends on multidimensional factors that belong to different domains, namely the economic, social, environmental, and institutional domains. As explained in previous sections, within each domain, specific mechanisms can have an ambiguous effect on SWB. Hence, the main hypotheses of this work on the aggregate relationship between the presence of MNCs and local SWBs are the following:

- 1. H1) If a positive relationship prevails, it means that considering all domains, MNCs generate a net benefit on life satisfaction and regional well-being.*
- 2. H2) If a negative relationship prevails, it means that considering all domains, MNCs generate a net harm on life satisfaction and regional well-being.*

A prevailing positive net effect would suggest that, on average, globalisation has improved the performance of the regions under analysis, while a negative net effect would indicate a need to explore further the reasons underlying this impact. Understanding this general association is relevant as the literature has, so far, not yet provided an empirical exploration of this aggregate relationship.

Figure 1 - Conceptual Framework



Source: Our elaboration

4. Data and descriptive analysis

The work builds a novel database by combining different waves of the European Social Survey together with Orbis (Bureau van Dijk), Eurostat and OECD data. The resulting dataset is an unbalanced panel of approximately 190 regions across 24 European countries⁴, covering 2010, 2012, 2014 and 2016. All regions are classified as NUTS2, except for the UK and German regions, which are classified as NUTS1⁵. We chose to use regional data instead of individual data for two main reasons. First, to approach the phenomenon from a specific meso-perspective of self-

⁴ Austria, Belgium, Bulgaria, Switzerland, Czech Republic, Denmark, Germany, Estonia, Spain, Finland, France, Hungary, Ireland, Iceland, Italy, Lithuania, Netherland, Norway, Poland, Portugal, Sweden, Slovenia, Slovakia, Ukraine.

⁵ Some exceptions of data aggregation: Regions of Finland Aland (FI20) and Uusimaa (FI1B) have been aggregated as old NUTS 2 classification, so they emerge as Southern Finland (FI1C); Budapest (HU11) and Pest (HU12) for Hungary are considered as single region; Italian Autonomous Provinces of Bolzano (ITH1) and Trento (ITH2) are treated as single region. Moreover, the baseline year of NUTS classification employed is 2016.

reported regional well-being (proxied with the average life satisfaction), which has not yet been fully explored in the research field. By doing so, we aim to simplify the methodology and provide a preliminary identification of the phenomena studied using a definition of self-assessed life satisfaction and happiness as defined in Diener et al. (2003) and Helliwell & Putnam (2004). Second, due to time constraints, we have opted for a simpler methodology to provide an initial understanding of the phenomena studied, utilizing a definition of self-assessed well-being provided by Diener et al. (2003) and employing a proxy of well-being that considers self-reported dimensions. Nonetheless, we acknowledge that using a multilevel approach can offer additional strength to the methodology and result in a broader and more sophisticated empirical strategy, which we plan to explore in future developments of this work.

4.1 Dependent variable (SWB)

Based on the European Social Survey (ESS), this paper uses aggregate regional life satisfaction information to construct a measure of regional SWB. Data have been aggregated by calculating the weighted average of regional life satisfaction (SWB) to proxy of SWB (Helliwell & Putnam, 2004). The weights considered are the national population size weight and post-stratification weight⁶. The sample employed is representative of the regional population. In the ESS, we consider the following question: *"All things considered, how satisfied are you with your life as a whole nowadays?"*. Respondents are required to rate their life satisfaction from "0" (extremely dissatisfied) to "10" (extremely satisfied).

4.2 Independent variable (MNCs)

The data on MNCs come from the Orbis database of Bureau van Dijk (BvD)⁷. The selection includes small, medium, large, and very large active multinationals that

⁶ESS https://www.europeansocialsurvey.org/methodology/ess_methodology/sampling.html

sampling

guidelines:

⁷ Access from the proxy server of University of Sassari (UNISS).

own at least 10 per cent of their common stock from foreign investors⁸. Therefore, we obtained information regarding subsidiaries. Several measures of MNCs' activity at the regional level are considered in terms of stock, namely (i) the regional number of MNCs, (ii) the total regional value of MNCs' production (in logs), and (iii) the regional number of MNCs' employees (in logs).

4.3 Control variables

We select a wide number of other control variables from different sources, including Eurostat, OECD, and the European Social Survey. Table 1 provides a detailed summary of these covariates. First, we consider regional economic features by including variables such as the regional real GDP per capita⁹, its square value (e.g., Easterlin, 1974; 1995; Bjørnskov et al., 2008) as well as the regional unemployment rate (e.g., Di Tella et al. 2001; Alesina et al., 2004) to control for labour market outcomes. With respect to the regional demographic conditions, we include the average age and the percentage of people with tertiary education as a proxy of education level (e.g., Alesina et al., 2004; Stutzer, 2004). We also include the percentage of married people (e.g., Helliwell, 2003; Biagi et al., 2018). To control for socio-cultural determinants of SWB, we employ a measure of cultural openness represented by the percentage of people that think homosexual individuals are free to live as they wish (see Costanza et al., 2007). This measure of cultural openness represents a proxy of how progressive and open a certain society is. Moreover, the data dispensed by the ESS do not provide other comprehensive measurements of cultural openness that cover the entire sample. We capture health characteristics by accounting for the percentage of people who self-report health (physical and mental) that hinder their daily life (e.g., Stutzer, 2004; Dolan et al., 2008). This measure has been computed by counting the number of people with health issues over the total.

⁸ Companies on Orbis are considered to be very large, large, medium, small when they match at least one of the following conditions: very large if operating revenue \geq 100 million EUR, total assets \geq 200 million EUR, Employees \geq 1000; large if operating revenues \geq 10 million EUR, total assets \geq 20 million EUR, employees \geq 150; medium if operating revenues \geq 1 million EUR, total assets \geq 2 million EUR, employees \geq 15; small if all the parameters listed above are below those reported for the medium companies.

⁹ GDP per capita of France for years 2010, 2012, 2014 has been calculated based on national real GDP percentage variation. The estimation is based on year 2016.

Furthermore, we include the Gini index for interregional inequality of GDP (e.g., Alesina et al., 2004; Rözer & Kraaykamp, 2013) (see also Rodríguez-POSE, 2018; McCann, 2019) and a dummy variable for lagging regions¹⁰ (low-income regions, low growth regions) (Koeppen et al., 2020; Rodríguez-POSE et al., 2021). This variable controls the dimension of “places that do not matter” and, to some extent, the geography of discontent.

Table 1 - Summary statistics

<i>Variable</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
SWB	7.10	0.77855	3.539011	8.699495
MNCs	4.97	1.46724	0	8.427268
GDP	10.16	0.383333	8.839276	11.16748
GDP^2	103.36	7.769426	78.1328	124.7125
Unemployment rate	9.43	5.569292	2.2	37
Tertiary education	29.65	8.701549	9	57
Marital status	0.52	0.083819	0.139773	0.940203
Cultural openness	0.77	0.169263	0.156172	1
Illness condition	0.25	0.07946	0	0.536665
Gini index	0.12	0.03852	0	0.278804
Lagging region-dummy variable	0.14	0.342743	0	1

Source: Our elaboration – Data from European Social Survey, Orbis – BvD, Eurostat and OECD

¹⁰ Information from the European Commission report (2017): Competitiveness in low-income and low-growth regions. The lagging region report; p56, table 1-1 list of lagging regions.

Table 2 - Variables, description, and data sources

<i>Domains</i>	<i>Variable name</i>	<i>Description</i>	<i>Data sources</i>
RSWB	Regional Life Satisfaction (SWB)	Average of self-reported life satisfaction by region (average of Likert scale from 0 to 10)	European Social Survey (Our calculation)
<i>MNCs and Economic Domain</i>			
	MNCs, Tot. Value of Prod., Employees	Number of MNCs by region	Orbis-Bureau Van Dijk (Our calculation)
	GDP	Real GDP per capita by region	Eurostat and OECD
	GDP^2	Square of GDP	Our calculation
	Unemployment rate	Unemployment rate by region	Eurostat
<i>Demographic Domain</i>			
	Tertiary education	Percentage of people with tertiary education by region	Eurostat
	Marital status	Percentage of people that are married by region	European Social Survey (Our calculation)
<i>Social Domain</i>			
	Cultural openness	Percentage of people that think homosexual people are free to live as they wish	European Social Survey (Our calculation)
<i>Health Domain</i>			
	Illness condition	Percentage of people that self-report their life is limited due to health condition	European Social Survey (Our calculation)
<i>Further controls for interregional inequality, lagging regions, lag time variables</i>			
	Gini GDP	Interregional Gini index for GDP by country	Our calculation
	Lagging region-dummy variable	Dummy variable equal "1" means lagging region (low income or low growth), otherwise is equal "0."	European Commission 2017
	Time-dummy variable	Dummy variable of the years observed	

Source: Our elaboration – Data from European Social Survey, Orbis – BvD, Eurostat and OECD

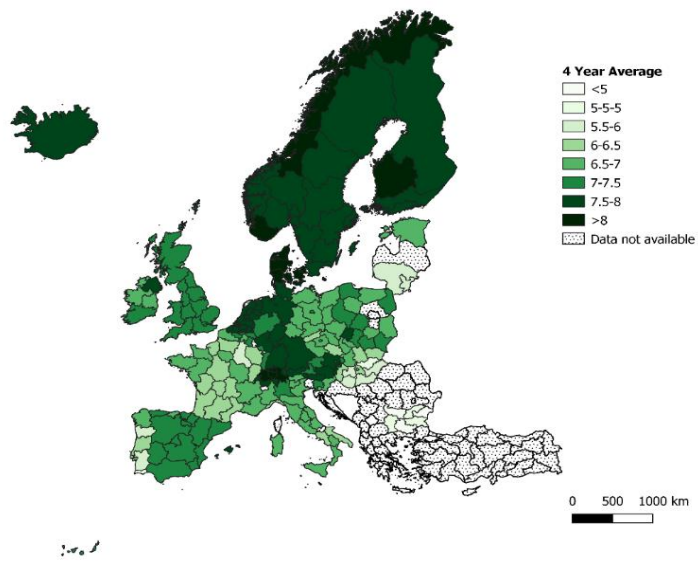
Table 2 shows the descriptive analysis for the variables expressed at logarithmic values. Figure 2 and Figure 3 show a general overview of SWB in Europe. Figure 2 shows the four years average of SWB. The higher SWB levels are in northern

and central European regions: in particular, Scandinavian regions, Iceland, the Netherlands, Denmark, part of Germany, Switzerland, and part of Austria. Regions from these countries appear with a score of SWB above 7.5 over the four years observed. Overall, the region with the highest life satisfaction in the North Jutland Region (*Region Nordjylland*) from Denmark for 2012, with an SWB of 8.70. On the contrary, lower SWB levels are in Bulgaria, Lithuania, part of Portugal, and part of Hungary. Regions from these countries appear with a score of SWB above 5.5. The region with the lowest SWB is the South-Central Planning Region (Yuzhen Tsentralen Planning Region), in 2012, with an SWB of 3.54. Figure 3 shows the four years average change of SWB. In this case, regions (reported earlier) that are good in terms of average SWB level are not performing well in terms of average SWB change in the observed period. These regions are indeed stagnant (0%) or even with negative performance (-2.5%). The worst performances are in most Bulgaria regions, some in the south of Italy, a few in the Iberic peninsula, and a few in Switzerland. In this case, the percentage of average change is even below -5%. For the rest of the regions observed, overall, a positive average change over the period is considered. In particular, the Abruzzo region (Italy) is an outlier that has experienced an average change above 20% during the period observed¹¹. Both the results of Figures 2 and 3 combined may suggest that the higher the SWB, the lower the change of the SWB: notice that regions involved in such conditions are those with the more developed economy with higher GDP per capita (northern and central Europe regions).

Figures 4 and 5 show the four-year average number of MNCs and the four-year average change of MNCs' presence (that goes from zero to thirty percent). From the first map, we see that MNCs are mostly located in the area known as the "Blue Banana" area. The region with the highest concentration of MNCs is the region of London, with 4,500 thousand units. On the contrary, most of Poland, Central and North Scandinavian regions, Central and East France, South of Italy, Central Spain, and most Bulgarian regions are characterized by a low presence of MNCs.

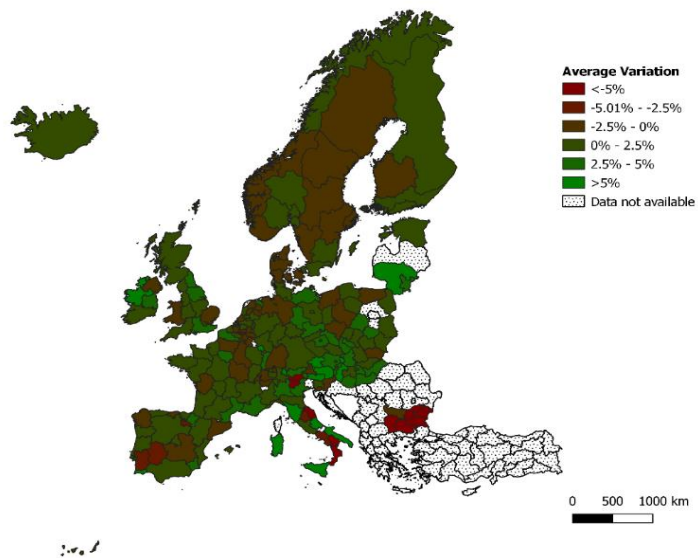
¹¹ However, it is to be noticed that the 2009 L'Aquila earthquake occurred in the region of Abruzzo.

Figure 2 - Regional life satisfaction. Four years average



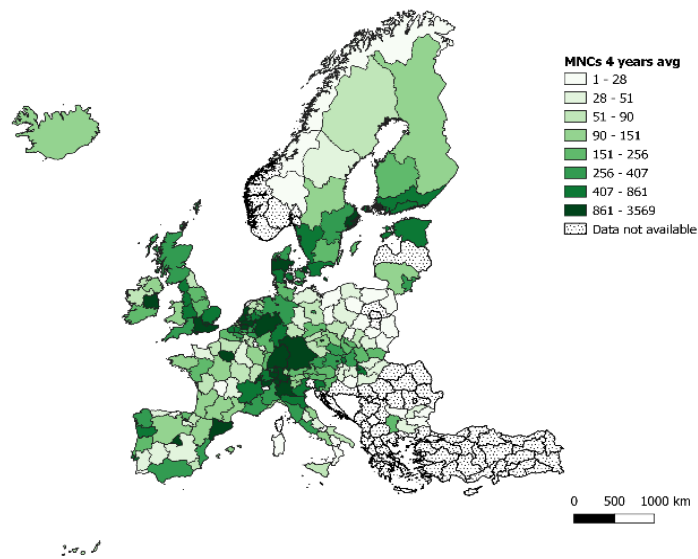
Source: Our elaboration. Data from the European social survey - Light green refers to a lower level of SWB, and dark green refers to a higher level of SWB

Figure 3 - Change in regional life satisfaction. Four years average



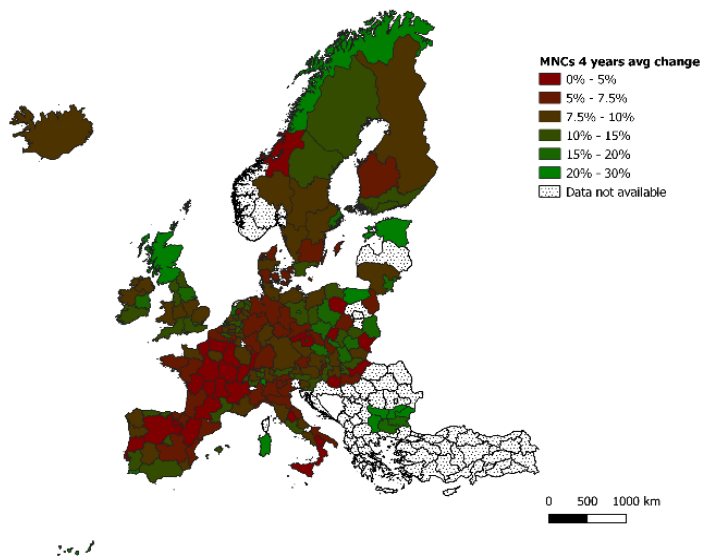
Data from the European social survey. Our elaboration - Dark red refers to a negative change of SWB, light green refers to a positive change of SWB

Figure 4 - Number of MNCs. Four years average



Source: Our elaboration. Data from the Orbis BvD database - Light green refers to a lower level of presence of MNCs, and dark green refers to a higher level of presence of MNCs

Figure 5 - Number of MNCs. Four years average



Source: Our elaboration. Data from the Orbis BvD database - Dark red refers to a negative change in the presence of MNCs, and light green refers to a positive change in the presence of MNCs

5. Methodology and empirical model

Equation (1) shows the baseline empirical model. From the left-hand side to the right-hand side: *SWB* represents regional life satisfaction and subjective well-being; *MNCs* represent different measures of multinational companies; *X* includes the set of control variables presented in the previous section; τ represents time dummies to control for time shocks affecting *SWB* during the sample period; ε is an idiosyncratic error term; the *i* term and *t* term refer respectively to the region and time dimensions.

$$RLS_{it} = \beta_0 + \beta_1 MNCs_{it} + \beta_k X_{it} + \tau_t + \varepsilon_{it} \quad (1)$$

The empirical estimation of the model undertakes different approaches, including pooled OLS, panel data fixed effect (FE) and panel data random effect (RE). The simple pooled OLS regression tests the general relationship between the presence of MNCs as the degree of globalisation, and regional life satisfaction (*SWB*), as a proxy of regional subjective well-being. The panel data FE controls for the presence of unobserved time-invariant heterogeneity across regions. Finally, the panel data RE approach estimates unobserved effects uncorrelated with each explanatory variable. Furthermore, in an extension of the empirical exercise, equation (1) has been estimated by means of GMM techniques.

6. Results

6.1 Baseline results

Table 3 shows the results of the three specifications for the simple pooled OLS regression, Fixed effect (FE) and random effect (RE): All these models include time dummies to control for time shocks. In the pooled OLS specification, the presence of MNCs within a region is significant and negatively correlated with *SWB*. A similar estimate emerges from the RE model, while the coefficient on the FE model, albeit maintaining a negative sign, remains not statistically different from zero. These preliminary results offer mixed insights: the OLS and RE estimates are at odds with H1 and support H2 instead, based on which local exposure to globalisation may be

perceived as a detrimental factor for SWB. However, once controlling for the time-invariant unobserved heterogeneity of regions by means of the FE model, neither of the two hypotheses is supported. More specifically, the FE estimation explores within-region variations in the number of MNCs. Thus, the insignificant coefficient in the FE column of Table 3 suggests that changes in the numerosity of MNEs in a region do not correlate with SWB. At the same time, the pooled OLS model explores the variation between-regions in the number of MNCs. In this sense, the negative and significant coefficient on the number of MNCs estimated through OLS signifies that regions with a higher presence of MNCs are characterised by lower SWB.

Regarding the control variables, the coefficients on GDP and GDP squared support the prediction of the Easterlin Paradox, whereby there exists a non-linear relationship between the level of development of a region and its SWB (Easterlin, 1995; Diener & Biswas-Diener, 2002; Ferrer-i-Carbonell, 2005). Also, in line with the theory, higher local unemployment rates are negatively associated with SWB (Di Tella et al., 2001; Helliwell, 2003; Alesina et al., 2004). The average age of the local population is also negative and significant in the OLS and RE models (while insignificant in the FE). As expected, tertiary education and cultural openness are positively related to SWB, supporting the idea that more educated and open societies tend to express higher satisfaction with their living conditions (Alesina et al., 2004; Ferrer-i-Carbonell, 2005). On the contrary, ambiguous results emerge from the interregional Gini index, which is negative and insignificant in the OLS and RE estimations but weakly positive and significant in the FE model. Overall, these results provide a first hint of the link between regional exposure to globalisation through the number of foreign MNEs present in the local economy and the level of SWB¹². Nonetheless, considering the mixed results connected with different estimation methods, a linear two-stage GMM has been performed, where the number of MNCs and the regional GDP, unemployment, and tertiary education are treated as endogenous variables; hence, setting both two-period and three-period lags and applying the orthogonal condition for the rest of the explanatory variables. The results

¹² The Vif test highlights multicollinearity only between GDP and its square variable. However, pairwise correlation shows a significant correlation among the variables MNCs, GDP, tertiary education, unemployment rate, Gini GDP, and lagging region (p-value at 10%).

of this exercise are reported in the last two columns of Table 3. The number of MNCs within regions turns out to be negatively and significantly related to SWB in both specifications (with different lags), thus providing further support for H2. In terms of the diagnostics of the model, we cannot reject the hypothesis that the errors are serially correlated¹³. However, the Sargan-Hansen test confirms that the model is robust, and the instruments are not endogenous (see GMM lag (1, 3) Table 3).

Table 3 – Regional SWB regressions for the Number of MNCs

	OLS SWB	FE SWB	RE SWB	GMM lag (1,2) SWB	GMM lag (1,3) SWB
Log values					
Number of MNCs	-0.112*** (0.0181)	-0.009 (0.0354)	-0.106*** (0.0174)	-0.112*** (0.0173)	-0.112*** (0.0177)
GDP	15.460*** (4.1414)	19.753** (7.6365)	17.481*** (3.5970)	16.076*** (4.6443)	16.436*** (4.4937)
GDP Square	-0.722*** (0.1999)	-0.926** (0.3590)	-0.815*** (0.1741)	-0.754*** (0.2232)	-0.770*** (0.2161)
Unemployment Rate	-0.022*** (0.0065)	-0.016 (0.0145)	-0.023*** (0.0064)	-0.026*** (0.0071)	-0.025*** (0.0064)
Average Age	-2.199*** (0.4824)	-0.416 (0.4383)	-0.906** (0.3968)	-1.836*** (0.5251)	-1.855*** (0.5244)
Tertiary education	0.014*** (0.0049)	-0.002 (0.0143)	0.011** (0.0049)	0.013*** (0.0047)	0.013*** (0.0047)
Marital Status	0.535 (0.3535)	0.511* (0.2618)	0.467* (0.2534)	0.439 (0.3978)	0.479 (0.3783)
Cultural Openness	0.733*** (0.2742)	0.175 (0.3392)	0.415* (0.2413)	0.813*** (0.2402)	0.788*** (0.2405)
Health	0.573 (0.3764)	-0.970*** (0.3293)	-0.420 (0.3073)	0.390 (0.3945)	0.391 (0.3993)
Gini GDP	-1.098 (0.8759)	4.067* (2.3753)	-1.126 (0.8580)	-1.459* (0.8775)	-1.493* (0.8784)
Lagging region	0.104 (0.1717)	.	0.050 (0.1659)	0.182 (0.2011)	0.213 (0.1972)
Time dummies	Yes	Yes	Yes	Yes	Yes
Constant	-67.400*** (21.5998)	-96.657** (41.1280)	-82.643*** (18.5630)	-71.544*** (24.4049)	-73.456*** (23.6294)
Observation*Time	503	503	503	503	503
Observation		186	186	186	186
Observation Clust	186	186	186		
ar2				6.69	6.58
ar2p				0.000	0.000
Sargan				7.39	7.67
Sarganp				0.0604	0.2635
Sargandf				3	6
Hansen				7.91	9.26
Hansenp				0.0480	0.1593
Hansendf				3	6
Hansen				17.00	20.00
Number of instruments				17	20
R2	0.510	0.224			

* p<.1, ** p<.05, *** p<0.01

¹³ The AR(2) in the two-stage GMM is significant. The AR(3) cannot be tested due to missing data.

6.2 Checking for different definitions of MNCs

This section considers different measurements for MNCs because the pure number of companies used in the baseline specifications may hide the weight that different MNCs have in different regional economies. It is likely that a specific region hosts many small MNCs while another region is characterised by a few very large MNCs. While the mere count of MNCs across space does not account for this heterogeneity, this work considers two alternative measures of MNCs' activity: namely, the total value of MNCs production and the total MNCs employees. These measures aim to capture the economic importance of MNCs as well as their size in terms of human resources. Table 4 replicates the regression models of Table 3 by substituting the number of MNCs with the value of their production in each region. Results are very similar to those presented in Table 3, thus suggesting that the presence of MNCs and their economic incidence exhibit the same correlation patterns with SWB. Both the OLS and RE models provide negative and significant coefficients for MNCs, while the within-region effects estimated through FE remain statistically null. The GMM estimations, instead, support again the idea that regional participation in globalisation by means of hosting foreign companies is negatively associated with SWB, thus supporting H2.

Table 5 provide similar model specifications by considering MNCs' employment as the variable of interest. Again, results are in line with Table 3, indicating that the relationship between foreign MNCs' activity and SWB tends to be stable regardless of the specific adopted measurement. Taken together, these results provide some evidence of the fact that regional exposure to global markets, in the case of EU regions, lowers subjective well-being and life satisfaction. Exploring the specific mechanisms behind this aggregate relationship, as envisaged in the conceptual framework, remain a fundamental step to shed light on this theme but remains outside the scope of the present article.

Further estimations consider the role of quality of institutions employing the EQI. The results are consistent with the one provided in table 3, but the EQI is slightly significant only for the FE specification (see the Appendix – Table 1).

Moreover, an important aspect to note concerning the results is that the sample size represents only a portion of the total number of Nuts 2 regions (186 out of 242 in the final analysis). Although it may be viewed as a limitation, we have taken measures to ensure the reliability and applicability of our results. Furthermore, the sample used for the ESS is representative of the population at the Nuts 2 level, which means that our findings are based on a diverse and representative sample of the European population. Therefore, we are confident that our study provides valuable insights into the relationship between subjective well-being and the presence of multinational corporations.

Table 4 – Regional SWB regressions for the MNCs' value of the production

	OLS SWB	FE SWB	RE SWB	GMM lag (1,2) SWB	GMM lag (1,3) SWB
<i>Log values</i>					
MNCs' Value Production	-0.075*** (0.0188)	0.025 (0.0537)	-0.073*** (0.0187)	-0.083*** (0.0192)	-0.082*** (0.0183)
GDP	13.758*** (4.7073)	19.028** (7.6012)	17.485*** (3.8813)	14.526** (5.6487)	14.986*** (5.3792)
GDP Square	-0.640*** (0.2266)	-0.891** (0.3572)	-0.815*** (0.1873)	-0.678** (0.2709)	-0.700*** (0.2583)
Unemployment Rare	-0.024*** (0.0068)	-0.016 (0.0146)	-0.025*** (0.0066)	-0.029*** (0.0076)	-0.028*** (0.0071)
Average Age	-2.273*** (0.5026)	-0.411 (0.4431)	-0.945** (0.3977)	-1.856*** (0.5763)	-1.848*** (0.5753)
Tertiary education	0.014*** (0.0051)	-0.003 (0.0137)	0.012** (0.0053)	0.013*** (0.0049)	0.013*** (0.0049)
Marital Status	0.525 (0.3670)	0.512* (0.2616)	0.478* (0.2558)	0.436 (0.4480)	0.510 (0.4164)
Cultural Openness	0.799*** (0.2993)	0.187 (0.3390)	0.424* (0.2538)	0.921*** (0.2704)	0.918*** (0.2658)
Health condition	0.612 (0.3845)	-0.983*** (0.3277)	-0.458 (0.3035)	0.399 (0.4204)	0.408 (0.4191)
Gini GDP	-1.869** (0.9214)	3.843 (2.3383)	-1.771* (0.9221)	-2.163** (0.9669)	-2.170** (0.9462)
Lagging region	0.099 (0.1918)	.	0.059 (0.1796)	0.239 (0.2386)	0.262 (0.2254)
Time dummies	Yes	Yes	Yes	Yes	Yes
Constant	-57.676** (24.5155)	-93.333** (40.9096)	-81.841*** (20.0162)	-62.846** (29.7161)	-65.363** (28.2971)
Observation*Time	506	506	506	506	506
Observation		186	186	186	186
Observation Clust	186	186	186		
ar2				6.31	6.17
ar2p				0.000	0.000
Sargan				13.22	13.48
Sarganp				0.0042	0.0360
Sargandf				3	6
Hansen				11.56	12.17
Hansenp				0.0091	0.0583
Hansendf				3	6
Hansen				17.00	20.00
Number of instruments				17	20
R2	0.488	0.225			

* p<.1, ** p<.05, *** p<0.01

Table 5 – Regional SWB regressions for the Employment MNCs

	OLS SWB	FE SWB	RE SWB	GMM lag (1,2) SWB	GMM lag (1,3) SWB
<i>Log values</i>					
Employment MNCs	-0.094*** (0.0166)	0.016 (0.0270)	-0.080*** (0.0165)	-0.100*** (0.0172)	-0.100*** (0.0174)
GDP	13.644*** (4.4511)	19.341** (7.5546)	17.086*** (3.7343)	14.451*** (5.2341)	14.823*** (5.0265)
GDP Square	-0.635*** (0.2146)	-0.907** (0.3551)	-0.798*** (0.1805)	-0.675*** (0.2513)	-0.692*** (0.2415)
Unemployment Rare	-0.023*** (0.0066)	-0.017 (0.0146)	-0.024*** (0.0065)	-0.026*** (0.0071)	-0.026*** (0.0066)
Average Age	-2.140*** (0.4960)	-0.434 (0.4382)	-0.898** (0.3925)	-1.676*** (0.5417)	-1.676*** (0.5453)
Tertiary education	0.014*** (0.0050)	-0.003 (0.0145)	0.012** (0.0051)	0.014*** (0.0048)	0.013*** (0.0048)
Marital Status	0.544 (0.3548)	0.520** (0.2616)	0.474* (0.2542)	0.460 (0.4146)	0.482 (0.3864)
Cultural Openness	0.742** (0.2855)	0.164 (0.3397)	0.428* (0.2467)	0.819*** (0.2602)	0.804*** (0.2540)
Health condition	0.612 (0.3804)	-0.967*** (0.3288)	-0.426 (0.3091)	0.436 (0.4101)	0.448 (0.4103)
Gini GDP	-1.534* (0.8886)	4.116* (2.3366)	-1.643* (0.8847)	-1.907** (0.9254)	-1.990** (0.9128)
Lagging region	0.086 (0.1818)	.	0.054 (0.1729)	0.201 (0.2215)	0.231 (0.2137)
Time dummy variables	Yes	Yes	Yes	Yes	Yes
constant	-57.705** (23.2015)	-94.516** (40.7130)	-80.141*** (19.2784)	-63.373** (27.5232)	-65.377** (26.4280)
Observation*Time	502	502	502	502	502
Observation		186	186	186	186
Observation Clust	186	186	186		
ar2				6.33	6.20
ar2p				0.000	0.000
Sargan				13.00	13.65
Sarganp				0.0046	0.0338
Sargandf				3	6
Hansen				11.03	11.86
Hansenp				0.0116	0.0652
Hansendf				3	6
Hansen				17.00	20.00
Number of instruments				17	20
R2	0.500	0.225			

* p<.1, ** p<.05, *** p<0.01

7. Conclusion

The presence of MNCs can have different types of local impacts on the lives of individuals. This paper investigates the multidimensionality of these impacts on SWB at the local/regional level. This work proposes a conceptual framework in which MNCs impact SWB through different channels. This has been achieved by combining the literature on SWB with studies on MNCs and globalisation. Despite the importance of the topic, contributions that consider the complexity of this relationship are still relatively scarce. A further issue concerns the lack of contributions to studying

the subnational implications of globalisation. Building on these limitations, this paper addresses these gaps by providing a study linking different debates and considering the region as a unit of analysis for understanding the implications of MNCs on SWB. The empirical results suggest that, on average, in the EU regions analysed, the presence of MNCs is associated with lower levels of SWB. The data also suggest that regional SWB might depend on the type of regional economic structure. These results reveal a significant regional heterogeneity, which is distinct from the current literature (Tsai, 2007; Bjørnskov et al., 2008; Hessami, 2011) that does not examine the phenomenon from a territorial and geographical standpoint. The preliminary analysis in this study offers a unique perspective on the impact of globalization and multinational corporations (MNCs) on subjective well-being (SWB) by adopting a meso-perspective that has not been explored previously. Studying SWB, especially its external determinants, can help design better policies that offset potential negative externalities related to the effect of globalisation. From a socio-economic perspective, policymakers should consider redistribution and retraining programs for people who lose their jobs. In this case, the goal is to subsidise local workers entering the labour force. Retraining programs should aim to reintegrate these workers into the new labour market. These policies could help in the short and medium term to reduce the negative effects of competition, such as increased unemployment and inequality. However, these policies should be accompanied by social inclusion programs, especially for communities that are more marginalised and peripheral or less inclined to accept the changes brought about by globalisation. Noticeably, this work is not without limitations. First, it can only offer an aggregate snapshot of the relationship between MNCs and SWB, while it cannot disentangle various potential mechanisms discussed in the literature review. Second, regards the empirical results, some endogeneity issues might remain despite the technique used to reduce this potential source of bias (e.g., the GMM approach). Future developments in this line of work should address the limitations by employing data on the specific activities performed by MNCs at the regional level and considering unobserved spatial heterogeneity and the presence of spatial spillovers of the MNCs among the regions.

References

- Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and happiness: Are Europeans and Americans different? *Journal of Public Economics*, 88(9–10), 2009–2042. <https://doi.org/10.1016/j.jpubeco.2003.07.006>
- Ascani, A. (2018). The takeover selection decisions of multinational enterprises: Empirical evidence from European target firms. *Journal of Economic Geography*, 18(6), 1227–1252. <https://doi.org/10.1093/jeg/lbx035>
- Ascani, A., & Gagliardi, L. (2020). Asymmetric spillover effects from MNE investment. *Journal of World Business*, 55(6), 101146. <https://doi.org/10.1016/j.jwb.2020.101146>
- Ascani, A., & Iammarino, S. (2018). Multinational enterprises, service outsourcing and regional structural change. *Cambridge Journal of Economics*, 42(6), 1585–1611. <https://doi.org/10.1093/cje/bey036>
- Ascani, A., Crescenzi, R., & Iammarino, S. (2016). Economic Institutions and the Location Strategies of European Multinationals in their Geographic Neighborhood. *Economic Geography*, 92(4), 401–429. <https://doi.org/10.1080/00130095.2016.1179570>
- Ballas, D. (2013). What makes a "happy city"? *Cities*, 32. <https://doi.org/10.1016/j.cities.2013.04.009>
- Ballas, D. (2020). The economic geography of happiness. *Handbook of Labor, Human Resources and Population Economics*, 1-24.
- Ballas, D., & Thanis, I. (2022). Exploring the Geography of Subjective Happiness in Europe During the Years of the Economic Crisis: A Multilevel Modelling Approach. In *Social Indicators Research* (Vol. 164, Issue 1). Springer Netherlands. <https://doi.org/10.1007/s11205-021-02874-6>
- Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1996). Foreign direct investment and Growth in EP and IS countries. *106(1978)*, 92–105.
- Biagi, B., & Ladu, M. G. (2018). Productivity and employment dynamics: new evidence from Italian regions. *Economia Politica*, 35(2), 313–336. <https://doi.org/10.1007/s40888-018-0103-9>
- Bjørnskov, C., Dreher, A., & Fischer, J. A. V. (2008). Cross-country determinants of life satisfaction: Exploring different determinants across groups in society. *Social Choice and Welfare*, 30(1), 119–173. <https://doi.org/10.1007/s00355-007-0225-4>
- Blonigen, B. A. (2005). A review of the empirical literature on FDI determinants. *Atlantic Economic Journal*, 33(4), 383–403. <https://doi.org/10.1007/s11293-005-2868-9>
- Brambilla, M., Michelangeli, A., & Peluso, E. (2013). Equity in the City: On Measuring Urban (In)equality of Life. *Urban Studies*, 50(16), 3205–3224. <https://doi.org/10.1177/0042098013484539>
- Brock, W. a, & Taylor, M. S. (2005). Review: Economic Growth and the Environment: *Handbook of Economic Growth*, Volume 1, Part B, (October), 1749–1821.
- Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European Journal of Political Economy*, 23(2), 397–415. <https://doi.org/10.1016/j.ejpoleco.2006.02.003>

- Coe, D. T., Helpman, E., & Hoffmaister, A. W. (2009). International R&D spillovers and institutions. *European Economic Review*, 53(7), 723–741. <https://doi.org/10.1016/j.euroecorev.2009.02.005>
- Cole, M. A., & Elliott, R. J. R. (2005). FDI and the capital intensity of "dirty" sectors: A missing piece of the pollution haven puzzle. *Review of Development Economics*, 9(4), 530–548. <https://doi.org/10.1111/j.1467-9361.2005.00292.x>
- Cole, M. A., Elliott, R. J. R., & Zhang, L. (2017). Foreign Direct Investment and the Environment. *Annual Review of Environment and Resources*, 42(1), 465–487. <https://doi.org/10.1146/annurev-environ-102016-060916>
- Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., ... Snapp, R. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological Economics*, 61(2–3), 267–276. <https://doi.org/10.1016/j.ecolecon.2006.02.023>
- Crescenzi, R., Di Cataldo, M., & Faggian, A. (2018). Internationalised at work and localistic at home: The 'split' Europeanization behind Brexit.' *Papers in Regional Science*, 97(1), 117–132. <https://doi.org/10.1111/pirs.12350>
- Crescenzi, R., Gagliardi, L., & Iammarino, S. (2015). Foreign multinationals and domestic innovation: Intra-industry effects and firm heterogeneity. *Research Policy*, 44(3), 596–609. <https://doi.org/10.1016/j.respol.2014.12.009>
- Crespo, N., & Fontoura, M. P. (2007). Determinant Factors of FDI Spillovers - What Do We Really Know? *World Development*, 35(3), 410–425. <https://doi.org/10.1016/j.worlddev.2006.04.001>
- Crespo, N., Fontoura, M. P., & Proença, I. (2009). FDI spillovers at regional level: Evidence from Portugal. *Papers in Regional Science*, 88(3), 591–607. <https://doi.org/10.1111/j.1435-5957.2009.00225.x>
- de Mello Jr, L. R. (1999). Foreign Direct Investment-Led Growth: Evidence from Time Series and Panel Data. *Oxford Economic Papers*, 51(1), 133–151. Retrieved from <http://ideas.repec.org/a/oup/oxecpp/v51y1999i1p133-51.html>
- Di Tella, R., MacCulloch, R. J., & Oswald, A. J. (2003). The macroeconomics of happiness. *Review of Economics and Statistics*, 85(4), 809–827. <https://doi.org/10.1162/003465303772815745>
- Diener, E., & Biswas-Diener, R. (2002). WILL MONEY INCREASE SUBJECTIVE WELL-BEING? *Communications in Statistics - Theory and Methods*, (57), 509–516. <https://doi.org/10.1080/03610927808827645>
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, Culture, and Subjective Well-Being: Emotional and Cognitive Evaluations of Life. *Annual Review of Psychology*, 54(1), 403–425. <https://doi.org/10.1146/annurev.psych.54.101601.145056>
- Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 29(1), 94–122. <https://doi.org/10.1016/j.joep.2007.09.001>
- Dreher, A. (2006). The influence of globalisation on taxes and social policy: An empirical analysis for OECD countries. *European Journal of Political Economy*, 22(1), 179–201. <https://doi.org/10.1016/j.ejpoleco.2005.04.006>

- Easterlin, R. A. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence. *International Journal of Managing Projects in Business*, Vol. 7, pp. 449–472. <https://doi.org/10.1108/IJMPB-01-2013-0003>
- Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior and Organization*, 27(1), 35–47.
- Ezcurra, R., & Rodríguez-Pose, A. (2013). Does Economic Globalization affect Regional Inequality? A Cross-country Analysis. *World Development*, 52, 92–103. <https://doi.org/10.1016/j.worlddev.2013.07.002>
- Ferrer-i-Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics*, 89(5–6), 997–1019. <https://doi.org/10.1016/j.jpubeco.2004.06.003>
- Ferrer-i-Carbonell, A., & van Praag, B. M. S. (2002). The subjective costs of health losses due to chronic diseases. An alternative model for monetary appraisal. *Health Economics*, 11(8), 709–722. <https://doi.org/10.1002/hec.696>
- Gagliardi, L., Iammarino, S., & Rodríguez-Pose, A. (n.d.). Exposure to OFDI and regional labour markets: evidence for routine and non-routine jobs in Great Britain. <https://doi.org/10.1093/jeg/lbaa040>
- Graziano, P., Rizzi, P., Piva, M., & Barbieri, L. (2019). A Regional Analysis of Well-Being and Resilience Capacity in Europe. *Scienze Regionali*, 18(Special Issue), 551–574. <https://doi.org/10.14650/94667>
- Harrison, A. E., & Aitken, B. J. (1999). Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela. *American Economic Review*, 89(3), 605–618.
- Helliwell, J. F. (2003). How's life? Combining individual and national variables to explain subjective well-being. *Economic Modelling* 20, 20, 331–360. <https://doi.org/10.1177/001979391006300202>
- Helliwell, J. F., & Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 359(1449), 1435–1446. <https://doi.org/10.1098/rstb.2004.1522>
- Hessami, Z. (2011). Globalisation's winners and losers-Evidence from life satisfaction data, 1975-2001. *Economics Letters*, 112(3), 250–253. <https://doi.org/10.1016/j.econlet.2011.05.016>
- Iammarino S., McCann P. (2013). *Multinationals and Economic Geography: Location, Technology and Innovation*. Edward Elgar.
- Iammarino, S. (2018). FDI and regional development policy. *Journal of International Business Policy*, 1(3–4), 157–183. <https://doi.org/10.1057/s42214-018-0012-1>
- Iammarino, S., Rodríguez-Pose, A., & Storper, M. (2017). Why Regional Development matters for Europe's Economic Future. *Regional and Urban Policy Working Papers* (European Commission), (7). Retrieved from https://ec.europa.eu/regional_policy/sources/docgener/work/201707_regional_development_matters.pdf
- Iammarino, S., Rodríguez-Pose, A., & Storper, M. (2019). Regional inequality in Europe: Evidence, theory and policy implications. *Journal of Economic Geography*, 19(2), 273–298. <https://doi.org/10.1093/jeg/lby021>
- Iamsiraroj, S., & Ulubaşoğlu, M. A. (2015). Foreign direct investment and economic growth: A real relationship or wishful thinking? *Economic Modelling*, 51, 200–213. <https://doi.org/10.1016/j.econmod.2015.08.009>

- Javorcik, B. S. (2004). Does foreign direct investment increase the productivity of domestic firms? in search of spillovers through backward linkages. *American Economic Review*, 94(3), 605–627. <https://doi.org/10.1257/0002828041464605>
- Koepfen, L., Ballas, D., Edzes, A., Koster, S. Places that don't matter or people that don't matter? A multilevel modelling approach to the analysis of the geographies of discontent. *Reg Sci Policy Pract.* 2021; 13: 221– 245. <https://doi.org/10.1111/rsp3.12384>
- Lambiri, D., Biagi, B., & Royuela, V. (2007). Quality of life in the economic and urban economic literature. *Social Indicators Research*, 84(1), 1–25. <https://doi.org/10.1007/s11205-006-9071-5>
- Lee, E., & Vivarelli, M. (2006). The social impact of globalisation in the developing countries. 145(3).
- Lenzi, C., & Perucca, G. (2016). Life Satisfaction across Cities: Evidence from Romania. *Journal of Development Studies*, 52(7), 1062–1077. <https://doi.org/10.1080/00220388.2015.1113265>
- Lenzi, C., & Perucca, G. (2018). Are urbanised areas source of life satisfaction? Evidence from EU regions. *Papers in Regional Science*, 97(March 2018), S105–S122. <https://doi.org/10.1111/pirs.12232>
- Lessmann, C. (2013). Foreign direct investment and regional inequality: A panel data analysis. *China Economic Review*, 24(1), 129–149. <https://doi.org/10.1016/j.chieco.2012.12.001>
- Litchfield, J., Reilly, B., & Veneziani, M. (2012). An analysis of life satisfaction in Albania: An heteroscedastic ordered probit model approach. *Journal of Economic Behavior and Organization*, 81(3), 731–741. <https://doi.org/10.1016/j.jebo.2010.12.020>
- Long, C., Yang, J., & Zhang, J. (2015). Institutional impact of foreign direct investment in China. *World Development*, 66(71273217), 31–48. <https://doi.org/10.1016/j.worlddev.2014.08.001>
- Los, B., McCann, P., Springford, J., & Thissen, M. (2017). The mismatch between local voting and the local economic consequences of Brexit. *Regional Studies*, 51(5), 786–799. <https://doi.org/10.1080/00343404.2017.1287350>
- Louis, V. V., & Zhao, S. (2002). Effects of family structure, family SES, and adulthood experiences on life satisfaction. *Journal of Family Issues*, 23(8), 986–1005. <https://doi.org/10.1177/019251302237300>
- McCann, P. (2016). *The UK Regional–National Economic Problem: Geography, globalisation.* Routledge. <https://www.routledge.com/The-UK-RegionalNational-Economic-Problem-Geography-globalisation-and/McCann/p/book/9781138895089>
- McCann, P. (2019). Perceptions of regional inequality and the geography of discontent: insights from the UK. *Regional Studies*, 0(0), 1–12. <https://doi.org/10.1080/00343404.2019.1619928>
- McCrea, R., Shyy, T. K., & Stimson, R. (2006). What is the strength of the link between objective and subjective indicators of urban quality of life? *Applied Research in Quality of Life*, 1(1), 79–96. <https://doi.org/10.1007/s11482-006-9002-2>

- Moulton, B. R. (1990). An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units. *The Review of Economics and Statistics*, 72(2), 334. <https://doi.org/10.2307/2109724>
- Nair-Reichert, U., & Weinhold, D. (2001). Causality tests for cross-country panels: A new look at FDI and economic growth in developing countries. *Oxford Bulletin of Economics and Statistics*, 63(2), 153–171. <https://doi.org/10.1111/1468-0084.00214>
- Nicolini, M., & Resmini, L. (2010). FDI spillovers in new EU member states. *Economics of Transition*, 18(3), 487–511. <https://doi.org/10.1111/j.1468-0351.2009.00379.x>
- Ortega-argilés, R., & McCann, P. (2021). The innovation productivity paradox. Background Paper for the OECD-EC High-Level Expert Workshop Series "Productivity Policy for Places", March 3 and 5.
- Pepper, J. V. (2002). Robust inferences from random clustered samples: An application using data from the panel study of income dynamics. *Economics Letters*, 75(3), 341–345. [https://doi.org/10.1016/S0165-1765\(02\)00010-1](https://doi.org/10.1016/S0165-1765(02)00010-1)
- Potrafke, N. (2015). The evidence on globalisation. *World Economy*, 38(3), 509–552. <https://doi.org/10.1111/twec.12174>
- Rafael, B., Tella, D., Macculloch, R. J., & Oswald, A. J. (2001). Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness Author (s): Rafael Di Tella , Robert J . MacCulloch and Andrew J . Oswald Source : The American Economic Review , Vol . 91 , No . 1 (Mar . , 2. The American Economic Review, 91(1), 335–341.
- Rezza, A. A. (2015). A meta-analysis of FDI and environmental regulations. *Environment and Development Economics*, 20(2), 185–208. <https://doi.org/10.1017/S1355770X14000114>
- Rodríguez-Pose, A. (2018). The revenge of the places that don't matter (and what to do about it). *Cambridge Journal of Regions, Economy and Society*, 11(1), 189–209. <https://doi.org/10.1093/cjres/rsx024>
- Rodríguez-Pose, A., Lee, N., & Lipp, C. (2021). Golfing with Trump. Social capital, decline, inequality, and the rise of populism in the US. *Cambridge Journal of Regions, Economy and Society*, 14(3), 457-481.
- Rodrik, D. (2018). Populism and the economics of globalisation. *Journal of International Business Policy*, 1(1–2), 12–33. <https://doi.org/10.1057/s42214-018-0001-4>
- Romer, P. M. (1990). Endogenous Technological Change. 98(5).
- Rözer, J., & Kraaykamp, G. (2013). Income Inequality and Subjective Well-being: A Cross-National Study on the Conditional Effects of Individual and National Characteristics. *Social Indicators Research*, 113(3), 1009–1023. <https://doi.org/10.1007/s11205-012-0124-7>
- Sirgy, M. J., Lee, D. J., Miller, C., & Littlefield, J. E. (2004). The impact of globalisation on a country's quality of life: Toward an integrated model. *Social Indicators Research*, 68(3), 251–298. <https://doi.org/10.1023/B:SOCI.0000033577.34180.4b>
- Sørensen, J. F. L. (2013). Rural–Urban Differences in Life Satisfaction: Evidence from the European Union. *Regional Studies*, 48(9), 1451–1466. <https://doi.org/10.1080/00343404.2012.753142>

- Stutzer, A. (2004). The role of income aspirations in individual happiness. *Journal of Economic Behavior and Organization*, 54(1), 89–109. <https://doi.org/10.1016/j.jebo.2003.04.003>
- Tsai, M. C. (2007). Does globalisation affect human well-being? *Social Indicators Research*, 81(1), 103–126. <https://doi.org/10.1007/s11205-006-0017-8>
- Villaverde, J., & Maza, A. (2015). The determinants of inward foreign direct investment: Evidence from the European regions. *International Business Review*, 24(2), 209–223. <https://doi.org/10.1016/j.ibusrev.2014.07.008>
- Wilkinson, R. D., & Pickett, K. (2009). *The spirit level: Why more equal societies almost always do better*. Allen Lane/Penguin Group UK; Bloomsbury Publishing.
- Wooldridge, B. J. M. (2003). Cluster-Sample Methods in Applied Econometrics
 Author (s): Jeffrey M . Wooldridge Source : *The American Economic Review*
 , May , 2003 , Vol . 93 , No . 2 , Papers and Proceedings of the One Hundred
 Fifteenth Annual Meeting of the American Economic Publis. 93(2), 133–138.
- Zhang, X., & Zhang, K. H. (2010). How does globalisation affect regional inequality within a developing country?: Evidence from China. *Regional Inequality in China: Trends, Explanations and Policy Responses*, 0388, 121–139. <https://doi.org/10.4324/9780203881484>

Appendix

Appendix – Table 1 - Regional SWB regression for the Number of MNCs and EQI

	FE	RE	GMM
	SWB	SWB	lag (1 3) SWB
<u>Log Values</u>			
Number of MNCs	0.013 (0.0642)	-0.147*** (0.0329)	-0.173*** (0.0351)
GDP	14.164 (8.7012)	13.368*** (3.8658)	11.476** (4.4021)
GDP Square	-0.669 (0.4098)	-0.602*** (0.1893)	-0.510** (0.2147)
Unemployment Rate	-0.026 (0.0159)	-0.018** (0.0082)	-0.016* (0.0094)
Average Age	-0.627 (0.5265)	-0.892* (0.4634)	-1.779*** (0.5666)
Tertiary education	0.002 (0.0152)	0.005 (0.0065)	0.007 (0.0072)
Marital Status	0.554** (0.2791)	0.554* (0.2860)	0.611 (0.3864)
Cultural Openness	0.165 (0.3622)	0.080 (0.2662)	0.089 (0.3133)
Health	-0.953** (0.3798)	-0.539 (0.3455)	0.221 (0.4358)
Gini GDP	3.650 (2.4896)	-1.862 (1.2481)	-2.077* (1.1149)
Lagging region	.	0.102 (0.1822)	0.204 (0.1794)
EQI	-0.123 (0.1047)	0.093 (0.0638)	0.112 (0.0726)
Time dummies	Yes	Yes	Yes
constant	-65.776 (46.8688)	-62.211*** (19.9902)	-49.252** (22.8309)
Observation*Time	411	411	411
Observation	154	154	154
Observation Clust	154	154	
ar2			6.04
ar2p			0.000
Sargan			24.26
Sarganp			0.0187
Sargandf			12
Hansen			18.83
Hansenp			0.0928
Hansendf			12
Hansen			27.00
Number of instruments			27
R2	0.264		

* p<.1, ** p<.05, *** p<.01

Chapter 2 – Multinational Companies and Urban Life Satisfaction: disentangling the Heterogeneity of the Effect, and Role of MNCs' economic embeddedness.

Abstract

This paper investigates the relationship between the presence of Multinational companies (MNCs) and urban life satisfaction. The evidence from the literature suggests that the presence of MNCs might have both positive and negative impacts. The local economy might benefit from MNCs' technology and knowledge spillovers, thus enhancing local life satisfaction. However, specific types of activities of the MNCs might also contribute to increase pollution and environmental degradation that can lower local satisfaction. Therefore, through multiple channels (or domains), the MNCs' presence could impact people's life satisfaction. The limited research investigating this topic finds positive but weak effects. No attention has been devoted to urban and regional impacts. However, the literature also highlights that MNCs' embeddedness positively impacts the local economy. In turn, the degree of embeddedness might enhance local life satisfaction. This paper aims to understand the overall impacts of MNCs on urban life satisfaction, investigating the following research questions: 1) *Do more embedded MNCs have a positive relationship with LS than MNCs that are less embedded in the local economic system?* 2) *Does the sectoral heterogeneity matter in the relationship between MNCs' embeddedness and urban life satisfaction?* 3) *Does the cultural context matter in the relationship between MNCs' embeddedness and urban life satisfaction?* The empirical analysis employs a panel dataset of 101 European cities for 2012, 2015, and 2019. Data on urban life satisfaction comes from Eurostat's Perception Survey, data on MNCs are from Orbis Bureau van Dijk, and data on cultural context are from the Eurobarometer. The novel indicator of embeddedness proposed in the analysis is built using the World Input-Output Dataset. The empirical analysis uses panel fixed and random effects models. Results suggest that urban life satisfaction might be associated positively with MNC's embeddedness. However, this might also depend on MNCs' sectoral and activities heterogeneity and cultural context. Areas with a closed cultural context seem to benefit less from the presence of embedded MNCs.

Keywords: urban life satisfaction; globalization; multinational companies; embeddedness; input-output tables

JEL Classification: R10, I31, F60, F23, D57, Z13

1. Introduction

This paper offers an analysis of the role played by Multinational companies (MNCs) in fostering urban life satisfaction by considering their level of embeddedness in the local economy. Indeed, MNCs' contingent level of integration into the local economic structure can provide the boundary condition that shapes the association between MNCs and local well-being. Particularly, establishing relationships and partnerships with local actors, integrating and sharing common goals, and collaborations (Mattes, 2013; Iammarino & McCann, 2013; Casi & Resmini, 2017) would enhance local economic development and, in turn, improve the standard of living of local communities and local life satisfaction. However, it is also true that the sectoral composition and activity heterogeneity might be relevant to the relationship. For example, MNCs from the services sector or high value-added and skilled-oriented activities are expected to contribute more to urban life satisfaction. In contrast, MNCs from the manufacturing sector or labour-intensive and unskilled-oriented activities are expected to contribute less to urban life satisfaction. Specifically, manufacturing, low technology, and low knowledge-intensive activities could contribute less to local development (Costanza et al., 2007; Dollan et al., 2008; Wagner & Timmins, 2009; Cainelli et al., 2012; Martin et al., 2014). Therefore, the link between MNCs' embeddedness and local life satisfaction could also depend on sectoral heterogeneity. A further relevant aspect to consider is the cultural context of local communities related to the presence of MNCs. Particularly, due to divergences between MNCs' goals (maximize profits or revenues) and local communities' values (territorial culture, identity, environment), a closed cultural context can undermine the relationship between local communities and MNCs (Calvano, 2008; Casi & Resmini, 2017).

Therefore, this paper combines these separate lines of work to investigate the relationship between MNCs and life satisfaction by answering research questions: 1) *Do more embedded MNCs have a positive relationship with LS than MNCs that are less embedded in the local economic system?* 2) *Does the sectoral and activities heterogeneity matter between MNCs' embeddedness and urban life satisfaction?* 3) *Does the cultural context matter in the relationship between MNCs' embeddedness and urban life satisfaction?*

In fact, in this debate, what remains scarcely considered is a more comprehensive view of the role of MNCs in terms of their embeddedness in the local economic system in which they operate. The literature on MNCs shows that they might have several implications for people's lives. From the economic standpoint, the literature shows that, through technology and knowledge, MNCs enhance economic growth and local development, from which domestic firms benefit (e.g., Gorg & Greenaway, 2004; Nicolini & Resmini, 2010; Iammarino & McCann, 2013)¹⁴. Also, recent contributions find that local institutions benefit from the presence of MNCs (e.g., Coe et al., 2009; Demir, 2016). However, another strand of academic research also finds evidence of negative effects associated with the presence of MNCs. For instance, several contributions suggest the existence of negative spillovers from MNCs to domestic firms (Aitken & Harrison, 1999; Hu & Jefferson, 2002; Javorcik, 2004; Girma, 2005; Crescenzi et al., 2015), especially in terms of productivity across sectors (inter-sectoral). In addition, the literature also highlights that a relationship between MNCs' presence and inequalities exists (wages and interregional) (e.g., Lee & Vivarelli, 2006; Dollar & Kraay, 2004; Ezcurra & Rodríguez-Pose, 2013). From the environmental perspective, the presence of MNCs should contribute to decreasing pollution due to technological and knowledge transfer (e.g., Cole et al., 2017). However, there is also evidence of negative implications on the environment related to the presence of MNCs (Cole, 2005; Waldkirch & Gopinath, 2008; Wagner & Timmins, 2009; Cainelli et al., 2012; Martin et al., 2014; Zugravu-Soilita, 2017). Given the multifaceted implications of MNCs, there are several reasons to think that their presence and activities have some linkages with the general well-being of local communities. Indeed, MNCs might impact people's well-being through different channels, such as economic, social, environmental, and institutional. In this sense, some contributions have investigated the link between the presence of MNCs (or degree of globalization) and dimensions of well-being (or quality of life) and have found a positive but weak correlation between the two (Tsai, 2007; Bjørnskov et al., 2008; Strotmann et al., 2019). Besides the body of literature related to MNCs' implications and well-being literature, this paper can also give some contributions to

¹⁴ See also Chapter 1 on regional well-being and globalization.

the literature that focuses on the reasons behind waves of political conflicts, anti-establishment, and territorial discontent of local communities that characterized the recent years. MNCs are considered part of the (no-well defined) *establishment* responsible for "destroying" local socio-economic assets by following their interests (see Calvano, 2008; McCann, 2019; Rodriguez-Pose, 2018; Rodrik, 2018). Therefore, MNCs' embeddedness in the local economic structure might play a role in the local economic development and contribute to improving local well-being and quality of life, yet, at the same time, the existing link could also depend on the degree of openness of local communities' respect to external and global phenomena. Furthermore, the focus on the urban dimension provides a more analytical perspective related to the growing importance of these areas, as most of the world's population lives in urban areas (55% according to the United Nations), and likely increase considerably in the next future (estimated around 68% by 2050)¹⁵. Therefore, the standard of living in these areas will be much more critical in the following decades (Ballas, 2013; Ballas & Thanis, 2022).

The empirical analysis employs a panel dataset of over 100 cities in 2012, 2015, and 2019 from 27 European countries. Data are from different sources such as the Perception survey of Eurostat, Orbis – Bureau van Dijk for MNCs' data, Eurobarometer for a measure of cultural context, OECD, and Eurostat for the control variables. In addition, the newly proposed indicator of economic embeddedness includes data from the World Input-Output Dataset. Results suggest that urban life satisfaction is associated positively with MNCs' embeddedness. In addition, no evidence confirms the hypothesis that life satisfaction is associated negatively with the manufacturing sector compared to the service sector. While after controlling for cultural context, MNCs from high-tech manufacturing and high-knowledge services seem negatively associated with urban life satisfaction. Furthermore, given the level of embeddedness, there is some evidence that life satisfaction is negatively associated with a closed cultural context. However, MNCs' embeddedness seems to mitigate the negative impact of MNCs' sectors (and activities) and closed cultural context. The

¹⁵ United Nations Department of Economic and Social Affairs (2019). World Urbanization Prospects: The 2018 Revision. World Urbanization Prospects: The 2018 Revision. <https://doi.org/10.18356/B9E995FE-EN>

paper is organized as follows. Section 2 explains the underlying mechanism between MNCs and urban life satisfaction. Section 3 introduces the literature on life satisfaction, MNCs, and MNCs' embeddedness. Section 4 proposes the conceptual framework and the hypotheses. Section 5 provides data sources, descriptive analysis, and methodology. Section 6 introduces the empirical model and results. Finally, section 7 discusses the main conclusion and further steps of the work.

2. Literature review and state of the art

2.1. Subjective well-being and Life Satisfaction

Well-being is a widely studied topic in several fields of social sciences and medicine (such as sociology, economics, psychology, and related to the focus of this paper, regional and urban studies). The recent growing interest from academia and institutions (national and international) has pushed scholars to investigate well-being in both objective and subjective terms. The seminal literature defines subjective well-being as a multidimensional factor affected by objective and subjective variables. However, the same literature also finds subjective well-being as the composition of life satisfaction and happiness (or pleasant and unpleasant status) (Diener et al., 2003; Helliwell & Putman, 2004; Peiró, 2006; Sørensen, 2014). One of the main distinctions with happiness is that life satisfaction refers to an overall sense of satisfaction, while happiness is more affected by mood, emotional or affective components. Indeed, life satisfaction is a cognitive component that relates more to the long-term circumstances of the individual (Diener et al., 2003; Helliwell & Putnam, 2004; Peiró, 2006; Sørensen, 2014)¹⁶.

In this work, the focus is only on life satisfaction because of considered a more stable indicator compared to happiness. The existing literature classifies the determinants of life satisfaction following a system of domains: this paper identifies these domains as economic, demographic, social, and health. In addition, exogenous factors such as amenities (natural and artificial) and disamenities could also determine people's life satisfaction (for some literature review, see Costanza et al., 2007 and

¹⁶ The individual self-assessment related to life satisfaction and happiness come from surveys such as the World Value Survey or the Perception Survey of Eurostat, in the case of this paper.

Dolan et al., 2008). Income and GDP per capita represent economic development measures and are considered positive predictors of life satisfaction, but the effect decreases when we observe higher income or GDP levels (Easterlin, 1974, 1995; Diener & Biswas-Diener, 2002; Ferrer-i-Carbonell, 2005). The theoretical explanation behind the relationship is that at the early stages of economic development, there is a fast increase in individual wealth and an improvement in well-being. However, reaching high levels of economic development, an increase in income (or GDP) is less effective on well-being. Moreover, the literature also defines unemployment and inflation as negative predictors of life satisfaction (Di Tella et al., 2001; Helliwell, 2003; Alesina et al., 2004; Lenzi & Perruca, 2018). As a matter of fact, both unemployment and inflation are associated with economic instability and, thus, a decrease in the general well-being of the collective.

Socio-demographic characteristics such as gender, age, and education are considered important predictors of life satisfaction. Gender can, indeed, control for the persisting gaps between males and females. However, according to the literature, women seem to be more satisfied (and happier) than men, and in some cases, there is no significant difference between the two (Dolan et al., 2008; Alesina et al., 2004; Lenzi & Perucca, 2018; Biagi et al., 2018). On the other hand, age seems to have a positive but not linear relationship with life satisfaction (Alesina et al., 2004; Dolan et al., 2008; Rözer & Kraaykamp, 2013; Lenzi & Perucca, 2018; Sørensen, 2014; Biagi et al., 2018). In this case, people of working age (35-55) often report a lower level of life satisfaction, despite their economic condition that is likely improved compared to the younger (14-34) and retired people (65+). A high level of education seems to be a positive predictor of life satisfaction (Alesina et al., 2004; Stutzer, 2004; Ferrer-i-Carbonell, 2005). Indeed, education might be related to unobservable factors, such as motivation, intelligence, and family background, that can affect life satisfaction (Dolan et al., 2008; Louis & Zhao, 2002).

Regarding the social domains, the literature includes dimensions of social capital such as social interactions, cultural openness, general trust, individual freedom, and resilience capacity are considered positive predictors of life satisfaction (Helliwell & Putnam, 2004; Costanza et al., 2007; Dolan et al., 2008; Biagi et al.,

2018; Graziano et al., 2019). However, inequality and level of ethnicity are considered negative predictors of life satisfaction (Alesina et al., 2004; Brambilla et al., 2013; Rözer & Kraaykamp, 2013). Generally, individuals that perceive them-self belonging to a certain sub-group of society results to be more satisfied than introverts and isolated individuals.

From the family and relationship perspective, married or engaged people experience higher life satisfaction than single, widowed, divorced, or separated people (Helliwell, 2003; Dolan et al., 2008; Sørensen, 2014; Biagi et al., 2018). The family condition and the personal relationship can determine individual well-being due to self-realization and achievement of a particular social status. However, family size can lower individual well-being and, thus, life satisfaction (Sørensen, 2014; Biagi et al., 2018).

Regarding the health domain, physical and mental illness (Dolan et al., 2008; Stutzer, 2004; Sørensen, 2014), infant mortality rates are a negative predictor of life satisfaction (Lenzi & Perucca, 2018). In particular, mental illness results are more associated with individual well-being and life satisfaction (Dolan et al., 2008). On the other hand, life expectancy at birth is considered a positive predictor of life satisfaction (Alesina et al., 2004; Costanza et al., 2007).

The presence of natural amenities, man-made amenities, and disamenities also matters in life satisfaction. For example, the literature demonstrates that people close to green areas (or natural areas) and historical monuments report higher life satisfaction. However, it also depends on proximity and accessibility (Brambilla et al., 2013; Biagi et al., 2018; Ala-Mantila et al., 2018). On the contrary, disamenities such as criminality (Litchfield et al., 2012; Lenzi & Perucca, 2018; Biagi et al., 2018), overcrowding (McCrea et al., 2006), the bad status of public areas (Biagi et al., 2018), and CO₂ emissions (Graziano et al., 2019) are considered negative predictors of life satisfaction.

2.2. MNCs and their implications

The literature that investigates the impacts of Multinational companies (MNCs) is vast and includes contributions from several research fields of social

sciences (for literature review, see Gorg & Greenaway, 2004; Almfraji & Almsafirc, 2014; Rojec & Knell, 2018). Studies focusing on the economic impacts of MNCs find that these actors can enhance economic growth and development through the dissemination of new technology and knowledge (Romer, 1990; Grossman & Helpman, 1991; Balasubramanyam et al., 1996; Borensztein et al., 1998; de Mello, 1999; Alfaro et al.; 2004; Iammarino & McCann, 2013). Moreover, the seminal literature at the micro-level finds evidence of a spillover effect occurring between MNCs and local firms (Caves, 1974; Koko et al., 1996; Aitken & Harrison, 1999; Blomström et al., 2000; Girma et al., 2001; Hu & Jefferson, 2002; Girma 2005; Crescenzi et al., 2015; Javorcik, 2004; Crespo et al. 2009; Merlevede & Purice, 2016; Newman et al. 2015). Furthermore, although the literature highlights that the quality of institutions is linked to the presence of MNCs (e.g., Ascani et al., 2016), recent contributions highlight that MNCs might improve the quality of local institutions (Blonigen, 2005; Busse & Hefeker, 2007; Coe et al., 2009; Dang, 2013; Long et al., 2015; Demir, 2016). However, the same literature also highlights that spillover effects might also be “adverse”, generating negative spillover effects between MNCs and domestic firms (Javorcik, 2004; Muller et al., 2007; Crescenzi et al., 2015). Additionally, MNCs also lead to other dimensions and domains beyond the economic one. For instance, the evidence on social implications suggests that MNCs might exacerbate wage inequality between multinational workers and local workers (Dollar & Kraay, 2004; Dreher & Gaston, 2008; Ucal, 2014). Similarly, other contributions demonstrate that interregional inequality is associated with MNCs' presence (Zhang & Zhang, 2010; Lessmann, 2013; Ezcurra & Rodríguez-Pose, 2013; Asteriou et al., 2014). From the environmental point of view, there is mixed evidence on the implications of MNCs (Brock & Taylor, 2005; Rezza, 2015; Cole et al., 2017). MNCs might contribute to increasing local pollution due to their activities (Waldkirch & Gopinath, 2008; Wagner & Timmins, 2009). However, some contributions also find cases in which MNCs could decrease pollution due to green technologies and sustainable production systems depending on the country's environmental regulations (Dardati and Saygili, 2012; Zugravu-Soilita, 2017). An important aspect that our study does not address pertains to the role of local contextual factors that provide the

absorptive capacity of the local economy. Indeed, aspects such as local social capital, the development of financial markets, and the general level of development are considered facilitators of the capacity to absorb new technology and knowledge brought by MNCs (e.g., Cohen & Levinthal, 1990; Alfaro et al., 2004; Girma, 2005; Iammarino & McCann, 2013; Casi & Resmini, 2017).

2.3. MNCs' embeddedness

Recent contributions focus on the embeddedness of MNCs and how they establish economic and non-economic relationships with local actors and institutions (Frenken et al., 2010; Heidenreich, 2012; Mattes, 2013). Although the topic is gaining importance in qualitative research (especially in the business and management field), the debate is still poorly investigated in quantitative research.

MNCs' embeddedness might contribute differently to local life satisfaction: local communities might benefit from MNCs more integrated into the local context than independent ones and completely disconnected from the local environment. Mark Granovetter (1973; 1985) defines embeddedness as the ability of an actor to be integrated with the local context and set interdependencies with other actors in the system. Similarly, the definition of MNCs' embeddedness is based on the same idea proposed by Granovetter. MNCs establish relationships and partnerships with local actors, integrating and sharing common goals and collaboration. Moreover, through the presence of subsidiaries, MNCs might establish interdependence within and between multiple host locations, managing multiple embeddedness in heterogeneous contexts (Andersson et al., 2007; Meyer et al., 2011). However, considering the local context at the regional level, Mattes (2013) divides the embeddedness of MNCs into two different levels¹⁷. One level concerns the institutional system of embeddedness, in which MNCs lead to the local innovation process and relate to local economic affiliations. In particular, the institutional system of embeddedness considers the

¹⁷ The empirical contributions to MNCs' embeddedness are mainly from qualitative research. Therefore, the literature focuses on case studies and surveys: Turok (1993) on the embeddedness of inward investment in Silicon Glen, Scotland; Phelps et al. (2003) on institutional development and manufacturing affiliates in Wales and North-East England; Schiller & Revilla Diez (2010) on Local embeddedness of knowledge spillovers agents in Germany.

MNCs fitting into the regional innovation system (RIS) through educational and scientific sub-system, industrial sub-system, political sub-system, and intermediates sub-system¹⁸ (McCann, 2007; De Martino et al., 2007; Iammarino & McCann, 2013; Marano & Kostova, 2016). The second level of embeddedness identified by Mattes (2013) sees MNCs involved directly in specific projects (project-specific level) with local actors such as local institutions, universities, and commercial partners. This level is not under investigation in this paper mainly because it requires micro information available only through qualitative research and a quasi-field work approach (see the case study of Mattes (2013)). The project-specific level of embeddedness might also coexist in the institutional system (for the project-specific embeddedness of AutoCom in Germany, see Mattes (2013)).

To summarize the definitions of embeddedness of MNCs provided by the literature might be divided as follows: *economic embeddedness* (Turok, 1993; de Martino et al., 2006), which includes interactions such as cooperation and competition with local firms, but also the proximity of MNCs activities to the local economic structure; *scientific embeddedness* (Oerlemans et al., 2001; Schiller & R. Diez, 2010), that includes the relationship with scientific institutes and universities; *institutional and political embeddedness*, that includes the relationship with local institutions such as municipalities, but also the interactions with trade and labour associations (Phelps et al., 2003; Mattes, 2013). However, quantitative research on MNCs' embeddedness remains extremely sporadic¹⁹. In this paper, the focus will be on an economic

¹⁸ The education and scientific sub-system includes the relationship and partnership between the MNCs and the local education entities such as universities and scientific institutes. The industrial sub-system includes the cooperation and competition between domestic firms and MNCs; thus, this sub-system includes the relationships occurring between MNCs and buyers/suppliers. The political sub-system links the MNCs with the local institutions such as municipalities and regions; this sub-system includes public and private initiatives of MNCs in the sector that shape the political sub-system. Lastly, the intermediary sub-system includes the relationship between MNCs and trade and labour associations. In addition, the framework includes the set of infrastructural factors and the synergies of local industrial and entrepreneurial environments.

¹⁹ Some quantitative contributions unrelated to the MNCs' research field investigate the embeddedness measurements, such as the economic (Kitsos et al., 2019) and the scientific (Breschi & Lissoni, 2007). For example, in the recent contribution of Kitsos et al. (2019), they examine the role of local industrial embeddedness on economic resilience after the 2008 financial crisis in the UK, employing information from the input-output tables WIOD (World input-output database). Based on the methodology proposed by Kitsos et al. (2019), the current paper provides a novel approach to assessing MNCs' economic embeddedness in quantitative research.

definition of embeddedness (for further information, see the section *Data, descriptive statistics, and methodology*)

2.4. MNCs/globalization and life satisfaction

Recent contributions investigate the link between the presence of MNCs (more widely, the degree of globalization) and local quality of life and SWB (for a theoretical review, see Sirgy et al., 2004). The existing literature can be divided into two main streams: one focuses on cross-country contributions (economic and well-being fields), and the second is related to case study contributions (business and management fields).

Regarding the first research stream, there is some evidence that globalization and the presence of MNCs positively impact the quality of life and well-being dimensions. Tsai (2007), Bjørnskov et al. (2008), and Hessami (2011) find that degree of globalization, using the KOF index by Dreher (2006), has some positive (but weak) implications on quality of life and well-being dimensions. Spruk & Kešeljević (2016) and Graaftland & Lous (2018) investigate the role of economic freedom on life satisfaction. Both contributions include the inflow of foreign investment (or FDI) to compose an index of economic freedom. The results of Spruk & Kešeljević (2016) suggest a positive link between economic freedom and life satisfaction (see also Azman-Saini et al. 2010). However, in Graaftland & Lous (2018), there is no evidence between the degree of economic freedom and life satisfaction.

Regarding the second stream, the focus is mainly on how the quality of work-life and job satisfaction of multinational workers impact their quality of life and life satisfaction. Anand & Arora (2009) and Bretones & Gonzales (2011) find a correlation between working conditions in terms of quality of work and job satisfaction (also including indicators of work burnout) and quality of life and life satisfaction of multinational workers. In recent contributions, Narehan et al. (2014) found a significant relationship between quality of work-life and quality of life, while Strotmann et al. (2019) found evidence of well-being improvement for 2300 villagers involved in the Bayer Crop Science Model Village Project in India. However, Wang

& VanderWeele (2011) contribution found no significant improvement in SWB related to working in MNCs for Chinese urban residents.

There emerge some critical aspects from the analysis of the literature. First, from the empirical point of view, the main issue relates to the measurement of globalization, the definition of life satisfaction, and the unit of analysis adopted. For example, related to the measure of globalization, composite indicators such as the KOF index may suffer from endogeneity problems when reverse causality is present, with potential bias in the final estimation (see Potrafke, 2015). Second, some contributions define life satisfaction as synonymous with happiness, while the literature distinguishes the two concepts (Diener et al., 2003; Helliwell & Putman, 2004; Peiró, 2006). Third, some contributions employ individual and aggregated information in the same model. As a result, the econometric estimation might incur downward biased estimates (Moulton, 1990; Pepper, 2002; Wooldridge, 2003). Finally, the fourth aspect concerns the unit of analysis employed. The cited literature focuses on studying the phenomenon at the country level without considering the marked heterogeneity that persists within national economies.

The case study literature focuses on developing countries. These case-specific analyses give a deeper understanding of the phenomenon but do not allow for scientific research evidence's replication and comparability. The contributions focus on MNCs' environment and people directly involved in MNCs. Therefore, the main research question is slightly different from the one this paper aims to answer. Finally, most contributions employ simple statistical methodologies, such as multivariate correlation or linear regression, which provide weak evidence of the link between the phenomena.

3. Underlying Mechanism and Hypotheses.

Considering the existing evidence related to the phenomena at stake, the underlying mechanism between the presence of MNCs and life satisfaction might be way more articulated than expected from the existing literature. Indeed, MNCs might affect life satisfaction through some common channels such as economic, social,

environmental, and institutional (Dolan et al., 2008; Rojec & Knell, 2018)²⁰. MNCs can enhance economic growth and, in turn, improve well-being and life satisfaction. However, from the social perspective, MNCs can generate economic shocks that could negatively impact domestic firms and, in turn, lower life satisfaction (Lee & Vivarelli, 2006). In addition, the economic activities of MNCs can negatively impact the environment and thus decrease life satisfaction (Wagner & Timmins, 2009; Cainelli et al., 2012; Martin et al., 2014). However, the mechanism that links the presence of MNCs and life satisfaction might be ambiguous, depending on heterogeneous factors related to MNCs' activities, local endowment, and degree of embeddedness in the local economic structure. Furthermore, cognitive and perception aspects, such as conflicts and dissent between MNCs and local communities, could also matter in the linkage between the presence of MNCs and life satisfaction (Calvano, 2008; Casi & Resmini, 2017). Hence, as Figure 1 shows, the final impact of MNCs on the life satisfaction of local communities can be mediated by three aspects or layers: 1) The primary layer is the level of *embeddedness* of MNCs, which includes all the relationships and linkages between the MNCs and local actors; 2) The second layer is the *objective* one, which includes the sectoral heterogeneity and type of activities; 3) The third layer is the *cognitive and perception*, which considers the cultural context and whether conflicts exist between MNCs and local communities. Therefore, the final impact of MNCs on life satisfaction depends on their degree of embeddedness in the territorial context. In addition, it also depends on whether the MNCs operate in high/low technology and high/low knowledge activities in the manufacturing or service sector (named as the *objective layer* in Figure 1); and on whether there are conflicts between MNCs and local communities (labelled as the *cognitive and perception layer* in Figure 1). Consequently, this paper aims to investigate the implication of MNCs on urban life satisfaction by answering the following research questions:

1) *RQ1: Do more embedded MNCs have a positive relationship with LS than MNCs that are less embedded in the local economic system?*

²⁰ See also Chapter 1 of the thesis, for a broader theoretical framework.

2) *RQ2: Does the sectoral and activities heterogeneity (objective layer) matter in the relationship between MNCs' embeddedness and urban life satisfaction?*

3) *RQ3: Does the cultural context (cognitive and perception layer) matter in the relationship between MNCs' embeddedness and urban life satisfaction?*

Regarding the first research question, MNCs can be more proactive and establish direct and indirect linkages with local actors such as domestic firms, local governments, and institutions (including universities and research centres) (Granovetter, 1973; 1985; Mattes, 2013). The additional synergy from the MNCs' embeddedness might also improve the local economic system and innovation capacity. The main idea is that MNCs' degree of involvement in the local economic structure may positively contribute to urban life satisfaction, while MNCs that are not embedded do not (Frenken et al., 2010; Heidenreich, 2012; Mattes, 2013; Strotmann et al., 2019). As discussed in Section 2.3, MNCs establish relationships and partnerships with local actors, integrating and sharing common goals and collaborations. In this case, the embeddedness is not only relevant to local inhabitants and local actors, which could benefit (directly or indirectly) from the interactions established with MNCs. Instead, it is also relevant for the MNCs that developed relationships (such as formal agreement, tacit information, and projects) (see McCann, 2007; Iammarino & McCann, 2013) that go beyond the simple "exploitation" of local human resources for production purposes. Therefore, a high degree of embeddedness (here, mainly defined from an economic point of view) would suggest strong ties of MNCs to the local context. In turn, MNCs more embedded in the local economic structure might enhance local development, generating benefits beyond the economic sphere and improving local life satisfaction.

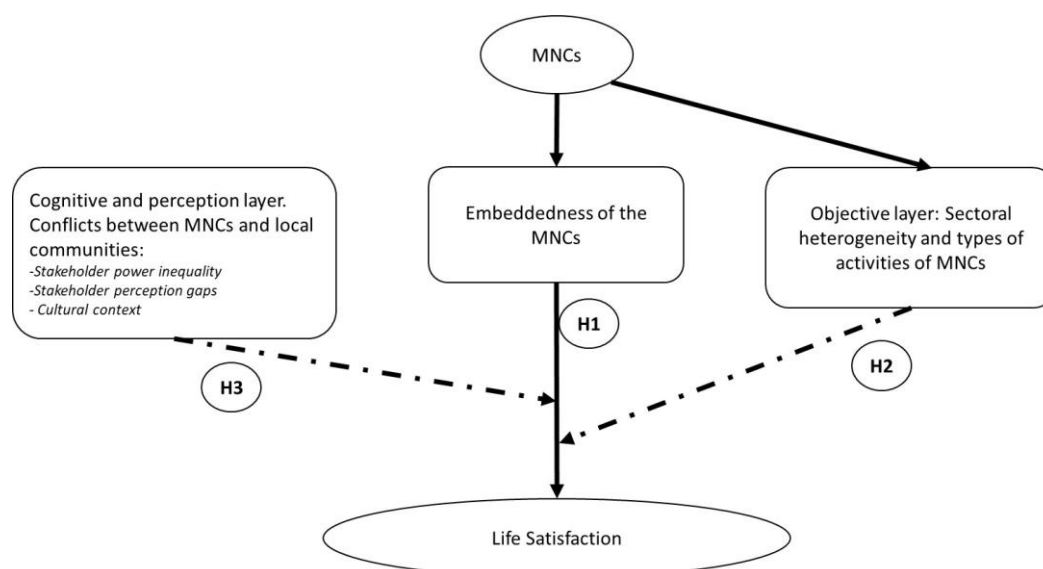
The second research question aims to understand whether the relationship between MNCs' embeddedness and urban life satisfaction depends on the objective layer. The first aspect relates to the distinction between the possible diverse impacts of MNCs operating in the manufacturing and services sectors. Due to its greater spatial impact, the presence of the manufacturing sector may contribute less (or even negatively) to urban life satisfaction than the service sector. For example, the literature

on the implications of MNCs on the environment shows that manufacturing activities such as chemicals may pollute more than other sectors (Wagner & Timmins, 2009; Cainelli et al., 2012; Martin et al., 2014). Considering that the quality of the environment (i.e., the level of pollution) is a major determinant of life satisfaction, the expected result is that the presence of MNCs operating in the manufacturing sector could be detrimental to life satisfaction compared to the presence of MNCs operating in the service sector. Additionally, there could be a further distinction based on the heterogeneity within and between the sector hosting the MNCs. MNCs from labour-intensive and unskilled activities (hence, low technology manufacturing and low knowledge services) might decrease urban life satisfaction according to the jobs and tasks fulfilled by the MNCs' activities (see Costanza et al., 2007; Dollan et al., 2008, Anand and Arora, 2009), that could also matter in the relationship between MNCs' embeddedness and life satisfaction. In this paper, the focus will be on the intensity of technology and knowledge adopted. MNCs with high value-added and skilled-oriented activities (i.e., high technology and knowledge-intensive) might positively contribute to urban life satisfaction.

The third research question aims to understand whether the relationship between MNCs' embeddedness and urban life satisfaction depends on the cognitive and perception layer. As explained before, MNCs might impact life satisfaction through MNCs' embeddedness and heterogeneity of the sectors and activities. However, the net effect of MNCs on local life satisfaction might include cognitive and perceptions aspects related to conflicts between MNCs and local communities. Calvano (2008) explains how conflicts can arise between MNCs and local communities through *stakeholder power inequality*, *stakeholder perception gaps*, and *cultural context*. This paper focuses on the latter aspect of cultural context because it better fits the territorial perspective that characterizes the current analysis. Local communities with a different cultural endowment can undermine MNCs' organizational legitimacy, and MNCs' lack of consideration of subcultures can prevent them from successfully engaging local communities. Current research explores the latter aspect of cultural context by measuring how people feel like European citizens.

In addition, this aspect should measure how much local communities are open to external actors such as MNCs (e.g., Crescenzi et al., 2018). To better understand the mechanism, let us consider the following example. From the economic perspective, MNCs provide general economic growth, and consequently, they should contribute to improving quality of life and well-being. However, local communities might also perceive and evaluate MNCs' presence according to non-economic perspectives, such as preserving traditional culture and protecting the natural environment. Despite the eventual economic benefits, MNCs per se could be seen negatively by local communities due to their power position in the economic system (Calvano, 2008). Therefore, in the process, all the conflicts between MNCs and local communities can overcome the actual economic benefits of MNCs and generate a negative perception of MNCs, consequently decreasing life satisfaction.

Figure 1: Underlying Mechanism between MNCs and Life Satisfaction



Our elaboration – MNCs embeddedness, objective layer (sectoral/activities heterogeneity), and Calvano (2008) 's framework on MNCs conflicts with local communities

Summarizing, Figure 1 shows the conceptual framework in which MNCs impact urban life satisfaction mediated by the three following hypotheses:

- 1) Hypothesis 1: MNCs' activities embedded in the local economic structure positively contribute to urban life satisfaction, while less embedded MNCs do not
- 2) *Hypothesis 2:*
 - a. MNCs from the service sectors are expected to contribute more to urban life satisfaction than MNCs that are from the manufacturing sector
 - b. MNCs from high valued-added and skilled-oriented activities are expected to contribute more to urban life satisfaction than MNCs that are from labour-intensive and unskilled-oriented activities
- 3) *Hypothesis 3:*
 - a. Given the MNCs' embeddedness and MNCs' sectoral heterogeneity, local communities that are less open experience lower urban life satisfaction
 - b. Given the MNCs' embeddedness and MNCs' activities heterogeneity, local communities that are less open experience lower urban life satisfaction

4. Data, descriptive statistics, and methodology

The data employed are collected from different sources and harmonized to create a novel panel dataset that includes 101 European cities for 27 European countries over the years 2012, 2015, and 2019 (For more information on countries and cities included in the analysis, see *Appendix 1*). However, the structure of the panel dataset is unbalanced, with data aggregated at the city level and NUTS 3 level²¹. Notably, the Eurostat database provides data already aggregated at the urban or city level. For example, for the urban life satisfaction variable, the dataset from Eurostat offers the percentage of individuals who are content with their life in the city. Therefore, the data are not available at the micro-level.

²¹ Cities and NUTS 3 regions have been associated by using the tables of local administration units by Eurostat.

The dependent variable comes from the Perception surveys - Cities (Urban Audit) – Eurostat ²² and represents the percentage of people that answer positively to the following statement: *"I'm satisfied to live in this city."*²³.

Urban life satisfaction goes from 62.9 to 99 (in terms of the percentage of people satisfied with their life). Palermo (IT) had the worst score in 2019, and Tartu (EE) had the best score in 2019. The overall mean is around 91, and there is a slight improvement over the observed periods (from 90.34, 91.35, and 99.10, respectively, for 2012, 2015, and 2019).

Table 1 – Variables Descriptions.

Domains	Variable	Source	Year	Territorial level Employed
Well-being	<i>Urban Life Satisfaction</i>	Perception Survey- Eurostat	2012, 2015, 2019	City level
MNCs and local economic Structure	<i>MNCs' Economic Embeddedness</i>	Orbis-BvD	2011, 2014, 2018	NUTS 3
	<i>MNCs' employment</i>	Orbis-BvD	2011, 2014, 2018	NUTS 3
	<i>Regional employment</i>	Orbis-BvD	2011, 2014, 2018	NUTS 3
Cultural Context	<i>Feel like European citizen</i>	Eurobarometer 77.3; 83.3; 91.5	2012, 2015, 2019	Nuts 1, Nuts 2, Nuts 3
Economic	<i>GDP €/per capita</i>	OECD-Database	2011, 2014, 2018	NUTS 3
	<i>Unemployment Rate</i>	OECD-Database	2011, 2014, 2018	NUTS 3, NUTS 2
Demographic	<i>Population Density (pop. per km2)</i>	OECD-Database	2011, 2014, 2018	NUTS 3
	<i>Tertiary education (25-64 y. old)</i>	OECD-Database	2011, 2014, 2018	NUTS 3, NUTS 2
Health	<i>Crude Death Rate (100.000 inhab.)</i>	OECD-Database	2011, 2014, 2018	NUTS 3, NUTS 2
Environment	<i>Air Pollution (PM.2 per capita)</i>	OECD-Database	2011, 2014, 2018	NUTS 3, NUTS 2, Country
Amenities/ Disamenities	<i>Status of common areas (positive answers)</i>	Perception Survey- Eurostat	2012, 2015, 2019	City level
Social	<i>General Trust</i>	Perception Survey- Eurostat	2012, 2015, 2019	City level

The data employed to elaborate and compute the economic embeddedness are from the World Input-Output Database (WIOD). The WIOD provides information on

²² See the Perception survey – Cities (Urban Audit), Eurostat: <https://ec.europa.eu/eurostat/web/cities/data/database>

²³ The crude data of the Perception survey reports the percentage of people that answered negatively and positively to the questions and statements proposed in the surveys; the present work considers the positive answers only.

value transactions among 35 industries classified in ISIC rev. 3, covering 40 countries. Then the ISIC industries are converted into Eurostat classification on high-tech manufacturing and knowledge-intensive services (see Appendix 2). According to the Eurostat and United Nations²⁴, both ISIC rev. 3 and NACE rev. 2 classifications correspond to up to the two-digit level. Therefore, this analysis would not need to employ table conversions. Economic embeddedness comprises two components: the share of domestic flows at a country level and the share of MNCs' employees at NUTS 3. The former component is elaborated using the data of WIOD. A precise explanation of the embeddedness indicator is provided in Section 4.1 (*Methodology to compute the Economic Embeddedness of MNCs*).

Another important variable to control for is the share of MNCs' employees. Data come from the ORBIS – Bureau van Dijk (BvD) database, providing information at the firm level and then aggregated at NUTS 3. Data collected includes information about 700.000 small, medium, large, and very large active MNCs, defined as owning at least 25% of ordinary shares from foreign investors. Data are organized according to NACE rev. 2 two-digit level and then to Eurostat classification on high-tech industry and knowledge-intensive services²⁵. The final dataset does not include the following services: public administration, defence, social security, education, human health, and social activities. Another critical aspect, the selection strategy includes only firms with unconsolidated accounts; this is because, for firms with consolidated accounts, ORBIS reports the whole sum of employees, including employees that work in another city, region, or country; thus, consolidated data overestimate the number of employees working for the MNCs in a region. Furthermore, one of the ORBIS database's main issues is the availability of the individual information of firms' accounts. Indeed, frequently firm-level information from ORBIS is not available. Therefore, the measures employed might underestimate the number of people employed in MNCs. Laid out the main criticalities of Orbis data, the descriptive

²⁴ Detailed Description of International Standard Industrial Classification of All Economic Activities (ISIC) Revision 3 and 4. In *International Yearbook of Industrial Statistics 2016*; see also the Eurostat. (2008). NACE Rev. 2 - Introductory Guidelines. *Methodologies and Working Papers*, ISSN 1977-(352), 369; UNIDO, U. (2016).

²⁵ Source From Eurostat: https://ec.europa.eu/eurostat/cache/metadata/Annexes/htec_esms_an3.pdf; see Appendix 1

statistics report that the highest presence of MNCs' employees is around 944,000 units in Madrid (the year 2019). The overall mean of the sample is about 60.000 units. As well as MNCs' data, regional employment comes from ORBIS – Bureau van Dijk (BvD) database. In this case, data include information for over 9 million small, *medium*, *large*, and *very large* firms. The selection strategy does not consider constraints for shares owned by foreign investors (in our case, set at 25% for the MNCs). Specularly to MNCs' selection strategy, the regional sample selected includes only firms with unconsolidated accounts. However, regional employment could also be underestimated for the same reasons. The reason for using ORBIS data to estimate regional employment is that no other sources provide the same amount of information for the unit of analysis at NUTS 3 at the European level²⁶. The collection of this data required a consistent effort of data treatment and harmonization. The overall mean of regional employment is around 190,000 units from the descriptive statistics.

The data employed to represent the cultural context are from the Eurobarometer for the years 2012, 2015, and 2019, corresponding to the surveys 77.3, 84.3, and 91.5. Therefore, the information is at the individual level. The proxy adopted for the cultural context is represented by how much people feel like European citizens. The main reason that justifies using this variable is to capture a dimension of “anti-establishment” and “anti-globalism” that can be associated to the aversion respect to MNCs and their related activities. Specifically, people have been asked to rate how much they feel like European citizens, based on a Likert scale from 1 to 4, where 1 means “*Yes, definitely*” and 4 means “*No, definitely not*”. The measure has been aggregated as average at the lower regional unit available (NUTS system) and then transformed into a binary variable using the sample yearly median as threshold²⁷: regions with values lower than the median feel more European. In contrast, regions with values higher than the median feel less European.

²⁶ I thank Marco Delogu (Assistant Professor from the University of Sassari – DISEA) for the useful suggestions for data treatment.

²⁷ The binary variables *transportations* (for MNCs sector and activities) and *Feel no Eu* are employed for regressions and robustness checks reported in Appendix 2.

Control variables are from the OECD database and the Perceived survey of Eurostat. Some observations include information on higher regional levels, such as NUTS 2 or national level, in order to reduce the missing values. The control variables from the OECD database are GDP per capita, population density, unemployment rate, tertiary education, crude death rate, and air pollution. The control variables from the Perception survey from Eurostat are the status of common areas and general trust (see Table 1 and Table 2 for further information)²⁸.

Table 2 – Descriptive Statistics

Type	Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Dependent</i>	<i>Urban Life Satisfaction</i>	263	90.98	6.06	62.9	99
Main variables	<i>MNCs' Economic Embeddedness</i>	257	0.171	0.108	0	0.835
	<i>MNCs' Manufacturing - employment share</i>	243	0.688783	1.586114	1.18E-05	15.31553
	<i>MNCs' Services - employment share</i>	248	4.366473	10.45359	0.000177	100
	<i>MNCs' High/Low Tech - employment Ratio</i>	229	12292.08	147857.6	1.967857	2233175
	<i>MNCs' High/low Knowledge - employment Ratio</i>	238	2311.2	25559.71	0.000444	393744.4
	<i>Feel to be European Citizen</i>	250	2.090912	0.351268	1.386014	3.377724
	Controls Variables	<i>GDP €/per capita</i>	263	48902	66165	1615
<i>Population Density (pop. per km2)</i>		260	1723	2812	11.12	21844
<i>Unemployment Rate</i>		260	8.091	5.095	1.3	32.8
<i>Tertiary education (25-64 y. old)</i>		253	31.44	10.95	7.6	71.5
<i>Crude Death Rate (100.000 in</i>		259	9.46	2.44	1.53	17.028
<i>Air Pollution (PM.2 per capita)</i>		260	14.89	5.79	4.8	36.1
<i>Status of common areas (positive answers)</i>		263	77.96	14.07	28	97
<i>General Trust</i>		263	66.81	16.25	25	92

²⁸ To avoid the high number of missing values, control variables without the one-year lag value are replaced with values of the same year or two-year lag value. Moreover, missing values related to the unit of analysis are substituted with the value of the higher unit of analysis (for instance, NUTS2, NUTS1, or country level).

4.1. The indicator of MNCs' Embeddedness

As already mentioned, the existing literature does not provide a methodology to assess the embeddedness of MNCs for quantitative research. The main body of literature focuses on qualitative methods to investigate the linkages between MNCs and local actors (such as institutions, competitors, research centres, etcetera) through questionnaires and surveys. Therefore, measurements and information collected through these methodologies are hardly replicable on a larger scale. This section proposes a novel methodology to measure the economic embeddedness of MNCs, applicable in quantitative research. In this approach, the measurement of the economic embeddedness of MNCs (*Equation 3*) is composed of the share of domestic intermediate trade flows across sectors at the country level (Kitsos et al., 2019) (*left-hand side*) weighted with the share of MNCs employees (*right-hand side*).

Equation 1 – Economic Embeddedness Index of MNCs

$$MNCs' Embeddedness = \frac{\sum_{i=1}^n Z_{ij}^d}{\sum_{i=1}^n Z_{ij}^d + Z_{ij}^m} * \frac{\sum_{i=1}^n MNCs\ employees_i}{\sum_{i=1}^n Total\ employees_i}$$

The first component on the right-hand side represents the share of domestic intermediate flows of goods, services, and products across sectors. Specifically, the Z represents the intermediate trade flows of goods and services across generic sector i and sector j ; the superscript d stands for the intermediate trade flows between domestic sectors; the superscript m stands for the intermediate trade flows from foreign sectors. Therefore, the numerator represents the inter-sectoral (or intermediate) domestic flows in terms of the trade of goods and services (Z_{ij}^d); the denominator is represented by the sum between the inter-sectoral domestic flows, and the inter-sectoral flows in terms of trade of goods and services across foreign sectors to domestic sectors (Z_{ij}^m). The share is built employing data from the World Input-

Output Database (WIOD)²⁹ for the year 2011 (expressed in US dollars) at the national level. The WIOD tables provide details about the related transaction between sectors within and between nations for 35 industries at the two-digit ISIC rev.3. These include agriculture, mining, construction, 14 manufacturing industries, and utilities and services. Then, the sectors are reclassified for the analysis, first into NACE rev 2 and second into Eurostat classification on the intensity of technology and knowledge for manufacturing and services³⁰. Indeed, according to the Eurostat and United Nations³¹, the NACE and the ISIC classification are identical up to two-digit levels; thus, categories at all levels of NACE are the same as the single ISIC categories, and for this purpose, it does not require conversion tables. For the interpretation of the share, this measure shows how independent the sector is in terms of intermediate inputs employed in domestic production. Its value goes from 0 to 1, where a value close to 0 means that domestic sectors' productivity depends on foreign sectors that supply input, while a value close to 1 means that domestic sectors' productivity does not depend on foreign sector suppliers; thus, most supply (input) is from sectors of the same country. Furthermore, the implication of this indicator on the local economy might be twofold: positive, when a higher proportion of inputs from within the region/country could help avoid exposure to external shocks; negative, when lower productivity and the incapability to participate in international markets, limiting their potential economic growth (Kitsos et al., 2019). In practice, the share of domestic flows is useful to proxy the generic economic structure of the country. Kitsos et al. (2019) assume that the region's economic structure likely follows the economic structure at the country level. Then, they employ the regional gross value added as a weight for the share of domestic flows (in their work, they also have labelled as inter-sectoral relatedness or sectoral

²⁹ Timmer, M. P., Dietzenbacher, E., Los, B., Stehrer, R. and de Vries, G. J. (2015), "An Illustrated User Guide to the World Input–Output Database: the case of Global Automotive Production", *Review of International Economics*, 23: 575–605; Dietzenbacher, E., Los, B., Stehrer, R., Timmer, M., & de Vries, G. (2013). The Construction of World Input-Output tables in the WIOD project. *Economic Systems Research*, 25(1), 71–98.

³⁰ Source From Eurostat: https://ec.europa.eu/eurostat/cache/metadata/Annexes/htec_esms_an3.pdf; see Appendix 1

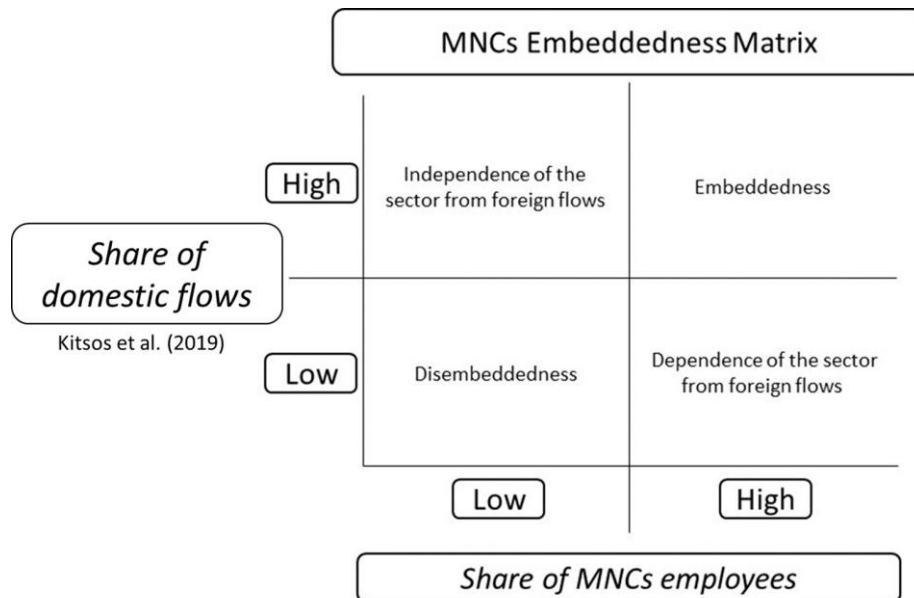
³¹ Eurostat. (2008). NACE Rev. 2 - Introductory Guidelines. *Methodologies and Working Papers*, ISSN 1977-(352), 369; UNIDO, U. (2016). Detailed Description of International Standard Industrial Classification of All Economic Activities (Isic) Revision 3 and 4. In *International Yearbook of Industrial Statistics 2016*;

embeddedness). In the computation of MNCs' economic embeddedness, the weighting component is the share of MNCs' employees. Indeed, the second component on the right-hand side of Equation 1 shows the share of employees in each sector i that work in MNCs divided by the total regional employees in sector i . Data comes from Orbis – Bureau van Dijk, covering information for over 9 million European enterprises (years 2011, 2014, 2018). After harmonization³², the data are aggregated at the NUTS 3 level according to the Eurostat classification (see Appendix 2). The value of the share goes from 0 to 1. A value close to 0 means the low relative presence of MNCs' employees in sector i . Otherwise, a value close to 1 means the high relative presence of MNCs' employees in sector i . The MNCs' economic embeddedness assumes a value from 0 to 1. A value close to 0 stands for a low level of MNCs' economic embeddedness. Otherwise, a value close to 1 means the high economic embeddedness of MNCs (see Figure 2). The measure obtained refers to the economic embeddedness of a single sector. Therefore, the further step is to calculate the average economic embeddedness of MNCs to summarize the information and employ it in the econometric analysis. Figure 2 shows the MNCs' embeddedness matrix and the related scenarios in which the share of intermediate domestic trade flows and the share of MNCs' employees assume low or high values. The vertical axis represents the share of domestic flows, while the horizontal axis represents the share of MNCs' employees. The northeast quadrant shows the scenario of the economic embeddedness of MNCs. In this case, MNCs locate in a sector that is, at the same time, dependent on foreign flows (meaning, the inter-sectoral flows are mainly addressed to sectors from the same country). Therefore, MNCs are likely to be embedded in the local economic structure when there is a high presence of MNCs employees and high inter-sectoral independence of the local economy. On the contrary, in the southwest quadrant, the disembeddedness corresponds to the low presence of MNCs' employees and the local economy's dependence on foreign flows. Therefore, MNCs are likely to be completely unrooted (disconnected) from the local

³² Data were divided into 87 spreadsheets from the ORBIS database and converted into STATA format. The work required several trials to download all the information by minimizing the data treatments. Furthermore, data harmonization also required adjustment regarding some units of analysis employed in the main dataset that changed during the period.

economic structure. A potential constraint of this indicator is associated with the assumption posited by Kitsos et al. (2019) that the economic composition of a region is reflective of the broader national economic structure. While this may generally be true, it does not necessarily mean that MNCs predominantly source intermediates from local firms. They may instead procure goods and services from other regions within the same country. To address this limitation, the indicator incorporates a second component that assesses the local presence of MNCs in terms of occupations, which can help to correct potential biases in the first component.

Figure 3 – MNCs’ Embeddedness Matrix



Source: Our elaboration

5. Empirical models

The first hypothesis to test is whether the MNCs’ embeddedness positively impacts local life satisfaction. The second hypothesis to test is whether the sectoral and activities heterogeneity (or, as already called, the *objective layer*) has a role in the relationship between the degree of MNCs’ embeddedness and local life satisfaction. The third hypothesis to test is whether cultural context (measured by how people feel like European citizens, with higher values meaning that people feel less European and vice versa) affects the relationship between the degree of MNCs’ embeddedness and

local life satisfaction. Therefore, Equation 2 shows the empirical model that focuses on the first hypothesis. Equation 3a and Equation 3b show the two empirical models related to the second hypothesis (3a for the sectoral heterogeneity, 3b for the activities heterogeneity). Equations 4a and 4b show the empirical models for the third hypothesis. All the equations comprise the intercept parameter β_0 ; the coefficient of MNCs' embeddedness³³ β_1 ; the vector with all the coefficients of the control variables β' ; the time dummies effect δ , the regional effect a_i , and the error term ε_{it} . Equation 3a also comprises the coefficients of the two shares in manufacturing and services β_2 and β_3 ; the coefficient of their interactions β_4 and β_5 . On the other hand, Equation 3b comprises the coefficients of the two ratios of high technology in manufacturing and high knowledge in services β_2 and β_3 ; the coefficient of their interactions β_4 and β_5 . Equations 4a and 4b include the same variables as Equations 3a and 3b but are augmented with the cultural context represented by the measure of how much people feel like being a European citizen β_6 and its interaction variables with MNCs' embeddedness β_7 .

The econometric models employed are fixed effect (FE) and random effect (RE). In addition, as a robustness check, a difference-GMM to control for endogeneity (see sub-section *Robustness check*). Moreover, different regression and variable settings have been considered; first, the MNCs' embeddedness variables have been employed in absolute and logarithm values (results in the absolute value of MNCs' embeddedness reported in the sub-section *Robustness check*). Second, the variables MNCs' sectors, MNCs' activities, and feel like European citizens have been transformed into binary (results reported in the sub-section *Robustness check*). Third, the panel data specification is considered in both fixed and random effect specifications and tested with the Durbin-Wu-Hausman (1978) test (also called the Hausman specification test). In addition, the regressions have time dummy variables, regional effects specification, and clustered standard error to control heteroskedasticity. The pooled OLS regression has been tested for multicollinearity

³³ β_1 is the coefficient of the economic embeddedness of the MNCs. Ceteris paribus, all the coefficients can be interpreted as percentage change of dependent variables due to one unit increase of independent variable.

with the Variance inflation factors (VIFs) test and heteroskedasticity with Breusch-Pagan/Cook-Weisberg test. Serial correlation should be controlled with clustered standard error (Wooldridge, 2002)³⁴. The last relevant aspect, all the independent variables are at least one-year lag compared to the dependent variable, except for general trust and status of common places.

Equation 2 – Hypothesis 1

$$UrbLS_{it} = \beta_0 + \beta_1 MNCs' Embeddedness_{it} + X_{it} \beta' + \delta \tau_i + a_i + \varepsilon_{it}$$

Equation 3 – Hypothesis 2

a. $UrbLS_{it} = \beta_0 + \beta_1 MNCs' Embed_{it} + \beta_2 Man_{it} + \beta_3 Ser_{it} + \beta_4 MNCs' Embed_{it} * Man_{it} + \beta_5 MNCs' Embed_{it} * Ser_{it} + X_{it} \beta' + \delta \tau_i + a_i + \varepsilon_{it}$

b. $UrbLS_{it} = \beta_0 + \beta_1 MNCs' Embed_{it} + \beta_2 High\ tech\ Man_{it} + \beta_3 High\ Know\ Ser_{it} + \beta_4 MNCs' Embed_{it} * High\ tech\ Man_{it} + \beta_5 MNCs' Embed_{it} * High\ Know\ Ser_{it} + X_{it} \beta' + \delta \tau_i + a_i + \varepsilon_{it}$

Equation 4 – Hypothesis 3

a. $UrbLS_{it} = \beta_0 + \beta_1 MNCs' Embed_{it} + \beta_2 Man_{it} + \beta_3 Ser_{it} + \beta_4 MNCs' Embed_{it} * Man_{it} + \beta_5 MNCs' Embed_{it} * Ser_{it} + \beta_6 Feel\ no\ EU_{it} + \beta_7 MNCs' Embed_{it} * Feel\ no\ EU_{it} + X_{it} \beta' + \delta \tau_i + a_i + \varepsilon_{it}$

b. $UrbLS_{it} = \beta_0 + \beta_1 MNCs' Embed_{it} + \beta_2 High\ tech\ Man_{it} + \beta_3 High\ Know\ Ser_{it} + \beta_4 MNCs' Embed_{it} * High\ tech\ Man_{it} + \beta_5 MNCs' Embed_{it} * High\ Know\ Ser_{it} + \beta_6 Feel\ no\ EU_{it} + \beta_7 MNCs' Embed_{it} * Feel\ no\ EU_{it} + X_{it} \beta' + \delta \tau_i + a_i + \varepsilon_{it}$

6. Results

³⁴ Regarding the issues of serial correlation, for panel data with large N and small T, it can be addressed by employing clustered standard error (Wooldridge, 2002).

Table 3 shows the results related to hypothesis 1 for the fixed and random effect specifications. Table 3 shows the MNCs' embeddedness³⁵ as positive and significant only for the random effect specifications (Model 4). However, it is important to note that the unobserved effects may differ across various regions, indicating that the true effect size of a variable can vary between different groups or subjects being studied. The fixed effect estimation partially supports this result. Regarding the control variables, GDP, GDP squared, General trust, and Status of common places have the expected coefficient signs and are significant. Tertiary education is positive and significant only for the random effect specification, and the rest of the control variables are non-significant. The Variance inflation factors (VIFs) test shows the presence of multicollinearity between explanatory variables³⁶. There is also the presence of multicollinearity for the GDP and its square. The Breusch-Pagan/Cook-Weisberg test for heteroskedasticity is significant, showing the presence of heteroskedasticity³⁷. The Hausman test accepts the hypothesis of random effect³⁸, meaning that the two models are not systematically different from each other. However, as Wooldridge (2002) also underlined, the Hausman test and the comparison between fixed and random effects have to be made cautiously. In particular, the focus on fixed effects is more than random effects related to the interest in control for local fixed effects and omitted variable bias at the group level. Indeed, some omitted variables and further heterogeneity related to the local context likely impact life satisfaction. Despite this, the random effect estimation is also reported for methodological purposes for all the other estimations.

³⁵ The measure of MNCs' economic embeddedness does not consider sectoral heterogeneity (between and within); thus, the indicator is an overall average measure, as discussed in section 4.1.

³⁶ Tests made on pooled OLS model before the FE and RE estimations.

³⁷ Presence of heteroskedasticity: $\text{Chi2}(1) = 62.84$ with $\text{prob} > \text{Chi2} = 0.0000$

³⁸ Durbin – Wu - Hausman test for Table 3 – Model 4 with “sigmaless” specification: $\text{chi2 probability} = 0.24$

Table 3 – Hypothesis 1 – Log value of MNCs’ embeddedness

<i>Urban life satisfaction</i>	Model 1		Model 2		Model 3		Model 4	
	<i>Embeddedness</i>		<i>Economic Domain</i>		<i>Demographic Domain</i>		<i>Rest of the domains and controls</i>	
	FE	RE	FE	RE	FE	RE	FE	RE
<i>MNCs’ Embeddedness</i>	0.477	1.106	0.564	2.003**	-0.138	1.108*	0.403	1.511***
	(1.1385)	(0.7607)	(1.2038)	(0.8550)	(1.4836)	(0.6563)	(1.2943)	(0.4711)
<i>GDP</i>			18.679	11.068*	23.023*	12.586**	23.651*	6.960**
			(12.6770)	(6.1759)	(11.9688)	(5.4656)	(12.8503)	(3.3769)
<i>GDP squared</i>			-0.959	-0.623*	-1.131**	-0.706**	-1.176**	-0.403**
			(0.5881)	(0.3185)	(0.5494)	(0.2839)	(0.5784)	(0.1689)
<i>Population Density</i>					-1.291	-0.378	0.888	-0.381
					(7.3865)	(0.3177)	(8.7712)	(0.2316)
<i>Unemployment Rate</i>					-0.049	-0.282*	0.041	-0.058
					(0.1780)	(0.1444)	(0.1529)	(0.1105)
<i>Tertiary Education</i>					0.024	0.180***	-0.071	0.104***
					(0.1494)	(0.0616)	(0.1319)	(0.0376)
<i>Death Rate</i>							0.331	0.074
							(0.6126)	(0.1775)
<i>Air pollution</i>							0.214	0.068
							(0.4187)	(0.0927)
<i>General Trust</i>							0.255***	0.194***
							(0.0844)	(0.0284)
<i>Status of Common Areas</i>							0.209**	0.155***
							(0.1018)	(0.0345)
<i>Time Dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Regional Effect</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Constant</i>	89.972***	88.583***	0.089	38.613	-15.816	34.080	-70.776	32.275*
	(3.0204)	(2.2476)	(69.6383)	(29.5719)	(89.4750)	(27.0582)	(98.0321)	(17.5845)
Obs.	249	249	249	249	240	240	239	239
r2	0.020		0.040		0.041		0.215	
r2 overall	0.022	0.042	0.059	0.145	0.043	0.324	0.517	0.725
r2 between	0.004	0.024	0.060	0.149	0.046	0.365	0.516	0.775
<i>Cluster standard errors</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>

* p<.1, ** p<.05, *** p<.01

Table 4 shows the results related to the sectoral and activity heterogeneity for hypothesis 2, testing solely the role of MNCs’ embeddedness and the related heterogeneity with respect to the local economic structure. In Model 1, the MNCs’ embeddedness is negative and significant for the random effect specification, while the fixed effect is positive but non-significant. The rest of the coefficients are not significant for both specifications except for the share of MNCs’ manufacturing employees, which is negative and significant. The control variables for the fixed effect GDP, GDP squared, and general trust are significant and with signs expected. For the random effect specification, the variables population density, tertiary education,

general trust, and status of common places show significant and expected signs. Air pollution is significant but with an unexpected sign. The VIFs test shows the presence of multicollinearity among variables under the hypothesis, GDP, and its square. The Breusch-Pagan/Cook-Weisberg test shows the presence of heteroskedasticity³⁹. The Hausman test rejects the random effect hypothesis⁴⁰, meaning that the two models are systematically different, and the fixed effect model is consistent. Regarding Model 2, the MNCs' embeddedness is positive and significant only for the random effect specification. In this case, the interaction variable between MNCs' embeddedness and the ratio of MNCs from high knowledge services is positive and significant, suggesting that urban life satisfaction is associated with the presence of MNCs that are integrated into the local economic structure, but this could depend on the presence of MNCs from high knowledge-intensive services. Regarding the control variables for the fixed effect specification GDP, GDP squared, general trust, and status of common places are significant and with signs expected. For the random effect specification, the variables population density, tertiary education, general trust, and status of common places are significant and expected signs. Air pollution is significant but has an unexpected sign for both fixed and random effects. The VIFs test detects the presence of multicollinearity for the variables under hypothesis, GDP, and its square. Also, the presence of heteroskedasticity has been detected⁴¹. The Hausman test rejects the random effect hypothesis⁴².

³⁹ Presence of heteroskedasticity: Chi2 (1) = 41.60 with prob > Chi2 = 0.0000

⁴⁰ Durbin – Wu - Hausman test Table 4 – Model 1 with “sigmaless” specification: chi2 probability=0.029

⁴¹ Presence of heteroskedasticity: Chi2 (1) = 17.96 with prob > Chi2 = 0.0000

⁴² Durbin – Wu - Hausman test Table 4 – Model 2 with “sigmaless” specification: chi2 probability=0.036

Table 4 – Hypothesis 2 (a;b) – Log value of MNCs' embeddedness

Urban life satisfaction	Model 1 H2a		Model 2 H2b	
	FE	RE	FE	RE
<i>MNCs' Embeddedness (log)</i>	1.860 (2.3329)	-2.077*** (0.6783)	-0.901 (0.9907)	1.953** (0.8355)
<i>MNCs Manufacturing Share</i>	-0.832 (1.1690)	-1.779** (0.8855)		
<i>MNCs Services Share</i>	1.789 (1.6008)	-0.339 (0.8164)		
<i>Embeddedness*Manufacturing</i>	0.337 (0.5325)	-0.520 (0.3491)		
<i>Embeddedness*Services</i>	0.539 (0.7066)	-0.532 (0.3427)		
<i>Manufacturing High/Low Tech</i>			-0.082 (1.3180)	-1.249 (1.1338)
<i>Services High/Low Knowledge</i>			1.759 (1.2698)	0.937 (0.8960)
<i>Embed*Man. High/Low Tech</i>			-0.419 (0.6167)	-0.822 (0.5171)
<i>Embed*Ser. High/Low Know.</i>			0.800 (0.6484)	0.761* (0.4219)
<i>GDP</i>	25.091** (11.2284)	3.749 (3.0424)	29.139** (11.9860)	4.695 (2.9587)
<i>GDP squared</i>	-1.164** (0.5127)	-0.233 (0.1570)	-1.354** (0.5412)	-0.286* (0.1461)
<i>Population Density</i>	5.278 (8.8289)	-0.570*** (0.2172)	9.783 (8.9664)	-0.502** (0.2303)
<i>Unemployment Rate</i>	0.100 (0.1409)	-0.091 (0.0955)	0.005 (0.1242)	-0.114 (0.0942)
<i>Tertiary Education</i>	0.109 (0.1313)	0.071* (0.0375)	0.089 (0.1252)	0.109*** (0.0362)
<i>Death Rate</i>	0.424 (0.4755)	0.049 (0.1866)	0.460 (0.4613)	-0.048 (0.1673)
<i>Air Pollution</i>	0.648** (0.2619)	0.103 (0.0745)	0.689** (0.2804)	0.119* (0.0711)
<i>General Trust</i>	0.222*** (0.0793)	0.199*** (0.0265)	0.214*** (0.0765)	0.198*** (0.0274)
<i>Status of common areas</i>	0.100 (0.0728)	0.123*** (0.0275)	0.138** (0.0659)	0.130*** (0.0317)
<i>Time Dummies</i>	Yes	Yes	Yes	Yes
<i>Regional Fixed Effect</i>	Yes	Yes	Yes	Yes
<i>Constant</i>	-117.011 (89.5510)	51.249*** (15.5094)	-173.075* (101.0201)	53.782*** (15.9735)
Obs.	235	235	223	223
r2	0.282		0.323	
r2 overall	0.013	0.752	0.007	0.739
r2 between	0.010	0.805	0.004	0.777
<i>Cluster standard errors</i>	Yes	Yes	Yes	Yes

* p<.1, ** p<.05, *** p<0.01

In Table 5, the variable MNCs' embeddedness results are positive and significant only in Model 1 (hypothesis 3a) for the fixed effect specification. Also, the variable cultural context closure is negative and significant, suggesting that places where people do not feel like European citizens, are associated with lower life satisfaction. The results are consistent with the proposed conceptual framework. Local communities that are not open to external actors, such as MNCs and foreign firms,

may negatively perceive their surroundings and fail to see the opportunities handover by such actors. This may lead to a negative impact on their perception of life. Moreover, the interaction variable between MNCs' embeddedness and the variable *feel like European citizen* is negative and significant with a smaller magnitude. Therefore, given a high level of MNCs' embeddedness, places that are less culturally open might experience lower levels of urban life satisfaction but on a smaller scale compared to places with a low level of MNCs' embeddedness. These results suggest that the association between MNCs' embeddedness and urban life satisfaction might also depend on the cultural context, represented by how much people feel like European citizens. From another perspective, the local "closure" would impact the relationship between MNCs' embeddedness and urban life satisfaction, offsetting (or limiting) the benefits related to the presence of MNCs. The variables related to hypothesis 2 on sectoral heterogeneity are not significant for the fixed effect. The variables GDP, GDP squared, and general trust are significant with expected signs. The rest of the control variables are non-significant or opposite signs expected, such as Air pollution (reported as a positive predictor instead of negative). The random effect estimation shows significant and negative results for MNCs' manufacturing share in line with hypothesis 2(a). However, the MNCs' service share is significant, with the opposite sign concerning hypothesis 2(a). Regarding the control variables, population density, tertiary education, general trust, and status of common places are significant with the expected sign. The VIFs test again shows the presence of multicollinearity among the variables under hypotheses, GDP, and its square. The Breusch-Pagan/Cook-Weisberg test for heteroskedasticity is also significant⁴³. The Hausman test rejects the random effect hypothesis⁴⁴. On the other hand, Model 2 shows positive but no significant results for MNCs' embeddedness for the fixed and random effect specifications. For the fixed effect, MNCs' high-tech ratios for manufacturing and high-knowledge ratio for services are significant and negative, not in line with hypothesis 2(b). The interaction variable between MNCs' embeddedness and MNCs' high-tech ratio is significant and negative but with a smaller magnitude,

⁴³ Presence of heteroskedasticity: Chi2 (1) = 43.60 with prob > Chi2 = 0.0000

⁴⁴ Durbin – Wu - Hausman test Table 5 – Model 1 with *sigmaless* specification: chi2 probability=0.011

suggesting that MNCs could absorb part of the negative impact of the high-tech activities. Moreover, the interaction variable between MNCs' embeddedness and the high-knowledge ratio is negative and significant, not in line with hypothesis 2(b). Regarding the control variables, only tertiary education shows a significant and expected sign, while the rest of the control variables are not significant or with an opposite sign, such as population density. For the random effect specification in Model 2, the interaction variable between MNCs' embeddedness and the high-knowledge ratio is negative and significant, not in line with hypothesis 2(b). The results of the variables under the hypothesis are not significant, except for the variable *feel like European citizens*, which shows a significant negative coefficient in line with the hypothesis. For the control variables, GDP, population density, and status of common places are significant, with expected signs. The rest of the control variables are not significant or with opposite signs expected, such as the unemployment rate (which should be a negative predictor of life satisfaction). The VIFs test shows the presence of multicollinearity across the variables under hypotheses, GDP, and its square. Moreover, the base model estimated with the pooled OLS suffers from heteroskedasticity⁴⁵. The Hausman test rejects the random effect hypothesis⁴⁶.

To summarize, this exploratory analysis highlights some interesting patterns related to the link between the presence of MNCs, cultural context, and urban life satisfaction. Specifically, the cultural context plays a key role between MNCs' benefits and local life satisfaction. Therefore, the economic embeddedness of MNCs can be defined as a driver of economic development and, in turn, enhance local life satisfaction. However, a closed cultural context might prevent this from happening. However, it is important to highlight some issues related to econometric estimation. The results showed so far include interactions between continuous variables instead of binary. Even though it can be understood conceptually, the coefficient interpretation could be complicated and ambiguous from an econometric point of view.

⁴⁵ Presence of heteroskedasticity: Chi2 (1) = 15.31 with prob > Chi2 = 0.0001

⁴⁶ Durbin – Wu - Hausman test Table 5 – Model 2 with “sigmaless” specification: chi2 probability=0.001

Table 5 – Hypothesis 3 (a;b) – Log value of MNCs' embeddedness

Urban life satisfaction	Model 1 H3a		Model 2 H3b	
	FE	RE	FE	RE
<i>MNCs' Embeddedness (log)</i>	6.915** (3.2670)	-1.281 (2.8428)	5.503 (3.6470)	0.513 (2.3249)
<i>MNCs Manufacturing Share</i>	-0.630 (1.0559)	-1.915** (0.7801)		
<i>MNCs Services Share</i>	0.341 (0.4560)	-0.565** (0.2838)		
<i>Embeddedness*Manufacturing</i>	0.979 (1.5805)	-0.400 (0.9776)		
<i>Embeddedness*Services</i>	-0.095 (0.6882)	-0.567 (0.4356)		
<i>Manufacturing High/Low Tech</i>			-5.636* (3.1423)	1.232 (1.7688)
<i>Services High/Low Knowledge</i>			-3.131* (1.7104)	0.674 (0.9513)
<i>Embed*Man. High/Low Tech</i>			30.753** (12.4540)	4.407 (2.9578)
<i>Embed*Ser. High/Low Know.</i>			-1.433** (0.5640)	-0.272* (0.1460)
<i>Feeling European citizen</i>	-6.220** (2.7797)	-0.667 (3.1073)	9.418 (8.6456)	-0.520** (0.2272)
<i>Embeddedness*Feeling Eu citizen</i>	-3.147** (1.4813)	-0.463 (1.6132)	0.028 (0.1165)	-0.130 (0.0958)
<i>GDP</i>	26.644** (12.1751)	3.936 (2.8898)	0.037 (0.1236)	0.109*** (0.0352)
<i>GDP squared</i>	-1.245** (0.5598)	-0.243 (0.1496)	0.578 (0.5047)	-0.073 (0.1759)
<i>Population Density</i>	4.799 (8.4566)	-0.581*** (0.2136)	0.651** (0.2936)	0.105 (0.0694)
<i>Unemployment Rate</i>	0.122 (0.1291)	-0.108 (0.0991)	0.154* (0.0852)	0.193*** (0.0269)
<i>Tertiary Education</i>	0.075 (0.1210)	0.070* (0.0365)	0.171** (0.0741)	0.122*** (0.0326)
<i>Death Rate</i>	0.521 (0.5058)	0.070 (0.2091)	1.426 (1.2968)	-1.282 (1.1792)
<i>Air Pollution</i>	0.602** (0.2747)	0.080 (0.0732)	0.315 (0.6187)	-0.823 (0.5382)
<i>General Trust</i>	0.159* (0.0835)	0.194*** (0.0264)	1.606 (1.2713)	0.980 (0.9860)
<i>Status of common areas</i>	0.122 (0.0819)	0.123*** (0.0313)	0.736 (0.6452)	0.788* (0.4713)
<i>Time Dummies</i>	Yes	Yes	Yes	Yes
<i>Regional Fixed Effect</i>	Yes	Yes	Yes	Yes
<i>Constant</i>	-106.334 (87.6721)	52.118*** (15.8887)	-165.360* (95.8727)	54.391*** (16.1345)
Obs.	234	234	222	222
r2	0.273		0.310	
r2 overall	0.009	0.755	0.001	0.746
r2 between	0.005	0.807	0.000	0.784
<i>Cluster standard errors</i>	Yes	Yes	Yes	Yes

* p<.1, ** p<.05, *** p<0.01

6.1. Robustness checks

This section shows further estimations and robustness checks organized as follows: Table 6 shows the estimations related to hypothesis 3 for the MNCs' embeddedness expressed in absolute terms to test the robustness of variables; Table 7 shows the same estimation but with sectoral/activities heterogeneity and cultural context expressed in dummy variables to test whether the different variables change the signs; Tables 8 shows the estimations for the MNCs' embeddedness expressed in logarithm terms and dummy variables for the sectoral/activities heterogeneity and cultural context; Tables 9 shows the difference GMM estimation to control for further endogeneity (Arellano & Bond, 1991) with the original specification reported in Table 5-Model 1 (*H3a*) FE⁴⁷.

Table 6 does not show significant results for the variables of interest, except for the interaction variables of cultural openness for the FE models. Table 7 shows significant results for the dummy variable for manufacturing (negative as expected) and the interaction variable for high-tech manufacturing (positive as expected). Table 8 shows unexpected results for the MNCs' embeddedness for the FE model (negative and significant) and significant and positive for the RE model. Finally, Table 9 reports the difference in GMM significant results for the MNCs' embeddedness and the dummy interaction variables for cultural openness.

It is important to note that the pairwise correlation (Bonferroni pairwise correlation) highlights the presence of correlation among MNCs' embeddedness, manufacturing and service sectors of MNCs, GDP, feel no EU, population density, unemployment rate and education. Moreover, further checks have been performed, including a dimension of quality of institutions (EQI). Therefore, the results are not consistent with the previous one, which reports no significant coefficient related to MNCs' embeddedness and the other related variables of the MNCs' heterogeneity (sectoral and activities). However, the EQI is correlated with all the main variables,

⁴⁷ The robustness check with the Difference GMM model is only for the specification of the sectoral heterogeneity. The specification for the activity heterogeneity does not produce statistical output due to missing value issues.

such as MNCs' embeddedness, GDP, education, unemployment rate, and population density.

Table 6 – Hypothesis 3 (a;b) Absolute value of MNCs' embeddedness

<i>Urban life satisfaction</i>	Model 1 <i>H3a</i>		Model 2 <i>H3b</i>	
	FE	RE	FE	RE
<i>MNCs' Embeddedness</i>	29.554 (29.5659)	-24.071 (16.3883)	27.858 (20.9504)	6.228 (16.2529)
<i>MNCs Manufacturing Share</i>	-1.517 (1.2000)	0.445 (0.3253)		
<i>MNCs Services Share</i>	1.325 (0.8328)	1.734*** (0.6090)		
<i>Embeddedness*Manufacturing</i>	0.114 (5.2004)	-7.022*** (2.5651)		
<i>Embeddedness*Services</i>	-1.500 (4.6723)	-5.332 (3.7724)		
<i>Manufacturing High/Low Tech</i>			1.074 (1.1345)	1.078 (0.8493)
<i>Services High/Low Knowledge</i>			-0.344 (0.9570)	-1.088** (0.5339)
<i>Embed*Man. High/Low Tech</i>			-1.405 (6.5842)	-3.639 (4.8498)
<i>Embed*Ser. High/Low Know.</i>			3.266 (4.2078)	3.572 (2.9980)
<i>Feel no EU</i>	2.734 (2.0428)	0.317 (1.5702)	3.260 (2.0050)	-0.204 (1.6306)
<i>Embeddedness*Feel no EU</i>	-16.938* (10.1270)	-0.934 (8.3846)	-17.162* (9.7273)	-0.765 (7.8464)
<i>GDP</i>	27.184** (13.0697)	3.943 (3.2100)	32.494** (12.9748)	5.086 (3.2001)
<i>GDP squared</i>	-1.265** (0.5950)	-0.246 (0.1649)	-1.502** (0.5856)	-0.297* (0.1588)
<i>Population Density</i>	4.629 (8.6611)	-0.567*** (0.2145)	10.400 (9.1120)	-0.431* (0.2277)
<i>Unemployment Rate</i>	0.084 (0.1328)	-0.100 (0.1031)	-0.002 (0.1294)	-0.165 (0.1119)
<i>Tertiary Education</i>	0.101 (0.1424)	0.066* (0.0382)	0.091 (0.1342)	0.124*** (0.0403)
<i>Death Rate</i>	0.518 (0.5156)	0.076 (0.2073)	0.570 (0.5155)	-0.062 (0.1873)
<i>Air Pollution</i>	0.544* (0.2912)	0.096 (0.0777)	0.591* (0.3080)	0.113 (0.0748)
<i>General Trust</i>	0.172** (0.0852)	0.199*** (0.0275)	0.167* (0.0877)	0.183*** (0.0279)
<i>Status of common areas</i>	0.138 (0.0869)	0.134*** (0.0276)	0.185** (0.0764)	0.149*** (0.0380)
<i>Time Dummies</i>	Yes	Yes	Yes	Yes
<i>Regional Fixed Effect</i>	Yes	Yes	Yes	Yes
<i>Constant</i>	-128.948 (100.0699)	58.232*** (16.9228)	-199.589* (105.2538)	46.284*** (17.4276)
Obs.	234	234	222	222
r2	0.251		0.293	
r2 overall	0.032	0.737	0.005	0.708
r2 between	0.022	0.786	0.002	0.745
<i>Cluster standard errors</i>	Yes	Yes	Yes	Yes

* p<.1, ** p<.05, *** p<0.01

Table 7 – Hypothesis 3 (a;b) Absolute value of MNCs' embeddedness and dummy variables

<i>Urban life satisfaction</i>	Model 1 <i>H3a</i>		Model 2 <i>H3b</i>	
	FE	RE	FE	RE
<i>MNCs' Embeddedness</i>	-7.384 (7.7418)	1.800 (6.0906)	-5.457 (5.9031)	2.997 (4.2071)
<i>Dummy – High Manu</i>	-2.575** (1.2113)	-0.990 (0.8952)		
<i>Dummy – High Serv</i>	0.243 (1.0715)	0.413 (0.8610)		
<i>Embed*Dummy – High Manu.</i>	7.660 (6.1580)	0.278 (4.8005)		
<i>Embed* Dummy – High serv.</i>	4.042 (7.3410)	0.981 (5.0443)		
<i>Dummy – High Tech Man</i>			-0.775 (0.7933)	0.868 (1.0090)
<i>Dummy – High Know Serv</i>			-0.215 (1.0081)	-0.768 (0.8322)
<i>Embed*Dummy – High Tech Man</i>			8.458** (3.6523)	-2.503 (4.4651)
<i>Embed* Dummy – High Know Serv</i>			5.561 (5.1899)	2.648 (3.9935)
<i>Dummy – High Feeling Eu citizen</i>	-1.090* (0.6553)	-0.711 (0.6517)	-0.720 (0.6786)	-0.592 (0.6701)
<i>Embed*Dummy– High Feeling Eu</i>	4.235 (3.0443)	3.108 (3.0629)	1.468 (3.4942)	2.581 (3.3671)
<i>GDP</i>	25.878** (12.2811)	8.619** (3.9994)	26.512* (13.3705)	8.126** (3.7083)
<i>GDP squared</i>	-1.279** (0.5827)	-0.468** (0.2023)	-1.309** (0.6215)	-0.443** (0.1875)
<i>Population Density</i>	-0.302 (9.0686)	-0.397* (0.2198)	3.675 (9.0072)	-0.310 (0.2246)
<i>Unemployment Rate</i>	0.104 (0.1598)	-0.074 (0.1163)	0.066 (0.1623)	-0.094 (0.1153)
<i>Tertiary Education</i>	-0.041 (0.1113)	0.095** (0.0432)	-0.088 (0.1041)	0.115*** (0.0413)
<i>Death Rate</i>	0.093 (0.5336)	0.163 (0.1774)	0.255 (0.5714)	0.152 (0.1697)
<i>Air Pollution</i>	0.271 (0.4117)	0.028 (0.0949)	0.315 (0.4182)	0.025 (0.0945)
<i>General Trust</i>	0.255*** (0.0837)	0.172*** (0.0297)	0.263*** (0.0828)	0.176*** (0.0299)
<i>Status of common areas</i>	0.201* (0.1013)	0.187*** (0.0406)	0.208** (0.1032)	0.169*** (0.0395)
<i>Time Dummies</i>	Yes	Yes	Yes	Yes
<i>Regional Fixed Effect</i>	Yes	Yes	Yes	Yes
<i>Constant</i>	-71.859 (88.5427)	25.506 (20.2254)	-104.053 (99.4497)	27.608 (18.7801)
Obs.	246	246	246	246
r2	0.267		0.260	
r2 overall	0.520	0.704	0.221	0.706
r2 between	0.480	0.734	0.194	0.740
<i>Cluster standard errors</i>	Yes	Yes	Yes	Yes

* p<.1, ** p<.05, *** p<0.01

Table 8– Hypothesis 3 (a;b) Log value of MNCs' embeddedness and dummy variables

Urban life satisfaction	Model 1 H3a		Model 2 H3b	
	FE	RE	FE	RE
MNCs' Embeddedness (Log)	-0.908 (1.4537)	1.312* (0.7283)	-1.581* (0.9173)	1.259* (0.7304)
Dummy – High Manu	0.533 (2.1937)	-2.610* (1.4890)		
Dummy – High Serv	2.733 (2.8579)	1.453 (1.7538)		
Embed*Dummy – High Manu.	0.900 (1.1008)	-0.814 (0.7102)		
Embed* Dummy – High serv.	0.938 (1.4515)	0.530 (0.9537)		
Dummy – High Tech Man			4.552*** (1.1762)	-1.776 (1.5325)
Dummy – High Know Serv			3.250*** (1.2102)	0.593 (0.9677)
Embed*Dummy – High Tech Man			1.939*** (0.6066)	-1.128 (0.8443)
Embed* Dummy – High Know Serv			1.171** (0.4589)	0.518 (0.4589)
Dummy – High feeling Eu citizen	0.448 (1.4804)	1.711 (1.3301)	0.331 (1.3269)	1.761 (1.3670)
Embed*Dummy – High feeling Eu	0.444 (0.7329)	0.913 (0.6593)	0.421 (0.5883)	0.924 (0.6657)
GDP	24.504** (12.3279)	7.898** (3.6325)	27.356** (13.3541)	7.301** (3.2820)
GDP squared	-1.211** (0.5787)	-0.452** (0.1844)	-1.353** (0.6205)	-0.414** (0.1650)
Population Density	-0.930 (9.2432)	-0.470** (0.2218)	2.039 (8.6276)	-0.404* (0.2337)
Unemployment Rate	0.097 (0.1599)	-0.035 (0.1043)	0.087 (0.1506)	-0.060 (0.1037)
Tertiary Education	-0.055 (0.1251)	0.084** (0.0404)	-0.119 (0.1149)	0.110*** (0.0386)
Death Rate	0.167 (0.5936)	0.053 (0.1889)	0.396 (0.6033)	0.091 (0.1781)
Air Pollution	0.236 (0.4135)	0.073 (0.0890)	0.288 (0.4286)	0.068 (0.0910)
General Trust	0.269*** (0.0864)	0.196*** (0.0281)	0.282*** (0.0899)	0.202*** (0.0291)
Status of common areas	0.207** (0.1004)	0.158*** (0.0352)	0.211** (0.1023)	0.142*** (0.0344)
Time Dummies	Yes	Yes	Yes	Yes
Regional Fixed Effect	Yes	Yes	Yes	Yes
Constant	-64.766 (92.8874)	35.561* (18.8462)	-103.047 (101.234 8)	36.985** (17.0716)
Obs.	239	239	239	239
r2	0.257		0.277	
r2 overall	0.549	0.737	0.348	0.741
r2 between	0.566	0.786	0.326	0.785
Cluster standard errors	Yes	Yes	Yes	Yes

* p<.1, ** p<.05, *** p<0.01

Table 9 – Hypothesis 3 (a;b) – First Difference GMM (Absolute of MNCs' embeddedness)

	Difference GMM
<i>Urban life satisfaction</i>	<i>Urban life satisfaction</i>
<i>MNCs' Embeddedness</i>	6.915* (3.2664)
<i>MNCs Manufacturing Share</i>	-0.630 (1.0557)
<i>MNCs Services Share</i>	0.979 (1.5802)
<i>Embeddedness*Manufacturing</i>	0.341 (0.4559)
<i>Embeddedness*Services</i>	-0.095 (0.6881)
<i>Feeling European citizen</i>	-6.220* (2.7792)
<i>Embeddedness*Feeling Eu citizen</i>	-3.147* (1.4811)
<i>GDP</i>	26.644* (12.1730)
<i>GDP squared</i>	-1.245* (0.5597)
<i>Population Density</i>	4.799 (8.4551)
<i>Unemployment Rate</i>	0.122 (0.1290)
<i>Tertiary Education</i>	0.075 (0.1210)
<i>Death Rate</i>	0.521 (0.5057)
<i>Air Pollution</i>	0.602* (0.2746)
<i>General Trust</i>	0.159 (0.0835)
<i>Status of common areas</i>	0.122 (0.0819)
<i>Time Dummies</i>	<i>Yes</i>
<i>Regional Fixed Effect</i>	<i>Yes</i>
<i>Constant</i>	-106.139 (88.5113)
Observation (N*T)	234
Observation (N)	97
Tmin	1.0
Tavg	2.4
Tmax	3.0
Sargan	18.84
Sargan p	0.0087
Sargan df	7
Hansen	5.14
Hansen p	0.6424
Hansen df	7
Hansen	26.00
Instruments	26
Variables	18
h	3

7. Discussion and Conclusion

This paper investigates the link between the presence of MNCs and urban life satisfaction. The aim is to understand whether the MNCs' embeddedness in the local economic structure impacts urban life satisfaction, whether the sectoral and activities heterogeneity impacts the relationship, and whether the cultural context matters for the direction and magnitude of the impacts.

The literature does not demonstrate a specific link between MNCs' embeddedness and life satisfaction regarding economic embeddedness. However, despite the absence of direct evidence, according to the related literature, we expect that life satisfaction is associated positively with the degree of MNCs' embeddedness (Granovetter, 1973; 1985; Iammarino & McCann, 2013; Mattes, 2013). In this regard, economic embeddedness is measured by employing a novel indicator that proxies the linkages of MNCs in local economies. Moreover, previous studies suggest that manufacturing and labour-intensive and unskilled-oriented MNCs might be associated with lower urban life satisfaction. In contrast, the services sector and high value-added and skilled-oriented activities might be associated with higher urban life satisfaction (Costanza et al., 2007; Dollan et al., 2008, Anand & Arora, 2009; Wagner & Timmins, 2009; Cainelli et al., 2012; Martin et al., 2014). Furthermore, regarding the cultural context, the evidence would suggest that a closed cultural context can mitigate the economic benefits coming from the presence of embedded MNCs and, in turn, negatively associated with local life satisfaction (Calvano, 2008; Crescenzi et al., 2018).

The current work provides some interesting results related to some of these linkages. In particular, results suggest that urban life satisfaction is higher in places where MNCs are more economically integrated into the local economic system, highlighting that MNCs' embeddedness contributes to the local economy and improves local well-being (Granovetter, 1973; 1985; Iammarino & McCann, 2013; Mattes, 2013). Conversely, there is no evidence regarding the implication of sectoral and activity heterogeneity. After controlling for cultural context, urban life satisfaction is negatively associated with high-tech manufacturing and high-knowledge services, which is not in line with the starting hypothesis. However, the

results also highlight a lower impact on knowledge services and embedded activities. Specifically, for the embedded activities, the results underline that MNCs' embeddedness mediated the negative impact coming from economic activities such as manufacturing. The mismatch of results could also be related to the economic classification employed based on the degree of technology and knowledge of the activities, which does not fully differentiate for aspects such as environmental technology and business function (Wagner & Timmins, 2009; Cainelli et al., 2012; Martin et al., 2014). The cultural context seems to play an important role in the relationship between MNCs' embeddedness and urban life satisfaction. The data suggest that life satisfaction is negatively associated with a closed cultural context but on a smaller scale when associating the presence of integrated MNCs. One explanation could be that local communities may also perceive and value the presence of MNCs based on non-economic aspects, such as the preservation of traditional culture and the protection of the natural environment (Calvano, 2008). Indeed, despite the economic benefits, the presence of MNCs per se might be viewed negatively by local communities due to their position of power in the economic system (Calvano, 2008; Casi & Resmini, 2017; Crescenzi et al., 2018). Therefore, the findings suggest that the cultural context of local communities is essential in the relationship between MNCs' embeddedness and local life satisfaction.

The obtained results might also have some relevant policy implications. Policymakers should consider attracting proactive MNCs that also include in their strategy to integrate them-self into the local system. Specifically, policymakers should encourage other types of embeddedness that involve the MNCs in the regional innovation system (RIS), including collaborations with local institutions and actors such as universities, research centres, suppliers and customers, municipalities and local authorities, trust/labour, and environmental associations. Indeed, a high degree of embeddedness would engender strong ties across MNCs to the local context, improving the standard of living of local inhabitants and their well-being (Granovetter, 1973; 1985; McCann, 2007; Iammarino & McCann, 2013; Mattes, 2013). Moreover, this exploratory study also poses further issues for future research. In this regard, future research can provide new approaches to operationalize new

measurements of embeddedness, for instance, in scientific, political, institutional, and social (Mattes, 2013). Furthermore, more attention can be devoted to distinguishing between job and life satisfaction in areas with a high presence of MNCs and giving an overlook to the linkages between the inter-wage inequality occurring within the MNCs' sectors and activities and between MNCs and domestic firms, which in this paper is not controlled due to data availability. Also, with more in-depth information, future contributions could study the implication of green-friendly technology carried out by MNCs. Indeed, another of the critical issues faced in this work relates to the availability of data and information employed. In particular, the data employed for the MNCs and regional employment could underestimate the real number of workers involved in a specific area. Therefore, there might be further heterogeneity within the sectors and economic activities for which the classification employed does not account. In this sense, accessing more sophisticated data will improve the estimation accuracy and provide more consistent analyses. From the methodology point of view, the model employed to control the local fixed effect can include omitted variables bias that can impact life satisfaction. Finally, there might be a further issue related to the presence of endogeneity. In particular, the main critical point could relate to multinational companies located in areas where life satisfaction is already high. To control this aspect, the data of MNCs used to refer to at least a one-year lag, but it may not be enough to control the endogeneity issue. Another limitation to be acknowledged relates to the possibility that the spillover effect of MNCs can occur across regions.

References

- Abdouli, M., & Hammami, S. (2017). Investigating the causality links between environmental quality, foreign direct investment and economic growth in MENA countries. *International Business Review*, 26(2), 264–278. <https://doi.org/10.1016/j.ibusrev.2016.07.004>
- Ala-Mantila, S., Heinonen, J., Junnila, S., & Saarsalmi, P. (2018). Spatial nature of urban well-being. *Regional Studies*, 52(7), 959–973. <https://doi.org/10.1080/00343404.2017.1360485>
- Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and happiness: Are Europeans and Americans different? *Journal of Public Economics*, 88(9–10), 2009–2042. <https://doi.org/10.1016/j.jpubeco.2003.07.006>
- Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and economic growth: The role of local financial markets. *Journal of International Economics*, 64(1), 89–112. [https://doi.org/10.1016/S0022-1996\(03\)00081-3](https://doi.org/10.1016/S0022-1996(03)00081-3)
- Almfraji, M. A., & Almsafir, M. K. (2014). Foreign Direct Investment and Economic Growth Literature Review from 1994 to 2012. *Procedia - Social and Behavioral Sciences*, 129, 206–213. <https://doi.org/10.1016/j.sbspro.2014.03.668>
- Anand, M., & Arora, D. (2009). Burnout, life satisfaction and quality of life among executives of multinational companies. *Journal of the Indian Academy of Applied Psychology*, 35(1), 159–164.
- Andersson, U., Forsgren, M., & Holm, U. (2007). Balancing subsidiary influence in the federative MNC: A business network view. *Journal of International Business Studies*, 38(5), 802–818. <https://doi.org/10.1057/palgrave.jibs.8400292>
- Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. In *The Review of Economic Studies* (Vol. 58, Issue 2, pp. 277–297).
- Ascani, A., Crescenzi, R., & Iammarino, S. (2016). Economic Institutions and the Location Strategies of European Multinationals in their Geographic Neighborhood. *Economic Geography*, 92(4), 401–429. <https://doi.org/10.1080/00130095.2016.1179570>
- Asteriou, D., Dimelis, S., & Moudatsou, A. (2014). Globalization and income inequality: A panel data econometric approach for the EU27 countries. *Economic Modelling*, 36, 592–599. <https://doi.org/10.1016/j.econmod.2013.09.051>
- Azman-Saini, W. N. W., Baharumshah, A. Z., & Law, S. H. (2010). Foreign direct investment, economic freedom and economic growth: International evidence. *Economic Modelling*, 27(5), 1079–1089. <https://doi.org/10.1016/j.econmod.2010.04.001>
- Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1996). Foreign direct investment and Growth in EP and IS countries. *106(1978)*, 92–105.
- Ballas, D. (2013). What makes a “happy city”? *Cities*, 32. <https://doi.org/10.1016/j.cities.2013.04.009>
- Ballas, D., & Thanis, I. (2022). Exploring the Geography of Subjective Happiness in Europe During the Years of the Economic Crisis: A Multilevel Modelling Approach. In *Social Indicators Research* (Vol. 164, Issue 1). Springer Netherlands. <https://doi.org/10.1007/s11205-021-02874-6>

- Biagi, B., & Ladu, M. G. (2018). Productivity and employment dynamics: new evidence from Italian regions. *Economia Politica*, 35(2), 313–336. <https://doi.org/10.1007/s40888-018-0103-9>
- Bjørnskov, C., Dreher, A., & Fischer, J. A. V. (2008). Cross-country determinants of life satisfaction: Exploring different determinants across groups in society. *Social Choice and Welfare*, 30(1), 119–173. <https://doi.org/10.1007/s00355-007-0225-4>
- Blomström, M., Kokko, A., Zejan, M., (2000). Multinational Corporations and Spillovers. *Foreign Direct Investment*, 12(2), 101–133. https://doi.org/10.1057/9780230598614_8
- Blonigen, B. A. (2005). A review of the empirical literature on FDI determinants. *Atlantic Economic Journal*, 33(4), 383–403. <https://doi.org/10.1007/s11293-005-2868-9>
- Borensztein, E. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics*, 45(1), 115–135. [https://doi.org/10.1016/S0022-1996\(97\)00033-0](https://doi.org/10.1016/S0022-1996(97)00033-0)
- Brambilla, M., Michelangeli, A., & Peluso, E. (2013). Equity in the City: On Measuring Urban (In)quality of Life. *Urban Studies*, 50(16), 3205–3224. <https://doi.org/10.1177/0042098013484539>
- Bretones, F. D., & Gonzalez, M. J. (2011). Subjective and Occupational Well-Being in a Sample of Mexican Workers. *Social Indicators Research*, 100(2), 273–285. <https://doi.org/10.1007/s11205-010-9616-5>
- Brock, W. a, & Taylor, M. S. (2005). Review: Economic Growth and the Environment: Handbook of Economic Growth, Volume 1, Part B, October, 1749–1821.
- Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European Journal of Political Economy*, 23(2), 397–415. <https://doi.org/10.1016/j.ejpoleco.2006.02.003>
- Cainelli, G., Mazzanti, M., & Montresor, S. (2012). Environmental Innovations, Local Networks and Internationalization. *Industry and Innovation*, 19(8), 697–734. <https://doi.org/10.1080/13662716.2012.739782>
- Calvano, L. (2008). Multinational corporations and local communities: A critical analysis of conflict. *Journal of Business Ethics*, 82(4), 793–805. <https://doi.org/10.1007/s10551-007-9593-z>
- Casi, L., & Resmini, L. (2017). Foreign direct investment and growth: Can different regional identities shape the returns to foreign capital investments? *Environment and Planning C: Politics and Space*, 35(8), 1483–1508. <https://doi.org/10.1177/2399654417690906>
- Caves, R. E. (1974). Multinational Firms, Competition, and Productivity in Host-Country Markets. Source: *Economica*, New Series, 41(162), 176–193. <http://www.jstor.org/stable/2553765%5Cnhttp://www.jstor.org/page/info/about/policies/terms.jsp>
- Coe, D. T., Helpman, E., & Hoffmaister, A. W. (2009). International R&D spillovers and institutions. *European Economic Review*, 53(7), 723–741. <https://doi.org/10.1016/j.eurocorev.2009.02.005>
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive Capacity : A New Perspective on Learning and Innovation Author (s): Wesley M . Cohen and Daniel A .

- Levinthal Source : Administrative Science Quarterly , Vol . 35 , No . 1 , Special Issue : Technology , Organizations , and Innovation (Mar .. 8/Administrative Science Quarterly, 35(1), 128–152.
- Cole, M. A., & Elliott, R. J. R. (2005). FDI and the capital intensity of “dirty” sectors: A missing piece of the pollution haven puzzle. *Review of Development Economics*, 9(4), 530–548. <https://doi.org/10.1111/j.1467-9361.2005.00292.x>
- Cole, M. A., Elliott, R. J. R., & Zhang, L. (2017). Foreign Direct Investment and the Environment. *Annual Review of Environment and Resources*, 42(1), 465–487. <https://doi.org/10.1146/annurev-environ-102016-060916>
- Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., Danigelis, N. L., Dickinson, J., Elliott, C., Farley, J., Gayer, D. E., Glenn, L. M. D., Hudspeth, T., Mahoney, D., McCahill, L., McIntosh, B., Reed, B., Rizvi, S. A. T., Rizzo, D. M., ... Snapp, R. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological Economics*, 61(2–3), 267–276. <https://doi.org/10.1016/j.ecolecon.2006.02.023>
- Crescenzi, R., & Iammarino, S. (2017). Global investments and regional development trajectories: the missing links. *Regional Studies*, 51(1), 97–115. <https://doi.org/10.1080/00343404.2016.1262016>
- Crescenzi, R., Gagliardi, L., & Iammarino, S. (2015). Foreign multinationals and domestic innovation: Intra-industry effects and firm heterogeneity. *Research Policy*, 44(3), 596–609. <https://doi.org/10.1016/j.respol.2014.12.009>
- Crespo, N., Fontoura, M. P., & Proença, I. (2009). FDI spillovers at regional level: Evidence from Portugal. *Papers in Regional Science*, 88(3), 591–607. <https://doi.org/10.1111/j.1435-5957.2009.00225.x>
- Dang, D. A. (2013). How foreign direct investment promote institutional quality: Evidence from Vietnam. *Journal of Comparative Economics*, 41(4), 1054–1072. <https://doi.org/10.1016/j.jce.2013.05.010>
- Dardati, E., & Saygili, M. (2012). Multinationals and environmental regulation: Are foreign firms harmful? *Environment and Development Economics*, 17(2), 163–186. <https://doi.org/10.1017/S1355770X11000398>
- de Mello Jr, L. R. (1999). Foreign Direct Investment-Led Growth: Evidence from Time Series and Panel Data. *Oxford Economic Papers*, 51(1), 133–151. <http://ideas.repec.org/a/oup/oxecpp/v51y1999i1p133-51.html>
- Demir, F. (2016). Effects of FDI Flows on Institutional Development: Does It Matter Where the Investors are from? *World Development*, 78, 341–359. <https://doi.org/10.1016/j.worlddev.2015.10.001>
- Di Tella, R., MacCulloch, R. J., & Oswald, A. J. (2003). The macroeconomics of happiness. *Review of Economics and Statistics*, 85(4), 809–827. <https://doi.org/10.1162/003465303772815745>
- Diener, E., & Biswas-Diener, R. (2002). WILL MONEY INCREASE SUBJECTIVE WELL-BEING? *Communications in Statistics - Theory and Methods*, 57, 509–516. <https://doi.org/10.1080/03610927808827645>
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, Culture, and Subjective Well-Being: Emotional and Cognitive Evaluations of Life. *Annual Review of Psychology*, 54(1), 403–425. <https://doi.org/10.1146/annurev.psych.54.101601.145056>

- Dietzenbacher, E., Los, B., Stehrer, R., Timmer, M., & de Vries, G. (2013). The Construction of World Input-Output tables in the WIOD project. *Economic Systems Research*, 25(1), 71–98. <https://doi.org/10.1080/09535314.2012.761180>
- Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 29(1), 94–122. <https://doi.org/10.1016/j.joep.2007.09.001>
- Dollar, D., & Kraay, A. (2004). Trade, Growth, and Poverty. 114, 22–49.
- Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics*, 38(10), 1091–1110. <https://doi.org/10.1080/00036840500392078>
- Dreher, A., & Gaston, N. (2008). Has globalization increased inequality? Review of *International Economics*, 16(3), 516–536. <https://doi.org/10.1111/j.1467-9396.2008.00743.x>
- Easterlin, R. A. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence. In *International Journal of Managing Projects in Business* (Vol. 7, Issue 3, pp. 449–472). <https://doi.org/10.1108/IJMPB-01-2013-0003>
- Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior and Organization*, 27(1), 35–47.
- European Commission. (2020). Report on the Quality of Life in European Cities. <https://doi.org/10.2776/600407>
- Eurostat. (2008). NACE Rev. 2 - Introductory Guidelines. Methodologies and Working Papers, ISSN 1977-(352), 369. <http://ec.europa.eu/eurostat>
- Eurostat. (2020). High-tech industry and knowledge-intensive services. 2–4. https://ec.europa.eu/eurostat/cache/metadata/en/htec_esms.htm
- Ezcurra, R., & Rodríguez-Pose, A. (2013). Does Economic Globalization affect Regional Inequality? A Cross-country Analysis. *World Development*, 52, 92–103. <https://doi.org/10.1016/j.worlddev.2013.07.002>
- Ferrer-i-Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics*, 89(5–6), 997–1019. <https://doi.org/10.1016/j.jpubeco.2004.06.003>
- Girma, S. (2005). Absorptive Capacity and Productivity Spillovers from FDI: A Threshold Regression Analysis. *Oxford Bulletin of Economics and Statistics*, 67(1).
- Girma, S., Greenaway, D., & Wakelin, K. (2001). Who Benefits from Foreign Direct Investment in the UK? *Scottish Journal of Political Economy*, 60(5), 560–574. <https://doi.org/10.1111/sjpe.12023>
- Görg, H., & Greenaway, D. (2004). Much ado about nothing? Do domestic firms really benefit from foreign direct investment? *World Bank Research Observer*, 19(2), 171–197. <https://doi.org/10.1093/wbro/lkh019>
- Graafland, J., & Lous, B. (2018). Economic Freedom, Income Inequality and Life Satisfaction in OECD Countries. *Journal of Happiness Studies*, 19(7), 2071–2093. <https://doi.org/10.1007/s10902-017-9905-7>
- Granovetter, M. (1973). The Strength of Weak Ties. *American Journal of Sociology*, 78(6), 1360–1380.

- Granovetter, M. (1985). Economic Action and Social Structure: the Problem of Embeddedness. *American Journal of Sociology*, 91(3), 481–510. <https://doi.org/10.17323/1726-3247-2002-3-44-58>
- Graziano, P., Rizzi, P., Piva, M., & Barbieri, L. (2019). A Regional Analysis of Well-Being and Resilience Capacity in Europe. *Scienze Regionali*, 18(Special Issue), 551–574. <https://doi.org/10.14650/94667>
- Harrison, A. E., & Aitken, B. J. (1999). Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela. *American Economic Review*, 89(3), 605–618.
- Heidenreich, M. (2012). The social embeddedness of multinational companies: A literature review. *Socio-Economic Review*, 10(3), 549–579. <https://doi.org/10.1093/ser/mws010>
- Helliwell, J. F. (2003). How's life? Combining individual and national variables to explain subjective well-being. *Economic Modelling* 20, 20, 331–360. <https://doi.org/10.1177/001979391006300202>
- Helliwell, J. F., & Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 359(1449), 1435–1446. <https://doi.org/10.1098/rstb.2004.1522>
- Hessami, Z. (2011). Globalization's winners and losers-Evidence from life satisfaction data, 1975-2001. *Economics Letters*, 112(3), 250–253. <https://doi.org/10.1016/j.econlet.2011.05.016>
- Hu, A. G. Z., & Jefferson, G. H. (2002). FDI impact and spillover: Evidence from China's electronic and textile industries. *World Economy*, 25(8), 1063–1076. <https://doi.org/10.1111/1467-9701.00481>
- Iammarino S., McCann P. (2013). *Multinationals and Economic Geography: Location, Technology and Innovation* -. Edward Elgar.
- Javorcik, B. S. (2004). Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages. *American Economic Review*, 94(3), 605–627. <https://doi.org/10.1257/0002828041464605>
- Johnston, R. B. (2016). Arsenic and the 2030 Agenda for sustainable development. *Arsenic Research and Global Sustainability - Proceedings of the 6th International Congress on Arsenic in the Environment, AS 2016*, 12–14. <https://doi.org/10.1201/b20466-7>
- Kitsos, A., Carrascal-Incera, A., & Ortega-Argilés, R. (2019). The role of embeddedness on regional economic resilience: Evidence from the UK. *Sustainability (Switzerland)*, 11(14). <https://doi.org/10.3390/su11143800>
- Kokko, A., Tansini, R., & Zejan, M. C. (1996). Local technological capability and productivity spillovers from FDI in the Uruguayan manufacturing sector. *Journal of Development Studies*, 32(4), 602–611. <https://doi.org/10.1080/00220389608422430>
- Lambiri, D., Biagi, B., & Royuela, V. (2007). Quality of life in the economic and urban economic literature. *Social Indicators Research*, 84(1), 1–25. <https://doi.org/10.1007/s11205-006-9071-5>
- Lee, E., & Vivarelli, M. (2006). The social impact of globalization in the Developing Countries. *Developing Country Studies*.

- Lenzi, C., & Perucca, G. (2016). Life Satisfaction across Cities: Evidence from Romania. *Journal of Development Studies*, 52(7), 1062–1077. <https://doi.org/10.1080/00220388.2015.1113265>
- Lenzi, C., & Perucca, G. (2018). Are urbanized areas source of life satisfaction? Evidence from EU regions. *Papers in Regional Science*, 97(March 2018), S105–S122. <https://doi.org/10.1111/pirs.12232>
- Lenzi, C., & Perucca, G. (2019). Subjective Well-Being over Time and across Space: Thirty Years of Evidence from Italian Regions. *Scienze Regionali*, 18(Special Issue), 611–632. <https://doi.org/10.14650/94669>
- Lessmann, C. (2013). Foreign direct investment and regional inequality: A panel data analysis. *China Economic Review*, 24(1), 129–149. <https://doi.org/10.1016/j.chieco.2012.12.001>
- Liberini, F., Oswald, A. J., Proto, E., & Redoano, M. (2017). Was Brexit Caused by the Unhappy and the Old? IZA DP No. 11059 Discussion Paper, 11059. <http://www.andrewoswald.com/docs/Brexit-Liberini-et-al-October2017.pdf>
- Litchfield, J., Reilly, B., & Veneziani, M. (2012). An analysis of life satisfaction in Albania: An heteroscedastic ordered probit model approach. *Journal of Economic Behavior and Organization*, 81(3), 731–741. <https://doi.org/10.1016/j.jebo.2010.12.020>
- Long, C., Yang, J., & Zhang, J. (2015). Institutional impact of foreign direct investment in China. *World Development*, 66(71273217), 31–48. <https://doi.org/10.1016/j.worlddev.2014.08.001>
- Louis, V. V., & Zhao, S. (2002). Effects of family structure, family SES, and adulthood experiences on life satisfaction. *Journal of Family Issues*, 23(8), 986–1005. <https://doi.org/10.1177/019251302237300>
- Marano, V., & Kostova, T. (2016). Unpacking the Institutional Complexity in Adoption of CSR Practices in Multinational Enterprises. *Journal of Management Studies*, 53(1), 28–54. <https://doi.org/10.1111/joms.12124>
- Martin, R., Muûls, M., Laure, L. B., & Wagner, U. J. (2014). Industry compensation under relocation risk: A firm-level analysis of the EU emissions trading scheme. *American Economic Review*, 104(8), 2482–2508. <https://doi.org/10.1257/aer.104.8.2482>
- Mattes, J. (2013). The Regional Embeddedness of Multinational Companies: A Critical Perspective. *European Planning Studies*, 21(4), 433–451. <https://doi.org/10.1080/09654313.2012.722919>
- McCann, P. (2007). Sketching out a model of innovation, face-to-face interaction and economic geography. *Spatial Economic Analysis*, 2(2), 117–134. <https://doi.org/10.1080/17421770701346622>
- McCann, P. (2019). Perceptions of regional inequality and the geography of discontent: insights from the UK. *Regional Studies*, 0(0), 1–12. <https://doi.org/10.1080/00343404.2019.1619928>
- McCrea, R., Shyy, T. K., & Stimson, R. (2006). What is the strength of the link between objective and subjective indicators of urban quality of life? *Applied Research in Quality of Life*, 1(1), 79–96. <https://doi.org/10.1007/s11482-006-9002-2>

- Merlevede, B., & Purice, V. (2016). Distance, time since foreign entry, and productivity spillovers from foreign direct investment. *Papers in Regional Science*, 95(4), 775–800. <https://doi.org/10.1111/pirs.12159>
- Meyer, K. E., Mudambi, R., & Narula, R. (2011). Multinational Enterprises and Local Contexts: The Opportunities and Challenges of Multiple Embeddedness. *Journal of Management Studies*, 48(2), 235–252. <https://doi.org/10.1111/j.1467-6486.2010.00968.x>
- Moulton, B. R. (1990). An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Units. *The Review of Economics and Statistics*, 72(2), 334. <https://doi.org/10.2307/2109724>
- Narehan, H., Hairunnisa, M., Norfadzillah, R. A., & Freziamella, L. (2014). The Effect of Quality of Work Life (QWL) Programs on Quality of Life (QOL) among Employees at Multinational Companies in Malaysia. *Procedia - Social and Behavioral Sciences*, 112, 24–34. <https://doi.org/10.1016/j.sbspro.2014.01.1136>
- Newman, C., Rand, J., Talbot, T., & Tarp, F. (2015). Technology transfers, foreign investment and productivity spillovers. *European Economic Review*, 76, 168–187. <https://doi.org/10.1016/j.eurocorev.2015.02.005>
- Nicolini, M., & Resmini, L. (2010). FDI spillovers in new EU member states. *Economics of Transition*, 18(3), 487–511. <https://doi.org/10.1111/j.1468-0351.2009.00379.x>
- Oerlemans, L., Meeus, M., & Boekema, F. (2001). On the spatial embeddedness of innovation networks: An exploration of the proximity effect. *Tijdschrift Voor Economische En Sociale Geografie*, 92(1), 60–75. <https://doi.org/10.1111/1467-9663.00139>
- Peiró, A. (2006). Happiness, satisfaction and socio-economic conditions: Some international evidence. *The Journal of Socio-Economics*, 35(2), 348–365. <https://doi.org/10.1016/J.SOCEC.2005.11.042>
- Pepper, J. V. (2002). Robust inferences from random clustered samples: An application using data from the panel study of income dynamics. *Economics Letters*, 75(3), 341–345. [https://doi.org/10.1016/S0165-1765\(02\)00010-1](https://doi.org/10.1016/S0165-1765(02)00010-1)
- Phelps, N. A., Mackinnon, D., Stone, I., & Braidford, P. (2003). Embedding the multinationals? Institutions and the development of overseas manufacturing affiliates in Wales and North East England. *Regional Studies*, 37(1), 27–40. <https://doi.org/10.1080/0034340022000033385>
- Potrafke, N. (2015). The evidence on globalisation. *World Economy*, 38(3), 509–552. <https://doi.org/10.1111/twec.12174>
- Rafael, B., Tella, D., Macculloch, R. J., & Oswald, A. J. (2001). Preferences over Inflation and Unemployment : Evidence from Surveys of Happiness Author (s): Rafael Di Tella , Robert J . MacCulloch and Andrew J . Oswald Source : The American Economic Review , Vol . 91 , No . 1 (Mar . , 2001). The American Economic Review, 91(1), 335–341.
- Rezza, A. A. (2015). A meta-analysis of FDI and environmental regulations. *Environment and Development Economics*, 20(2), 185–208. <https://doi.org/10.1017/S1355770X14000114>

- Rodríguez-Pose, A. (2018). The revenge of the places that don't matter (and what to do about it). *Cambridge Journal of Regions, Economy and Society*, 11(1), 189–209. <https://doi.org/10.1093/cjres/rsx024>
- Rodrik, D. (2018). Populism and the economics of globalization. *Journal of International Business Policy*, 1(1–2), 12–33. <https://doi.org/10.1057/s42214-018-0001-4>
- Romer, P. M. (1990). Endogenous Technological Change. 98(5).
- Rözer, J., & Kraaykamp, G. (2013). Income Inequality and Subjective Well-being: A Cross-National Study on the Conditional Effects of Individual and National Characteristics. *Social Indicators Research*, 113(3), 1009–1023. <https://doi.org/10.1007/s11205-012-0124-7>
- Schiller, D., & Diez, J. R. (2010). Local embeddedness of knowledge spillover agents: Empirical evidence from German star scientists. *Papers in Regional Science*, 89(2), 275–294. <https://doi.org/10.1111/j.1435-5957.2010.00294.x>
- Sirgy, M. J., Lee, D. J., Miller, C., & Littlefield, J. E. (2004). The impact of globalization on a country's quality of life: Toward an integrated model. *Social Indicators Research*, 68(3), 251–298. <https://doi.org/10.1023/B:SOCI.0000033577.34180.4b>
- Sørensen, J. F. L. (2014). Rural–Urban Differences in Life Satisfaction: Evidence from the European Union. *Regional Studies*, 48(9), 1451–1466. <https://doi.org/10.1080/00343404.2012.753142>
- Spruk, R., & Kešeljević, A. (2016). Institutional Origins of Subjective Well-Being: Estimating the Effects of Economic Freedom on National Happiness. *Journal of Happiness Studies*, 17(2), 659–712. <https://doi.org/10.1007/s10902-015-9616-x>
- Strotmann, H., Volkert, J., & Schmidt, M. (2019). Multinational companies: can they foster well-being in the eyes of the poor? Results from an empirical case study. *International Journal of Corporate Social Responsibility*, 4(1). <https://doi.org/10.1186/s40991-019-0040-0>
- Stutzer, A. (2004). The role of income aspirations in individual happiness. *Journal of Economic Behavior and Organization*, 54(1), 89–109. <https://doi.org/10.1016/j.jebo.2003.04.003>
- Timmer, M. P., Dietzenbacher, E., Los, B., Stehrer, R., & de Vries, G. J. (2015). An Illustrated User Guide to the World Input-Output Database: The Case of Global Automotive Production. *Review of International Economics*, 23(3), 575–605. <https://doi.org/10.1111/roie.12178>
- Timmer, M. P., Los, B., Stehrer, R., & Vries, G. J. De. (2016). An Anatomy of the Global Trade Slowdown based on the WIOD 2016 Release. *GGDC Research Memorandum*, 162.
- Tsai, M. C. (2007). Does globalization affect human well-being? *Social Indicators Research*, 81(1), 103–126. <https://doi.org/10.1007/s11205-006-0017-8>
- Turok, I. (1993). Inward Investment and Local Linkages: How Deeply Embedded is 'Silicon Glen'? *Regional Studies*, 27(5), 401–417. <https://doi.org/10.1080/00343409312331347655>
- Ucal, M. Ş. (2014). Panel Data Analysis of Foreign Direct Investment and Poverty from the Perspective of Developing Countries. *Procedia - Social and Behavioral Sciences*, 109, 1101–1105. <https://doi.org/10.1016/j.sbspro.2013.12.594>

- UNIDO, U. (2016). Detailed Description of International Standard Industrial Classification of All Economic Activities (Isic) Revision 3 and 4. In *International Yearbook of Industrial Statistics* 2016. <https://doi.org/10.4337/9781785364938.00009>
- United Nations Department of Economic and Social Affairs, (2019). *World Urbanization Prospects: The 2018 Revision*. World Urbanization Prospects: The 2018 Revision. <https://doi.org/10.18356/B9E995FE-EN>
- Wagner, U. J., & Timmins, C. D. (2009). Agglomeration effects in foreign direct investment and the pollution haven hypothesis. *Environmental and Resource Economics*, 43(2), 231–256. <https://doi.org/10.1007/s10640-008-9236-6>
- Waldkirch, A., & Gopinath, M. (2008). Pollution control and foreign direct investment in Mexico: An industry-level analysis. *Environmental and Resource Economics*, 41(3), 289–313. <https://doi.org/10.1007/s10640-008-9192-1>
- Wang, P., & VanderWeele, T. J. (2011). Empirical Research on Factors Related to the Subjective Well-Being of Chinese Urban Residents. *Social Indicators Research*, 101(3), 447–459. <https://doi.org/10.1007/s11205-010-9663-y>
- Wang, Y., Ning, L., Li, J., & Prevezer, M. (2016). Foreign Direct Investment Spillovers and the Geography of Innovation in Chinese Regions: The Role of Regional Industrial Specialization and Diversity. *Regional Studies*, 50(5), 805–822. <https://doi.org/10.1080/00343404.2014.933800>
- Wooldridge, B. J.M. (2002). *Econometric Analysis of Cross Section and Panel Data*. The MIT Press, Cambridge.
- Wooldridge, B. J. M. (2003). Cluster-Sample Methods in Applied Econometrics Author (s): Jeffrey M . Wooldridge Source : *The American Economic Review* , May , 2003 , Vol . 93 , No . 2 , Papers and Proceedings of the One Hundred Fifteenth Annual Meeting of the American Economic Publis. 93(2), 133–138.
- Zhang, X., & Zhang, K. H. (2010). How does globalization affect regional inequality within a developing country?: Evidence from China. *Regional Inequality in China: Trends, Explanations and Policy Responses*, 0388, 121–139. <https://doi.org/10.4324/9780203881484>
- Zugravu-Soilita, N. (2017). How does Foreign Direct Investment Affect Pollution? Toward a Better Understanding of the Direct and Conditional Effects. In *Environmental and Resource Economics* (Vol. 66, Issue 2). Springer Netherlands. <https://doi.org/10.1007/s10640-015-9950-9>

Appendix

Appendix - Table 1 – Cities and Countries included in the dataset

Country	City Name
Austria	Graz; Münster; Wien
Belgium	Antwerpen; Bruxelles/Brussel; Essen; Liège
Bulgaria	Burgas; Sofia
Cyprus	Lefkosia
Czech Republic	Kosice; Ostrava; Praha
Denmark	Aalborg; Kobenhavn
Estonia	Narva; Tallinn; Tartu
Finland	Helsinki/Helsingfors; Oulu
France	Bordeaux; Lille; Marseille; Paris; Rennes; Strasbourg
Germany	Aachen; Augsburg; Berlin; Braunschweig; Darmstadt; Dortmund; Dresden; Düsseldorf; Frankfurt am Main; Freiburg im Breisgau; Fürth; Hamburg; Ingolstadt; KaSWBruhe; Kassel; Koblenz; Köln; Konstanz; Leipzig; Mannheim; München; Nürnberg; Oberhausen; Osnabrück; Recklinghausen; Rostock; Saarbrücken; Stuttgart; Wolfsburg; Würzburg; Zwickau
Greece	Irakleio
Hungary	Budapest; Miskolc
Ireland	Dublin
Italy	Bologna; Napoli; Palermo; Roma; Torino; Verona
Latvia	Daugavpils; Jelgava; Liepaja; Riga
Lithuania	Vilnius
Luxembourg	Luxembourg
Malta	Valletta
Netherlands	Greater Amsterdam; Greater Rotterdam; Groningen
Poland	Białystok; Gdansk; Kraków; Warszawa
Portugal	Braga; Lisboa
Romania	Bucuresti; Cluj-Napoca; Piatra Neamt
Slovakia	Bratislava
Slovenia	Ljubljana
Spain	Barcelona; Madrid; Málaga; Oviedo
Sweden	Malmö; Stockholm
United Kingdom	Belfast; Cardiff; Glasgow City; Greater Manchester; London; Manchester; Tyneside conurbation

Appendix 1 – Sectoral and activities classification according to Eurostat

In this paper, the sector classification is based on the Eurostat classification of high-tech industry and knowledge-intensive services on NACE Rev. 2 two-digit. Table 1 shows the reclassification of manufacturing industries according to the degree of technology employed in the production chains. Table 2 shows the reclassification of the services sector according to the intensity of knowledge employed in production chains. To notice that, for computational reasons, the two sectors, *Knowledge-intensive financial services* (SKIF) and *High-tech knowledge-intensive services* (SHTKI), have been aggregated, representing a single category, *Knowledge and High-tech Knowledge-intensive services*. As a result, the classification employed in the current paper does not include the sector from 84 to 93 according to the NACE Rev. 2 two-digit level.

Appendix – Table 2 – Eurostat classification of high-tech industry and knowledge-intensive services

Manufacturing Industries, according to the degree of technology

Manufacturing Industries	NACE Rev. 2 codes – 2-digit level	
High-technology	21	Manufacture of basic pharmaceutical products and pharmaceutical preparations;
	26	Manufacture of computer, electronic and optical products
Medium-high-technology	20	Manufacture of chemicals and chemical products;
	27 to 30	Manufacture of electrical equipment; Manufacture of machinery and equipment n.e.c. ; Manufacture of motor vehicles, trailers and semi-trailers; Manufacture of other transport equipment
Medium-low-technology	19	Manufacture of coke and refined petroleum products;
	22 to 25	Manufacture of rubber and plastic products; Manufacture of other non-metallic mineral products; Manufacture of basic metals; Manufacture of fabricated metals products, excepts machinery and equipment;
	33	Repair and installation of machinery and equipment
Low technology	10 to 18	Manufacture of food products, beverages, tobacco products, textile, wearing apparel, leather and related products, wood and of products of wood, paper and paper products, printing and reproduction of recorded media;
	31 to 32	Manufacture of furniture; Other manufacturing

Services according to intensity of knowledge

Knowledge based services	NACE Rev. 2 codes – 2-digit level	
Knowledge-intensive services (KIS)	50 to 51	Water transport; Air transport;
	58 to 63	Publishing activities; Motion picture, video and television programme production, sound recording and music publish activities; Programming and broadcasting activities; Telecommunications; computer programming, consultancy and related activities; Information service activities (section J);
	64 to 66	Financial and insurance activities (section K);
	69 to 75	Legal and accounting activities; Activities of head offices, management consultancy activities; Architectural and engineering activities, technical testing and analysis; Scientific research and development; Advertising and market research; Other professional, scientific and technical activities; Veterinary activities (section M);
	78	Employment activities;
	80	Security and investigation activities;
	84 to 93	Public administration and defence, compulsory social security (section O); Education (section P), Human health and social work activities (section Q); Arts, entertainment and recreation (section R).
Knowledge-intensive market services (excluding high-tech and financial services)	50 to 51	Water transport; Air transport;
	69 to 71	Legal and accounting activities; Activities of head offices, management consultancy activities; Architectural and engineering activities, technical testing and analysis;
	73 to 74	Advertising and market research; Other professional, scientific and technical activities;
	78 80	Employment activities; Security and investigation activities;
High-tech knowledge-intensive services	59 to 63	Motion picture, video and television programme production, sound recording and music publish activities; Programming and broadcasting activities; Telecommunications; computer programming, consultancy and related activities; Information service activities;
	72	Scientific research and development;
Knowledge-intensive financial services	64 to 66	Financial and insurance activities (section K).
Other knowledge-intensive services	58	Publishing activities;
	75	Veterinary activities;
	84 to 93	Public administration and defence, compulsory social security (section O); Education (section P), Human health and social work activities (section Q); Arts, entertainment and recreation (section R).

Source From Eurostat: https://ec.europa.eu/eurostat/cache/metadata/Annexes/htec_esms_an3.pdf

Part II – The Role of Cultural Consumption on SWB

Chapter 3 – Well-Being, Life Satisfaction and Happiness: Does culture matter?

Abstract

This research aims to understand the implications of culture on people's SWB by operationalising and disentangling the effects of types of cultural consumption on SWB components, life satisfaction and happiness by looking at the case of Italy. Specifically, on the one hand, the aim is to test the link between cultural consumption and general SWB over seven years. On the other hand, we investigate whether there is a significant difference between cultural consumption and the two components of SWB, life satisfaction and happiness, over a shorter period of 3 years. We collect data from Multiscopo – Aspetti della vita Quotidiana of the Italian National Institute of Statistics (ISTAT) survey for the period 2013-2019. The econometrics strategy consists of three steps: first, pooled OLS, ordered probit, and ordered logit as preliminary analysis; second, sensitivity analysis; third, treatment effect and endogenous treatment effect as robustness checks to address the endogeneity. The results highlight that cultural consumption positively impacts SWB. However, the effect on happiness appears negative and heterogeneous according to cultural activities and individual characteristics. The robustness checks also confirm these results.

Keywords: Cultural Consumption, Subjective Well-Being, Life Satisfaction, Happiness, Treatment Effect Model

JEL Classification: R10, I31, Z1, C21

1. Introduction

This paper aims to investigate the linkages between individual cultural consumption and the subjective well-being (SWB) dimension, disentangling the effect of cultural consumption on the SWB's components, life satisfaction and happiness.

The economic literature on well-being has already investigated the impacts of individual socioeconomic features, also including the geographical and territorial perspective, typical of regional and urban studies (e.g., Easterlin, 1974; 1995; Diener and Biswas-Diener, 2002; Di Tella et al., 2001; Alesina et al., 2004; Ferrer-i-Carbonell, 2005; Bjørnskov et al., 2008; Lenzi & Perucca, 2018). Specifically, in

some recent contributions, evidence highlights that urban and regional well-being is dependent on the geographical context (e.g., Sabatini, 2005; Ballas & Tranmer, 2012; Ballas, 2013; Sørensen, 2013; Brambilla et al., 2013; Lenzi & Perucca, 2018; Ala-Mantila et al., 2018; Biagi et al., 2018; Graziano et al., 2019). In fact, beyond the traditional economic and socio-demographic characteristics that impact the subjective well-being (i.e., work status, age, education, and family condition) (Ferrer-i-Carbonell, 2005, Alesina et al., 2004; Dolan et al., 2008; Rözer & Kraaykamp, 2013; Sørensen, 2014; Lenzi & Perucca) the concerned literature focuses on the role of contextual factors that can play an important role in shaping well-being, such as the presence of natural and man-made amenities (i.e., green areas and historical and cultural sites) (Brambilla et al., 2013; Biagi et al., 2018) and presence of disamenities, such as crime rate and pollution (McCrea et al., 2006; Litchfield et al., 2013; Lenzi & Perucca, 2018; Biagi et al., 2018; Graziani et al. 2019).

Related to the purposes of the current paper, recent contributions investigate how cultural activities can contribute to SWB. More specifically, both academia and institutions have focused on the role of culture in relation to mental health and (subjective) well-being (see Eakin, 2003; Doyle et al., 2008; Crociata et al., 2014; Grossi et al., 2019; World Health Organization, 2019). Evidence suggests that experiences associated with cultural consumption might improve mental health and people's well-being. For instance, the aesthetic experience associated with visiting a cultural place or actively participating in and consuming culture (for instance, by attending concerts, art exhibitions, or reading books) could stimulate well-being and mental health through a renewed and empowered "sense of who we are in the world" (Eakin, 2003; Campagna et al., 2020), shaping identity and reinforcing community ties and social norms (Crociata et al., 2015). However, existing contributions mainly focus on physical/mental health dimensions rather than on SWB per se, employing small samples and limited control variables by looking mainly at the implications of culture from a clinical and epidemiological perspective and less from the well-being perspective (Grossi et al., 2012; Crociata et al., 2013; Grossi et al., 2019). Thus, the empirical analyses are mostly limited to cross-individual surveys or case studies without longitudinal or panel data analysis (Ateca-Amestoy et al., 2021; Javier Reyes-

Martínez, 2021; Reyes-Martínez et al., 2021). Moreover, the literature often overlaps the definition of SWB (i.e., the one of life satisfaction with the one of happiness). Regarding this aspect, according to the features of the two SWB components, it is reasonable that, given the type of cultural activity observed, the effect on the two components can be different. Following two different strands of literature, we argue that cultural consumption may positively impact SWB, disentangling its two components, life satisfaction and happiness. Life satisfaction considers an overall sense of satisfaction, including individuals' middle/long-term circumstances. Instead, happiness considers short-term circumstances such as mood, emotional or affective components. So, life satisfaction appears to be a more stable indicator than happiness (Diener et al., 2003; Helliwell & Putnam, 2004). According to Nikolova and Graham (2021), life satisfaction is primarily associated with a sense of purpose in life, while happiness encompasses both positive and negative emotions. Nevertheless, the recent work of Yew-Kwang Ng (2021) suggests that happiness should be given priority over life satisfaction in measuring what individuals and society truly value. Even though the author acknowledges that short-term circumstances can influence happiness. For more information regarding the classification and definition of the factors contributing to happiness, please refer also to the World Happiness Report of 2023.

Therefore, our work relates to increasing interest in culture as an intangible asset and a soft driver in shaping well-being, contributing to a better understanding of the indirect impact of culture on socioeconomic development by investigating the role of culture (via cultural consumption) on SWB. Further, the paper explores the types of SWB dimensions observed and the types of cultural consumption by investigating and disentangling the effect on SWB's sub-components earlier introduced: life satisfaction and happiness. Hence, the research questions are the following: *RQ1) Does culture consumption affect SWB? RQ2) Do different domains of cultural consumption perform differently on life satisfaction and happiness?* In the first case, we expect that cultural consumption positively affects the SWB (hypothesis 1; H1), while in the second case, we expect that cultural consumption impact more life satisfaction than happiness (hypothesis 2; H2).

To test these research questions, we collect information from the ISTAT dataset, specifically from the survey of *Multiscopo - Aspetti della vita quotidiana*. We employ this data because it contains information at the individual level (such as socio-demographic variables and social capital), including the dependent and main variables under investigation. The first dataset (for RQ1) covers 2013 to 2019 for around 143,000 individuals⁴⁸. The second dataset (for RQ2) covers the period 2017-2019 for around 66,000 individuals. The econometrics strategy employed is the following: 1) we employ the pooled OLS, ordered probit, and ordered logit as a preliminary check; 2) we provide a sensitivity analysis of cultural activities on SWB components for hypothesis 2; 3) we run robustness checks with treatment effect approaches to control for endogeneity issues and multicollinearity of cultural activities. Moreover, we provide further robustness checks in the Appendix section (further robustness checks are available upon request to the authors). Our results suggest that cultural consumption positively impacts life satisfaction and happiness. However, the effect of culture on happiness appears to be negative and more heterogeneous, depending on the type of cultural activity and individual characteristics. According to the results, this paper would have important policy implications related to incentives in the cultural sector and how to improve people's well-being in general.

The paper is organised as follows: Section 2 provides the literature background. Section 3 defines the conceptual framework and the underlying mechanism. Section 4 presents the data. Section 5 introduces the empirical strategy. Section 6 discusses the results and concludes.

2. Background literature

2.1. Predictors and factors affecting SWB

The first strand of literature deals with predictors and, in general, factors affecting SWB. From the economic perspective, income and GDP are widely employed as a proxy of individual economic wealth or economic development (more at the aggregate level). The seminal contribution of Easterlin (1974) suggests a positive link between

⁴⁸ The dataset is integrated with other information from the ISTAT database, such as income per capita and per capita municipal expenditure at NUTS2

economic wealth and happiness (expressed in terms of general well-being). In the earlier stages of the economy⁴⁹, the link is stronger, meaning that a small improvement in average economic wealth corresponded to a significant increase in happiness. However, Easterlin also observed that countries that reached a high level of economic wealth (or development) experience a smaller increase in happiness (Easterlin 1974, 1995; Diener & Biswas-Diener, 2002; Di Tella et al., 2001; Alesina et al., 2004; Ferrer-i-Carbonell, 2005; Bjørnskov et al. 2008; Lenzi & Perruca, 2018).

Other important predictors that can negatively affect the standard of living and, thus, well-being are unemployment and inflation, which represent measurements of the (in)stability of the economy. Indeed, uncertainty attached to economic instability represents one important factor determining the low standard of living and low well-being perceived (Di Tella et al., 2001; Alesina et al., 2004). At the individual level, the work status can also determine the level of well-being of individuals. More precisely, among the basic discrimination between employed or not employed, the literature also highlights that the type of position can determine individual well-being: specifically, the distinction between self-employed and employed people does matter (Bjørnskov et al., 2008; Biagi et al., 2018). Moreover, the research field includes socio-demographic characteristics that can surely impact the SWB. For instance, gender allows controlling for persistence and structural gaps between females and males. In this case, some evidence highlights that males experience lower SWB than females. However, other contributions find no significant difference between the two (Louis & Zhao, 2002; Dolan et al., 2008; Alesina et al., 2004; Lenzi & Perucca, 2018; Biagi et al., 2018). The variable age allows controlling for the non-linear impact on SWB, which depends on intergenerational heterogeneity among the sub-population of people. For example, in the early stage of life (14-34), individuals tend to experience higher SWB; in the working age (35-64), the SWB decrease; at retirement age (65+), the SWB tends to increase again (Alesina et al., 2004; Dolan et al., 2008; Rözer & Kraaykamp, 2013; Lenzi & Perucca, 2018; Sørensen, 2014; Biagi et al., 2018). The

⁴⁹ Easterlin's study is intended for the countries after the World War 2 period. We can refer to countries in the earlier stages of economic development, but this aspect does not exclude the case of countries with low per capita income.

variable education is also a traditional predictor of SWB that allows controlling for unobservable factors, such as motivation, intelligence, and family background, that can affect well-being. In particular, more educated people seem to experience a higher level of SWB compared to those with a lower level of education (Louis & Zhao, 2002; Alesina et al., 2004; Stutzer, 2004; Rözer & Kraaykamp, 2013; Sørensen, 2013). Furthermore, the family condition also determines the well-being of a person: married people report higher well-being (Biagi et al., 2018; Sørensen, 2013). However, well-being is inversely related to family size (Sørensen, 2013).

Health condition is one of the main determinants of SWB (Dolan et al., 2008). In particular, the literature finds that psychological illness is more highly related to individual well-being than physical illness (Dolan et al., 2008). Moreover, at the aggregate level, life expectancy at birth and mortality rate is considered to negatively impact well-being (Stutzer, 2004; Lenzi & Perruca, 2018). Social capital is also considered a positive predictor of SWB. Specifically, social capital, such as social interactions, cultural openness, general trust, individual freedom, and resilience capacity, are considered positive predictors of life satisfaction (see Helliwell & Putnam, 2002; Costanza et al., 2007; Dolan et al., 2008; Biagi et al., 2018; Graziano et al., 2019). Generally, individuals that perceive them-self belonging to society (or sub-groups) are more satisfied with introverts and isolated individuals. However, inequality and level of ethnicity are considered negative predictors of life satisfaction (Alesina et al., 2004; Brambilla et al., 2013; Rözer & Kraaykamp, 2013). Natural and artificial amenities and disamenities are considered as those exogenous factors that can affect individual well-being. In particular, the literature highlights that being close to natural amenities (such as sea, lakes, and mountains) contribute to enhance SWB. Also, be close to the historical monument and its accessibility (Brambilla et al., 2013; Ala-Mantila et al., 2017; Biagi et al., 2018). On the other hand, disamenities such as crime, overcrowding, and pollution negatively impact well-being (McCrea et al., 2006; Litchfield et al., 2012; Biagi et al., 2018; Graziani et al., 2019).

2.2. Culture and SWB

Culture as a set of beliefs, values and expectations shared by members of a social group generates an intangible cultural capital that takes relevance for some groups of individuals (see Throsby, 2005) by moving from an aesthetic dimension for people who "consume" it (Goldman, 2001). By the same token, cultural participation and consumption play an important role in shaping identity and reinforcing community ties and social norms (Hutter, 1996). As a vehicle for social inclusion or active citizenship (Campagna et al. 2020), culture has a strong local dimension that contributes to the overall 'way of life' and relevant socioeconomic features such as happiness (Hand, 2018) and well-being (Gómez-Zapata et al., 2021; Wheatley & Bickerton, 2017). By the same token, experience associated with cultural activities can be a source of social capital, contributing to individuals' social connection and civic engagement (Hyypä et al., 2006; Tavano & Correspondence, 2016; Wheatley & Bickerton, 2019; Campagna et al., 2020; Ateca-Amestoy et al., 2021). For instance, individuals who consume or participate in cultural activities are more sensitive to issues such as environmental concerns, showing pro-social and proactive behaviours (Crociata et al., 2015; Quaglione et al., 2019). At the individual level, the exposition of the artistic beauty and aesthetic experience should positively impact the cognitive and emotional sphere of the individual, elevating and stimulating individual well-being and mental health through a renewed and empowered "sense of who we are in the world" (Eakin, 2003). This link is also confirmed by several studies investigating the phenomenon at the clinical level (Konlaan et al., 2000; Hyypä et al., 2006; Hacking et al., 2008) and is also relevant in some population sub-groups based on gender (Grossi et al., 2013) and age (Daykin et al., 2008; Karasawa et al., 2011). Therefore, culture seems to have several implications on different spheres of social and individual life: from aspects concerning social capital to aspects concerning the self-realisation and self-determinism of individuals (see also. Carlisle & Hanlon, (2007; 2008) for critical reviews)

The empirical literature that studies the phenomena of cultural activities and well-being falls under two main streams: one that employs objective measurements of well-being (e.g., Michalos & Kahlke, 2008; Crociata et al., 2013; Rapacciuolo et

al., 2016; Grossi et al., 2019) and one that uses cognitive and subjective measurements of well-being (e.g., Grossi et al. 2011,2012; Hand, 2018; Reyes-Martínez et al., 2021a). Since subjective well-being is the focus of this paper, the following literature is narrowed on the implication of cultural activities on the subjective well-being dimension⁵⁰. The evidence suggests that individuals participating in cultural activities experience higher SWB and quality of life (for a literature review, see Galloway (2006)). Grossi et al. (2011) investigate the implication of cultural access (measured by access to 15 cultural activities) on the subjective perception of well-being, employing the Psychological General Well-Being Index (PGWBI)⁵¹. They used a large sample for the Italian case study with a methodology based on Artificial Neural Networks. The results suggested that cultural variables perform among the best predictors for the PGWBI. Similar results were found for Grossi et al. (2012) and Grossi et al. (2013). Grossi et al. (2019) employed the case study of the Sanctuary of Vicoforte. They used a double-step method through a structured interview with 100 patients and visitors that rated their experiences and collected a sample of saliva to control individuals' cortisol levels⁵². The evidence suggests that cultural experience contributes to improving the PGWBI. The recent contribution of Wheatley & Bickerton (2019) investigates the implication of art, sport, and cultural engagement on subjective well-being for the UK case study. The results suggest a positive but differentiated impact on well-being dimensions such as general life satisfaction with the amount of leisure time, satisfaction with individual health, and job satisfaction. However, in some cases, the effect of cultural consumption is limited or presumably not linear across the level of well-being (Hand, 2018). Hand (2018) finds a highly significant relationship at the lower quartile, while the median level has a moderate relationship. Reyes-Martínez et al. (2021a) investigate the implication of cultural participation on subjective well-being and its components (life satisfaction, positive emotions, negative emotions, and affective balance) for the Mexico case study. In this

⁵⁰ For contributions that focus on objective measurements of well-being, we suggest Michalos & Kahlke (2008), Crociata et al. (2013), and Grossi et al. (2019) for a general overview of this research stream.

⁵¹ For more information on the Psychological General Well-Being Index (PGWBI), see Badia et al. (1996) and Grossi et al. (2006)

⁵² The presence of cortisol in the saliva highlights the excitement condition of the individual/patient.

case, the authors find a positive link. However, they also suggest that the relationship between cultural participation and subjective well-being should be studied in separate categories and components. Similarly, the contribution of Reyes-Martínez et al. (2021b) to Latin America found a positive link between cultural participation and local subjective well-being (in this case, measured only with self-reported life satisfaction). Ateca-Amestoy et al. (2021) define culture in terms of heritage as an objective measurement of non-use value resources. Employing self-evaluated happiness and self-evaluated life satisfaction, they find a positive link between cultural heritage consumption and life satisfaction.

The main finding of existing literature shows that the link between culture and well-being is mainly related to the aesthetic experience of individuals (Eakin, 2003) and the benefits coming from participation in "creating culture" as a form of leisure activity (Sirgy et al., 2017). However, it is still unclear how an individual's background (e.g., social status, education, individual characteristics) matters in the SWB dimension. Moreover, it is still unclear how different cultural activities, distinguished by cultural participation and consumption, affect well-being and the literature's different definitions. In addition to this aspect, the literature often overlaps the definition of life satisfaction and happiness. Regarding this aspect, according to the features of the two SWB components, it is reasonable that the effect on the two components can be different given the type of cultural activity observed. Some other aspects relate to the methodological sphere. The empirical contributions are mostly limited to cross-individual surveys or case studies due to the issue of data availability without a regional and territorial perspective. Another aspect still not well discussed in the literature concerns the latent link between social status and the consumption of culture. In particular, cultural consumption and participation might be clustered among individuals with higher economic wealth, education, and cultural background (Alderson et al., 2007; Benzecry & Collins, 2014).

3. Conceptual framework

Through the exposition of artistic beauty and aesthetic experiences of cultural consumption (or participation), individuals may experience positive effects on their cognitive and emotional sphere, potentially resulting in an increased sense of overall well-being and improved mental health. This renewed and empowered "sense of who we are in the world" has been identified by various studies (Eakin, 2003; Galloway, 2006; Michalos & Kahlke, 2008; Grossi et al., 2011; Grossi et al., 2012; Diener et al., 2018; Grossi et al., 2019) as a mechanism through which culture can shape subjective well-being. According to this statement, the general cultural experience stimulates SWB through individuals' cognitive and emotional spheres. However, we believe that the relationship between the two dimensions is heterogeneous according to the cultural activity under analysis (distinguished according to consumption and participation) and the SWB component observed (life satisfaction and happiness). Ultimately, our approach refers to cultural participation (also defined as active cultural experience) as those cultural activities in which individuals participate actively as "artmakers" (in other words, individuals *have a finger in the pie*) (see Konlaan et al., 2000; Hyyppä et al., 2006; Hacking et al., 2008; Blessi et al., 2016). The active cultural experience refers to active behaviours established by individuals to enjoy and consume the cultural good. Therefore, we refer to activities related to culture that mostly aim at creating or producing a piece of art. The processes of learning, training, and creation of art can contribute to establishing a renewed sense of self-realisation and, thus, improve SWB. Nevertheless, considering that the processing of learning and creation might require a middle-long period, perhaps the outcome of the cultural experience is more significant for life satisfaction than happiness since it refers to short term-circumstances such as mood and affective components that can be affected in a daily base (Diener et al., 2003; Helliwell & Putnam, 2004). On the other hand, we refer to cultural consumption as those cultural activities in which individuals participate passively (see Konlaan et al., 2000b; Węziak-Białowolska & Białowolski, 2016; Grossi et al., 2019). Therefore, individuals act as mere "spectators," enjoying the cultural activity produced by a third party (see Table 1 for an example of cultural activities). However, we are not observing a specific snapshot of the individual's

cultural consumption but a set of behaviours of cultural consumption in a wider timespan. Therefore, happiness might be less affected (or has a heterogeneous effect) compared to life satisfaction. As already mentioned, we focus on cultural consumption-related activities, also previously defined as passive cultural experiences and leisure activities (Sirgy et al., 2017). Regarding the SWB components, the difference between life satisfaction and happiness is mainly related to the individual circumstances they refer to. In particular, the semantics of the question embeds specific meaning and linkages related to a broader assessment of an individual's life (life satisfaction) or, more specifically, limited in time (happiness).

Table 1 – Example of Types of cultural activities according to the active and passive experience

<i>Cultural Participation – Active experience</i>	<i>Cultural Consumption – Passive experience</i>
Acting a recitation	Reading books
Painting	Visiting museums and monuments
Playing musing	Visiting art Gallery
Poetry	Go to Concert
Carving and Ceramic art	Go to Theater
Singing	Sport events

Source: Our elaboration; Konlaan et al., 2000; Hyyppä et al., 2006; Hacking et al., 2008, Sirgy et al., 2017

Another aspect that should be considered in the link between cultural activities and SWB relates to the individual's background, such as social status that might affect *a priori* the level of cultural participation and consumption (Alderson et al., 2007; Benzecry & Collins, 2014). Indeed, despite the several exemptions that might disprove the link between social class and interest in cultural activities⁵³, most individuals with access to culture have access to better social and "wealthy" status (Alderson et al., 2007; Benzecry & Collins, 2014). Therefore, the link between cultural consumption and the well-being of people could depend on endogenous factors such as education, economic conditions, and other social aspects (Alderson et al., 2007; Benzecry & Collins, 2014).

⁵³ For example, a young and talented archaeologist specialising in ancient Greek and Roman history with a distinct passion for art, acting, and reading grew up in a degraded city neighbourhood with several economic and financial limitations.

Figure 1 shows the underlying mechanism that links cultural consumption and the two dimensions of SWB. *Ex-ante*, the framework considers an individual background that can affect cultural consumption and SWB's components. The Black Box represents possible relationships linking life satisfaction and happiness in its heterogeneous aspects (individual and exogenous factors)⁵⁴. Following, we propose the hypotheses at stake.

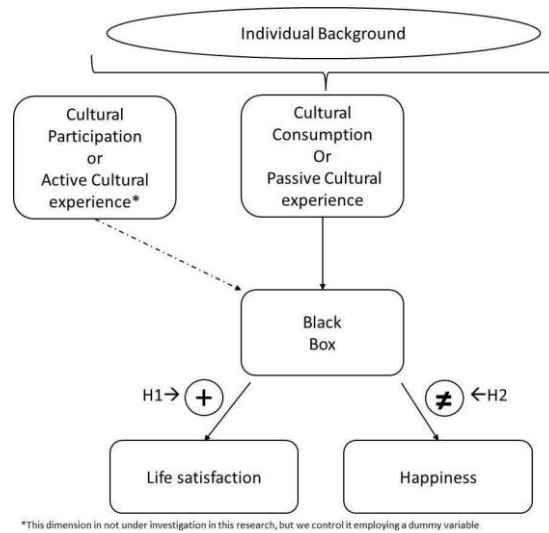
Hypothesis 1 (H1):

Given the individuals' background, Cultural activities positively impact SWB

Hypothesis 2 (H2):

Given the individuals' background, cultural activities positively affect life satisfaction rather than happiness

Figure 1 – Underlying Mechanism



Source: Our elaboration; Underlying Mechanism on how cultural consumption (passive cultural experience) on two SWB components.

⁵⁴ The Black Box can be considered for further development of this research. In particular, it will be challenging to consider how individual cultural activities and behaviours are related to life satisfaction and happiness according to individual characteristics.

4. Data

Data are mainly from the surveys *Multiscopo – Aspetti della vita quotidiana* of ISTAT, covering seven waves from 2013 to 2019. Each wave contains information for more than 40,000 individuals with age between 14 and 85+, with around 760 questions asked. The sample is representative of the population at the NUTS 2 level⁵⁵. The sample is randomly selected yearly; thus, the final dataset does not allow for econometrics models such as panel data to control individual fixed effects. Another critical aspect is the privacy issue, in which information such as income is dropped to preserve the privacy security of people interviewed⁵⁶, limiting information such as individual income, municipality, and province. After harmonisation, the final dataset is over 143,000 individuals⁵⁷ with around 70 variables related to SWB, cultural consumption, individual characteristics, and general information such as work, health, and social capital. The information selected is summarised in Table 2. In addition, a second dataset with a specific focus on comparing life satisfaction and happiness includes information over the period 2017-2019 for around 66,000 individuals. Although our study does not encompass the entire Italian population, we have implemented various measures to guarantee the dependability and relevance of our results. The ISTAT-Multiscopo data that we used is representative of the Italian population at the Nuts 2 level, and our estimations are performed using post-stratification weight. Consequently, we have high confidence that our study provides significant insights into the association between dimensions of subjective well-being and cultural consumption.

Considering the first dataset (2013-2019), Figure 2 shows the general statistics of the sample. The female sub-sample represents the majority (slightly above 52%). The sample age converges more to people over 65 years old (around 33%), followed by people between 45-54, 55-64, 35-44, 25-34, and 14-24. The majority are middle-

⁵⁵ The Provinces of Trento and Bolzano are aggregated as a single region, Trentino-Alto Adige

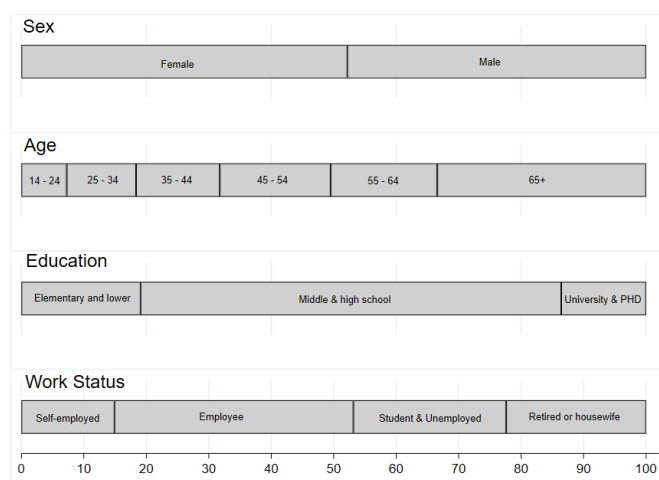
⁵⁶ To obtain this data, ISTAT requires a special application. See the website: <https://www.istat.it/it/dati-analisi-e-prodotti/microdati#MFR>.

⁵⁷ The dataset has some missing information that decreases the number of observations from over 320,000 to around 143,000 individuals for the first dataset, and from over 140,000 to around 66,000 individuals.

high school educated (slightly above 65%), followed by those educated at elementary or without title, and those with university or higher.

The dependent variable, life satisfaction, takes a value from 0 to 10. From the descriptive statistics, we can see that the average life satisfaction in the period 2013-2019 is slightly above 6.9, with a standard deviation of 1.7. Notice that average life satisfaction tends to increase over time (around 6.7 in 2013 to 7.1 in 2019). The region with a higher level of life satisfaction is Trentino-Alto Adige, with about 7.6. The region with the lowest life satisfaction is Campania, with average life satisfaction of around 6.4. From the individual characteristics, life satisfaction is likely to be high in the early stages of life, slowly decrease during working age, and turn up during the middle-age⁵⁸. Males seem slightly more satisfied with the females' sub-sample (males average of 7 and females average of 6.9). Types of work positions such as directors, entrepreneurs, and freelancers report on average higher life satisfaction (7.2), while the category employees and trainees report a lower average life satisfaction (6.8).

Figure 2 – General statistics



Source: Our elaboration – data source from *Multiscopo-Aspetti della vita quotidiana* (ISTAT)

Regarding the selected (passive) cultural activities, the variables at stake are *museum, monument visits, theatre, cinema, concerts, classical music, and sport events*. The variable earlier listed are expressed in terms of frequency (i.e., "how many

⁵⁸ In the analysis, we exclude individuals younger than 14 years

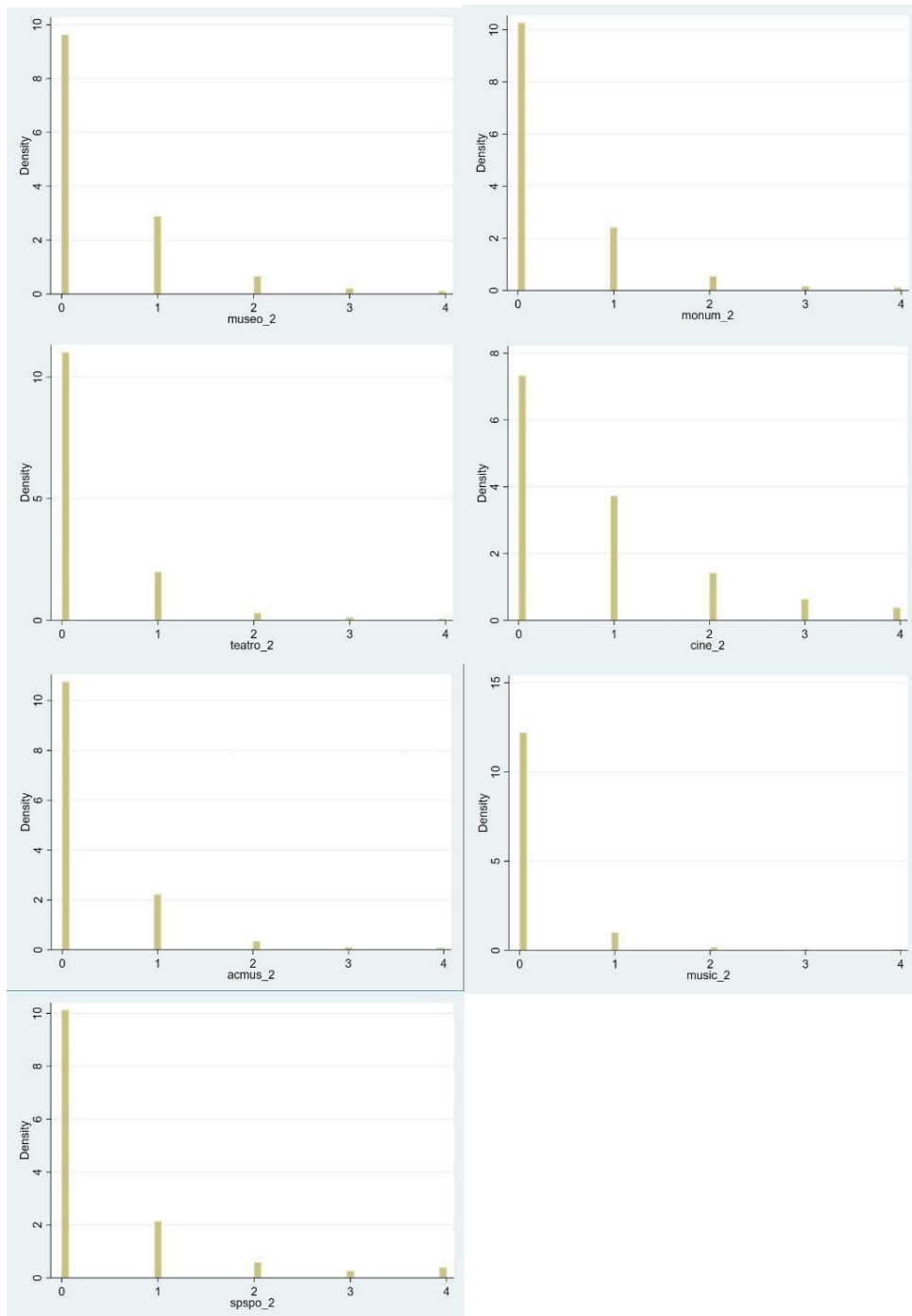
times have you been to... in the last 12 months"), where 0 stands for "never", 1 "1-3 times", 2 "4-6 times", 3 "7-12 times", 4 "more than 12 times". The graphs in Figure 3 show the density distribution across all the answers. The main information we obtain from the graphs is that most of the observations reply "never". In this case, there might be similar patterns across individuals among cultural consumption that can determine an issue of multicollinearity. Indeed, from what we can observe from the data, an individual that never visits museums is likely to also he/she does not visit monuments.

Table 2 – Variables of datasets

Variable (Original name) *	Obs	Mean	Std. Dev.	Min	Max	Description
SWB						
Life satisfaction (2013-2019)	271,835	6.9	1.7	0.0	10.	Life satisfaction: last 12 months self-assessment
Life satisfaction (2017-2019)	120,149	1.3	0.7	0	2	Life satisfaction, rescaled (period 2017-2019)
Happiness (2017-2019)	109,779	0.8	0.6	0	2	Happiness, rescaled (period 2017-2019)
Economic and Demographic						
Family size	315,985	3.0	1.3	1.0	12.0	Family size
Age (group)	315,985	42	4.9	14	85+	Age (groups) in years completed
Sex	315,985	1.5	0.5	1.0	2.0	Sex
Marital status	300,585	2.1	1.4	1.0	6.0	Marital status
Education	276,925	1.95	0.57	1.0	3.0	Level of education
Work status	213,873	2.54	0.99	1.0	4.0	Professional Condition
Work position	214,650	2.7	0.9	1.0	4.0	Professional Position
Health						
No-Smoker	282,013	1.8	0.4	1.0	2.0	Do /do not smoke
Chronic diseases	307,143	1.3	0.4	1.0	2.0	Chronic diseases or long-lasting health problems
BMI	305,023	2.4	0.8	1.0	4.0	Body Mass Index
Cultural activities						
Theatre	295,332	1.2	0.6	1.0	5.0	Cultural activity: going to the theatre
Cinema	295,832	1.8	1.0	1.0	5.0	Cultural activity: going to the cinema
Museum	294,849	1.4	0.7	1.0	5.0	Cultural activity: going to museums or exhibitions?
Monuments	294,916	1.3	0.7	1.0	5.0	Cultural activity: going to archaeological sites, monuments
Classic Music	294,123	1.1	0.5	1.0	5.0	Cultural activity: going to classical music concerts
Concerts	294,340	1.3	0.6	1.0	5.0	Cultural activity: going to music concerts
Sport events	294,699	1.4	0.9	1.0	5.0	Cultural activity: going to Sports Events
Book reader	295,915	1.4	0.5	1.0	2.0	Cultural activity: Reader
Cultural Participations	268,905	0.1	0.3	0.0	1.0	Cultural participation: cultural association
Social capital						
Neighbours trust	275,261	1.9	0.8	1.0	3.0	Neighbours you can count on
Religiosity	295,142	4.4	1.3	1.0	6.0	Frequency of church or another place of worship
Charity	268,881	5.1	0.3	5.0	6.0	Social participation: voluntary associations
Environmental Concern	268,409	1.0	0.1	1.0	2.0	Social participation: ecological associations
Trust in Italian institutions	270,717	3.6	2.6	0.0	10.0	Trust in the Italian Parliament
Internet access	315,462	1.8	0.4	1.0	2.0	Internet access
Other information						
Region NUTS2 (regional dummies)	315,985	104.7	65.2	10.0	888.0	Region of the interviewee
City size	315,985	3.5	1.6	1.0	9.0	Urban agglomeration size
Years (time dummies)	315,985	2016	2.0	2013	2019	Year of the interview
Weighting factor	315,985	1331.2	818.5	11.9	17,264.8	Survey's weight

Source: Our elaboration

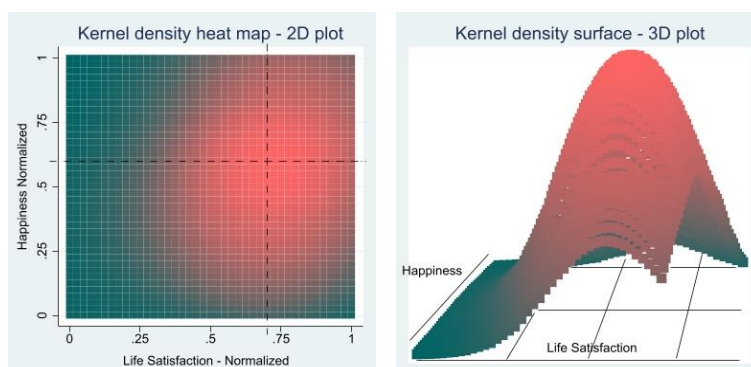
Figure 3 – Histogram by cultural activity



Source: Our elaboration – data source from Multiscopo-Aspetti della vita quotidiana (ISTAT)

We took a step forward with the analysis to investigate the association between the components of well-being and culture. Figure 4 and Figure 5 show the bivariate kernel density to understand better how the clouds related to life satisfaction/happiness and cultural activities⁵⁹. Considering that both life satisfaction and happiness have different scales⁶⁰, the two variables are normalised to be compared (values from 0 to 1). The first graph shows the kernel density for life satisfaction and happiness (Figure 2). On the left-hand side, the "heat map"⁶¹ shows a higher frequency in the higher quartile of life satisfaction (x-axis) and slightly above the average for happiness (y-axis) (see dotted lines). The graph on the right-hand side shows the same bivariate kernel analysis for life satisfaction and happiness but with a 3D view. The general information to consider here is that these two plots highlight a positive correlation between life satisfaction and happiness (around 0.34). However, the distribution of the answers is widespread, suggesting a heterogeneous pattern given by individual heterogeneity.

Figure 4 – Kernel density: Life Satisfaction vs Happiness



Source: Our elaboration – data source from *Multiscopo-Aspetti della vita quotidiana* (ISTAT)

Figure 5 shows the bivariate kernel density for *museum* and *theatre* (y-axis). The plots on the top are, respectively, on the left-hand side, the heat map for life satisfaction and visiting a museum, and on the right-hand side, the heat map for happiness and going to the theatre. The bottom part of Figure 3 shows the two 3D

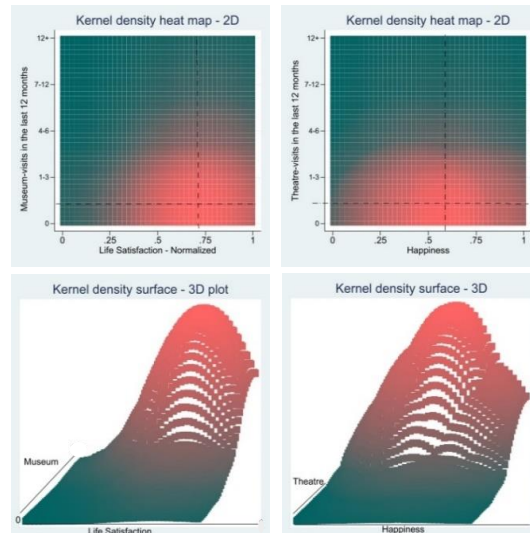
⁵⁹ To do so, the data employed are from the second dataset that covers the period 2017-2019

⁶⁰ Life satisfaction from 0 to 10; happiness from 1 to 6

⁶¹ The corresponding command in Stata is "TDDENS". Requires installation.

plots for the variables *museum* and *theatre*. Regardless of how life satisfaction and happiness are distributed, both cultural activities appear to have similar patterns. Indeed, a more detailed analysis of the data shows a high concentration of answers for "never" or "1-3 times per year" (as already seen in the histograms in Figure 3).

Figure 5 - Kernel density: Life satisfaction vs Museum; Happiness vs Theatre



Source: Our elaboration – data source from *Multiscopo-Aspetti della vita quotidiana* (ISTAT)

5. Empirical strategy

To test the two hypotheses, we employ two different datasets. Firstly, for *hypothesis 1* (H1), we test whether cultural activities positively affect individual SWB, proxied by life satisfaction⁶². Secondly, for *hypothesis 2* (H2), we test whether there is a difference in the impact of cultural consumption between life satisfaction and happiness. As mentioned earlier, we expect a significant magnitude and sign results difference between the two components. Equation 1 shows the relationship under investigation: the SWB (proxied by the individual life satisfaction, value from 0 to 10) depends on the sets of cultural activities and the control variables (see Table 2 for a summary). On the other hand, Equation 2a and Equation 2b refer to H2,

⁶² The idea to employ life satisfaction as a proxy of general subjective well-being is justified by the literature that defines life satisfaction as a more stable indicator.

respectively, for life satisfaction and happiness. In order to compare life satisfaction and happiness, the two pieces of information are rescaled in three levels (low, middle, and high), where low life satisfaction corresponds to values between 0 and 5, for middle life satisfaction values between 6 and 7, for high life satisfaction values above 8; similarly, for low happiness corresponds to values 1 and 2, for middle happiness to values 3 and 4, for high happiness to values 5 and 6. This transformation allows us to compare the two dimensions and see whether there are similarities in magnitude, particularly in the sign.

Equation 1

$$LS_i[0; 10] = \beta_0 + \beta_1 Museum_i + \beta_2 MonumVisits_i + \beta_3 Theatre_i + \beta_4 Cinema_i + \beta_5 Concerts_i + \beta_6 Classic Music_i + \beta_7 SportEvents_i + X_i \beta' + \delta \tau_i + \varepsilon_{it}$$

Equation 2a

$$LS_i[0,1,2] = \beta_0 + \beta_1 Museum_i + \beta_2 MonumVisits_i + \beta_3 Theatre_i + \beta_4 Cinema_i + \beta_5 Concerts_i + \beta_6 Classic Music_i + \beta_7 SportEvents_i + X_{it} \beta' + \delta \tau_i + \varepsilon_{it}$$

Equation 2b

$$HP_i[0,1,2] = \beta_0 + \beta_1 Museum_i + \beta_2 MonumVisits_i + \beta_3 Theatre_i + \beta_4 Cinema_i + \beta_5 Concerts_i + \beta_6 Classic Music_i + \beta_7 SportEvents_i + X_{it} \beta' + \delta \tau_i + \varepsilon_{it}$$

The interpretation of the coefficients in Equation 1 and Equation 2 (a; b) report similar information about the dependent variable observed. The coefficients β_i from $i = 1$ to $i = 7$ stand for the marginal effect of cultural activities; β' corresponds to the vector coefficients related to the control variables vector X_i that includes the set of individual characteristics, regional information, and dummy variables; the model also includes the time dummy variables to control further endogeneity ($\delta \tau_i$). The empirical strategy adopted is divided as follows: 1) Preliminary check employing pooled OLS and ordered; 2) Sensitivity analysis (only for H2); 3) Treatment effect approach. In

addition, the large use of individual control variables is related to the incapability to perform a panel data model with fixed effect and random effect, which is useful to capture individual heterogeneity. Therefore, the objective is to control as many individual aspects as possible and limit the estimation bias due to omitted variables and unobserved effects.

In the first step, the econometric models employed for the preliminary check are pooled OLS, ordered probit, and ordered logit regressions for both H1 and H2⁶³. These models provide more flexible estimations to run sensitivity analysis (for the H2) for each type of cultural consumption. Therefore, despite other methodologies, the ordered probit is less time-demanding. The models have robust standard errors to control the heteroskedasticity bias and are also corrected with sampling weight. However, there might be issues, such as hidden endogeneity (that we will discuss later) and the parallel regression assumption for the non-linear models. Indeed, regarding the latter aspect, the Brant test highlights that the model violated the parallel regression assumption⁶⁴. Furthermore, as mentioned earlier, we expect collinearity among cultural activities. This aspect is relevant for the econometric analysis to avoid multicollinearity issues in the estimation (Aguilera et al., 2006; Jolliffe & Cadima; 2016; Reyes-Martínez et al., 2021a). However, the VIF test (variance inflation factor) does not report multicollinearity among cultural activities, considering that the score values are below 5. Thus, despite the results reported by the VIF, we also include as a robustness check the principal component regression to address the multicollinearity bias (Appendix: Further Methodological aspects - Figure A1 shows the principal component analysis that highlights some similarities in terms of variability among some cultural activities; Appendix - Further Robustness checks – Table A2a; b for the principal component regressions).

⁶³ In order to test H2, LS and HP are rescaled based on three levels (low, middle, high). This would also address the issue of how people make their assessment based on the semantics of the questions and the Likert scale proposed by the survey.

⁶⁴ The Brant test conducted for the first hypothesis (dataset 2013-2019) reports the following result: Chi2 = 1154.83; p-value = 0.000; degree of freedom = 621. The Brand test has also been employed for the second hypothesis (dataset 2017-2019) and highlights that the parallel regression assumption is violated.

In the second step, similar to the approach of Chesher et al. (2019), after the ordered probit regression, we estimate a sensitivity analysis (in this case, only on hypothesis 2 to compare life satisfaction and happiness). Firstly, we estimate the predicted probability and the marginal effect that individual reports "not satisfied", "satisfied", and "very satisfied" (or "not happy", "happy", and "very happy") for each cultural activity at means⁶⁵. Secondly, we estimate the predicted probability and marginal effect that individual reports "not satisfied", "satisfied", and "very satisfied" for each cultural activity keeping the following characteristics: male, middle/high school education, employed⁶⁶.

However, as mentioned earlier, the methodological issues can be identified on endogeneity associated with reversing causality between life satisfaction (or happiness) and cultural consumption and omitted variable bias. In the first case, we can observe a simultaneous effect between life satisfaction (happiness) on a cultural dimension where people who are more satisfied would "consume" more culture. Moreover, individual dimensions such as family background and personality surely affect well-being and cultural consumption. In order to control these dimensions, we include a consistent set of individual controls such as education, work status, and position, social capital⁶⁷. However, these dimensions are not enough to control the endogeneity bias. Related to this, another issue faced during our analysis refers to the high complexity and the struggle to define an instrumental variable correlated with the endogenous independent variables of cultural consumption and the dependent variable. More particularly, life satisfaction (and happiness) appears to be correlated with all the variables defined during our establishment of the empirical method⁶⁸. To address this issue, we introduce the third step in our empirical strategy, which consists of employing a Treatment Effect approach to estimate the average treatment effect. In

⁶⁵ The control variables are kept at the means of the control variables.

⁶⁶ Results related only to *museum*, available in Appendix: Further Robustness checks – Figure A2 and Figure A3

⁶⁷ In addition, we estimate the ordered probit model divided by a sub-sample of education level and work position as a further robustness check and to control the endogeneity related to education and work position, showing some heterogeneous effect across cultural activities and life satisfaction (happiness) (see Appendix: Further Robustness checks – Table A1).

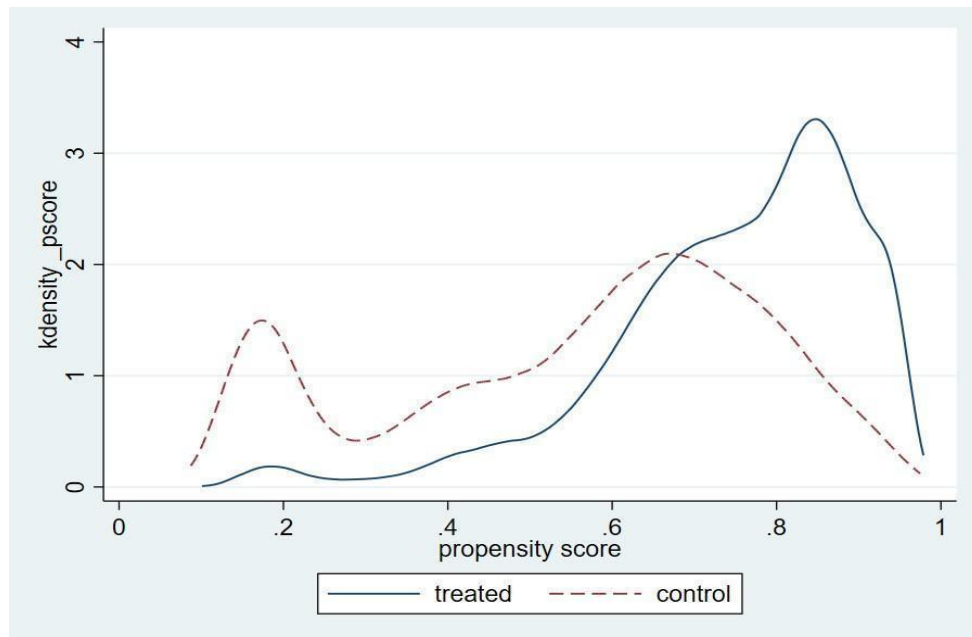
⁶⁸ The issue related to the definition of the instrumental variable can be the object of study in future work.

particular, the models employed are Regression Adjustment (RA), Inverse-probability weight (IPW), IPW-RA, Augmented-IPW (AIPW), Endogenous treatment effect (ETEEFFECTS), and Endogenous treatment regression (ETREGRESS)⁶⁹ (model specifications reported in Appendix: Further Methodological aspects – Table A1 and Equation A1) (Cattaneo, 2010). The matching technique before estimation is not required for these models, as in the case of PSM models. The variances between the covariates of the two groups (ex-ante estimations) are employed to compute the weights that correct for the presence of endogeneity between the treated and untreated groups. The two conditions for employing the treatment effect model are the homogeneity between the two groups (or common support) and the absence of unobservable characteristics between the treated and untreated units. To check the first condition, we require a treatment variable representing the "cultural treatment" specification, and we ensure that the two groups have similar characteristics by employing the propensity score⁷⁰ (Cattaneo, 2010). Starting from the cultural treatment variable, we observe that around 31% of the individuals report that they do not "consume" culture at all. Therefore, we generate a dummy variable that assumes a value of 0 whether the linear sum among all the cultural activities is 0 (meaning that the individual has a frequency equal to 0 for every cultural activity). It assumes a value equal to 1 whether the linear sum of all the cultural activities frequency is at least equal to 1. Then, we select sex, age, education, work status, city size, health condition, region, and year as individual characteristics to include in the propensity score computation. Figure 6 visualises the kernel distribution of the propensity score of the sub-groups treated and untreated (control); the two distributions show that the two sub-groups fit together and allow the untreated to be used as a counterfactual. For the second condition, we include the ETEFFECTS and ETREGRESS that control for unobserved factors affecting the treatment variable (the treatment approach is applied only for H1 and H2).

⁶⁹ The "ETEEFFECTS" and "ETREGRESS" commands in Stata are the endogenous treatment effect and endogenous treatment regression.

⁷⁰ The corresponding command in Stata is "PSMATCH" command. The test ensured that only 37 individuals out of 209,394 are considered off common support.

Figure 6 - Kernel Density for propensity score (treated/untreated)



Source: Our elaboration – data source from *Multiscopo-Aspetti della vita quotidiana* (ISTAT)

6. Results

6.1. Preliminary Results: pooled OLS, ordered probit, ordered logit

Table 3 shows the results for the first hypothesis, in which we see whether cultural consumption impacts SWB proxied by life satisfaction. The output includes the pooled OLS (left-hand side), ordered probit, and ordered logit. The models are estimated using the first dataset (2013-2019). The results suggest that life satisfaction is positively associated with cultural consumption. In particular, *museum*, *monument visits*, *theatre*, *cinema*, and *sports events* are positive and significant in both estimations⁷¹. On the other hand, *classic music* and *concerts* report no significant results. In this case, the result can be justified by the presence of individual and regional heterogeneity that the pooled OLS, ordered probit and logit cannot capture. Even though the model includes several individual characteristics and regional dummies, there might be further heterogeneity related to personality, family background, and social capital that determine heterogeneity in cultural consumption

⁷¹ We cannot consider the linear coefficient prediction for the ordered probit estimation. The main interpretation at this stage can be made by looking at the sign of the parameters.

behaviours. More particularly, the audience that consumes *classical music* is specific to some specific sub-population, and the consumer is not homogeneously distributed. The same reasoning can be applied to the variable *concert* that, perhaps, would involve another different audience. In this case, it is perhaps that the effect is different according to individual heterogeneity or multicollinearity⁷². Regarding the dummy variables *reading* and *cultural participation*, only reading is positive and significant. The socio-demographic controls, the variables age, sex, and family size are not significant or slightly significant. However, *education* shows a positive link (e.g., *Elementary or no title* reports lower LS respect to *university or higher title*). Being *married or engaged* seems to increase LS regardless of all the other civil statuses; also, work status and position have signs and significance expected (e.g., employees are likely to be more satisfied than retired people, housewives, students, or unemployed). Regarding the controls for health, the variables *no-smoker* and *chronic disease* report expected to sign, while the *body mass index (BMI)* does not affect LS. Religiosity and social capital report significant and expected signs (except *Environmental Concern* in the ordered logit estimation): in particular, being religious generally positively impacts individual life satisfaction. Territorial controls report no significant or weak significant coefficient. However, the regional dummy variables report several significant results highlighting a strong geographical dependency on the phenomenon. It is worth noting that the sample provided by ISTAT is representative of the entire population at the Nuts 2 level, and our estimations are conducted using post-stratification weights.

⁷² Regression estimations for each cultural activity show a positive coefficient. Estimations are available upon request to the authors.

Table 3 - Cultural consumption and SWB – HYPOTHESIS 1; pooled OLS, ordered probit, ordered logit

Life satisfaction ~ SWB	Pooled OLS	Ordered Probit	Ordered Logit
<u>CULTURAL CONSUMPTION</u>			
Museum	0.034*** (0.0093)	0.021*** (0.0064)	0.035*** (0.0110)
Monument visits	0.026*** (0.0088)	0.017*** (0.0060)	0.035*** (0.0104)
Theatre	0.058*** (0.0089)	0.043*** (0.0061)	0.077*** (0.0105)
Cinema	0.055*** (0.0054)	0.028*** (0.0036)	0.050*** (0.0063)
Classic Music	-0.014 (0.0109)	-0.003 (0.0075)	-0.000 (0.0129)
Concerts	0.003 (0.0084)	-0.002 (0.0058)	-0.005 (0.0099)
Sports Events	0.062*** (0.0051)	0.039*** (0.0035)	0.069*** (0.0060)
<u>FURTHER CULTURAL CONTROLS</u>			
Readings	0.073*** (0.0116)	0.045*** (0.0076)	0.081*** (0.0132)
Cultural Participation	-0.024 (0.0164)	-0.020* (0.0110)	-0.033* (0.0191)
<u>SOCIO-DEMOGRAPHIC CONTROLS</u>			
Age	-0.092 (0.0996)	-0.059 (0.0644)	-0.177 (0.1119)
Age^2	-0.010 (0.0082)	-0.006 (0.0053)	-0.006 (0.0092)
Age^3	0.001** (0.0002)	0.000** (0.0001)	0.001** (0.0002)
Sex	-0.013 (0.0118)	-0.001 (0.0076)	-0.003 (0.0132)
Education:			
<i>Elementary or no title</i>	-0.203*** (0.0290)	-0.126*** (0.0183)	-0.260*** (0.0323)
<i>Middle/high school</i>	-0.042*** (0.0134)	-0.034*** (0.0090)	-0.071*** (0.0156)
<i>University or higher title (PhD)</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
Civil status:			
<i>Single</i>	-0.021 (0.0342)	-0.027 (0.0212)	-0.043 (0.0373)
<i>Engaged/Married</i>	0.382*** (0.0326)	0.245*** (0.0202)	0.438*** (0.0356)
<i>Divorced/Separated</i>	0.015 (0.0357)	0.008 (0.0221)	0.014 (0.0388)
<i>Widowed</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
Family size	-0.001 (0.0047)	0.001 (0.0030)	0.004 (0.0053)

Work status:

<i>Self-employed</i>	0.112***	0.048**	0.083**
	(0.0311)	(0.0191)	(0.0334)
<i>Employee</i>	0.117***	0.045***	0.075***
	(0.0211)	(0.0134)	(0.0236)
<i>Student or Unemployed</i>	-0.578***	-0.366***	-0.676***
	(0.0256)	(0.0157)	(0.0276)
<i>Retired or Housewife</i>	Reference	Reference	Reference

Work position:

<i>Manager or Entrepreneur</i>	0.199***	0.139***	0.251***
	(0.0209)	(0.0137)	(0.0238)
<i>White collar employees</i>	0.134***	0.094***	0.174***
	(0.0273)	(0.0167)	(0.0294)
<i>Blue collar employees</i>	0.006	0.005	-0.004
	(0.0265)	(0.0160)	(0.0281)
<i>Other categories</i>	Reference	Reference	Reference

HEALTH CONDITIONS

Body Mass Index (BMI):

<i>BMI-Under weight</i>	-0.028	-0.014	-0.014
	(0.0352)	(0.0222)	(0.0390)
<i>BMI-Normal</i>	0.017	0.002	0.004
	(0.0192)	(0.0121)	(0.0212)
<i>BMI-Overweight</i>	0.027	0.010	0.016
	(0.0195)	(0.0124)	(0.0216)
<i>BMI-Obese</i>	Reference	Reference	Reference

No-Smoker	0.111***	0.069***	0.128***
	(0.0122)	(0.0078)	(0.0135)
Chronic disease	-0.333***	-0.202***	-0.339***
	(0.0133)	(0.0083)	(0.0144)

RELIGIOSITY AND SOCIAL CAPITAL CONTROLS

Ceremony Participation (Religiosity):

<i>Every day</i>	0.328***	0.256***	0.498***
	(0.0609)	(0.0384)	(0.0695)
<i>Few per week</i>	0.316***	0.205***	0.360***
	(0.0261)	(0.0172)	(0.0303)
<i>Ones per week</i>	0.269***	0.165***	0.286***
	(0.0170)	(0.0111)	(0.0194)
<i>Few per month</i>	0.175***	0.098***	0.170***
	(0.0168)	(0.0109)	(0.0189)
<i>Few per year</i>	0.113***	0.058***	0.104***
	(0.0134)	(0.0086)	(0.0148)
<i>Never</i>	Reference	Reference	Reference

Neighborhood Trust	0.153***	0.098***	0.170***
	(0.0061)	(0.0040)	(0.0070)
Charity	0.074***	0.053***	0.085***
	(0.0180)	(0.0121)	(0.0210)
Environmental Concern	-0.081**	-0.043*	-0.063
	(0.0362)	(0.0237)	(0.0406)
Trust Institution	0.091***	0.054***	0.096***
	(0.0021)	(0.0014)	(0.0024)

TERRITORIAL CONTROLS

Regional Income PC	-0.000	-0.000*	-0.000*
	(0.0000)	(0.0000)	(0.0000)
Public Exp. in Culture PC	-0.002	-0.002	-0.008

	(0.0055)	(0.0036)	(0.0062)
City size:			
<i>Metro area</i>	-0.177 (0.1678)	-0.133 (0.1074)	-0.251 (0.1873)
<i>City up to 10,000 inhab.</i>	0.108 (0.1677)	0.067 (0.1073)	0.112 (0.1871)
<i>City over 10,000 inhab.</i>	-0.056 (0.1676)	-0.050 (0.1073)	-0.103 (0.1871)
<i>Not available</i>	Reference	Reference	Reference
Regional dummies:	Yes	Yes	Yes
Time dummies:	Yes	Yes	Yes
Constant	7.362*** (0.5058)		
Observations	143,286	143,286	143,286
r2	0.123		
* p<.1, ** p<.05, *** p<.01			

Table 4 shows the results for H2, in which we see whether cultural consumption impacts life satisfaction and happiness differently. The output includes the pooled OLS (left-hand side), ordered probit, and ordered logit, respectively, for life satisfaction and happiness. The models are estimated by employing the first dataset (2017-2019). The preliminary results highlight a distinction between the two components of well-being. Similar to the results reported in Table 3, *museum*, *monument visits* (but with weak significance), *theatre*, *cinema*, and *sports events* are associated positively with life satisfaction (with lower magnitudes due to different scales of dependent variables and different datasets employed); *classic music* and *concerts* are again not significant. On the other hand, *monument visits* are the only positive and significant activity for happiness, while *museum*, *theatre*, *classical music*, and *sports events* are associated negatively; *cinema* and *concerts* are not significant, while classical music is negative and significant. An explanation for these results might be related to the gratuitousness of most monument visits; therefore, it is easier to access that type of cultural consumption. These results are consistent with our conceptual framework. When the relation estimated refers to short term-circumstances such as mood and affective components that can be affected on a daily basis (indeed, for happiness), it seems that the economic effort (in terms of price for participating) plays a negative role. For the dummy variable, *reading* is significant and positive for both life satisfaction and happiness. Similarly, the cost of accessing the reading is more affordable than other types of individual cultural activity. The

variable *cultural participation* is significant and negative for life satisfaction and positive for happiness. However, the cultural participation dummy variable might not be a valid predictor to explain the variety and heterogeneity of cultural participation as a whole phenomenon. Indeed, to clarify, the main purpose of this paper was to investigate cultural consumption rather than cultural participation. The control variables related to life satisfaction are generally in line with the results reported in Table 3. On the other hand, the control variables related to happiness generally show results in line with those expected from the literature (Costanza et al., 2007; Dolan et al., 2008; Sørensen, 2013), except the religiosity and social capital controls.

Table 4 - Cultural consumption and SWB – HYPOTHESIS 2; Pooled OLS, ordered probit, ordered logit

Life satisfaction & happiness	Pooled OLS		Ordered Probit		Ordered Logit	
	LS	HP	LS	HP	LS	HP
<u>CULTURAL CONSUMPTION</u>						
Museum	0.017*** (0.0062)	-0.011* (0.0057)	0.032*** (0.0113)	-0.020* (0.0109)	0.053*** (0.0190)	-0.030 (0.0187)
Monument visits	0.011* (0.0059)	0.017*** (0.0053)	0.020* (0.0107)	0.032*** (0.0101)	0.035* (0.0180)	0.057*** (0.0174)
Theatre	0.025*** (0.0060)	-0.013** (0.0056)	0.047*** (0.0111)	-0.026** (0.0107)	0.081*** (0.0185)	-0.048*** (0.0183)
Cinema	0.014*** (0.0036)	-0.003 (0.0033)	0.022*** (0.0065)	-0.005 (0.0064)	0.033*** (0.0109)	-0.008 (0.0110)
Classic Music	-0.002 (0.0075)	-0.017*** (0.0067)	-0.002 (0.0138)	-0.034*** (0.0130)	0.009 (0.0231)	-0.065*** (0.0222)
Concerts	0.001 (0.0057)	0.006 (0.0052)	-0.001 (0.0103)	0.011 (0.0100)	-0.008 (0.0173)	0.020 (0.0171)
Sports Events	0.017*** (0.0035)	-0.014*** (0.0032)	0.031*** (0.0064)	-0.027*** (0.0062)	0.052*** (0.0108)	-0.042*** (0.0105)
<u>FURTHER CULTURAL CONTROLS</u>						
Readings	0.020*** (0.0073)	0.014** (0.0066)	0.034*** (0.0128)	0.026** (0.0126)	0.059*** (0.0217)	0.047** (0.0219)
Cultural Participation	-0.020* (0.0109)	0.045*** (0.0096)	-0.035* (0.0196)	0.086*** (0.0184)	-0.063* (0.0332)	0.159*** (0.0314)
<u>SOCIO-DEMOGRAPHIC CONTROLS</u>						
Age	-0.150** (0.0648)	-0.020 (0.0600)	-0.243** (0.1150)	-0.034 (0.1167)	-0.462** (0.1966)	-0.006 (0.2017)
Age^2	0.005 (0.0053)	0.006 (0.0049)	0.008 (0.0093)	0.012 (0.0095)	0.017 (0.0160)	0.015 (0.0164)
Age^3	-0.000 (0.0001)	-0.000 (0.0001)	-0.000 (0.0002)	-0.000 (0.0003)	-0.000 (0.0004)	-0.001 (0.0004)
Sex	0.006 (0.0073)	-0.020*** (0.0066)	0.013 (0.0129)	-0.040*** (0.0127)	0.017 (0.0219)	-0.063*** (0.0221)
Education:						
<i>Elementary and lower</i>	-0.069*** (0.0183)	0.015 (0.0164)	-0.118*** (0.0314)	0.028 (0.0313)	-0.200*** (0.0539)	0.042 (0.0556)
<i>Middle & high school</i>	-0.026*** (0.0035)	-0.029*** (0.0032)	-0.050*** (0.0064)	-0.056*** (0.0062)	-0.087*** (0.0108)	-0.103*** (0.0105)

	(0.0088)	(0.0080)	(0.0159)	(0.0154)	(0.0268)	(0.0265)
<i>University & PhD</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
Civil status:						
<i>Single</i>	-0.019 (0.0198)	-0.050*** (0.0181)	-0.041 (0.0332)	-0.092*** (0.0342)	-0.064 (0.0567)	-0.179*** (0.0614)
<i>Engaged/Married</i>	0.150*** (0.0187)	-0.111*** (0.0171)	0.256*** (0.0312)	-0.210*** (0.0322)	0.436*** (0.0535)	-0.377*** (0.0581)
<i>Divorced/Separated</i>	0.023 (0.0207)	-0.054*** (0.0188)	0.038 (0.0344)	-0.101*** (0.0354)	0.071 (0.0590)	-0.192*** (0.0639)
<i>Widowed</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
Family size	0.001 (0.0030)	-0.000 (0.0027)	0.002 (0.0052)	-0.000 (0.0052)	0.006 (0.0089)	-0.001 (0.0090)
Work Status:						
<i>Self-employed</i>	0.044** (0.0179)	-0.026 (0.0159)	0.075** (0.0305)	-0.049 (0.0303)	0.124** (0.0524)	-0.083 (0.0536)
<i>Employed</i>	0.033*** (0.0125)	-0.019 (0.0116)	0.054** (0.0217)	-0.036 (0.0222)	0.080** (0.0369)	-0.053 (0.0392)
<i>Student & Unemployed</i>	-0.233*** (0.0146)	0.106*** (0.0133)	-0.386*** (0.0248)	0.202*** (0.0253)	-0.673*** (0.0428)	0.356*** (0.0451)
<i>Retired or housewife</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
Work Position:						
<i>Manager or Entrepreneur</i>	0.064*** (0.0133)	0.005 (0.0119)	0.109*** (0.0236)	0.010 (0.0227)	0.174*** (0.0400)	0.026 (0.0392)
<i>White collar employees</i>	0.055*** (0.0156)	0.012 (0.0139)	0.097*** (0.0264)	0.024 (0.0265)	0.158*** (0.0452)	0.040 (0.0471)
<i>Blue collar employees</i>	0.011 (0.0150)	-0.028** (0.0133)	0.019 (0.0251)	-0.053** (0.0253)	0.033 (0.0432)	-0.097** (0.0451)
<i>Other categories</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
<u>HEALTH CONDITIONS</u>						
Body Mass Index:						
<i>BMI-Under weight</i>	0.024 (0.0212)	-0.014 (0.0191)	0.041 (0.0372)	-0.027 (0.0367)	0.061 (0.0635)	-0.046 (0.0637)
<i>BMI-Normal weight</i>	0.020* (0.0113)	-0.015 (0.0102)	0.032 (0.0194)	-0.028 (0.0194)	0.041 (0.0333)	-0.045 (0.0341)
<i>BMI-Overweight</i>	0.019 (0.0116)	-0.019* (0.0104)	0.030 (0.0199)	-0.037* (0.0198)	0.040 (0.0340)	-0.063* (0.0348)
<i>BMI-Obese</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
No-Smoker	0.044*** (0.0077)	-0.026*** (0.0069)	0.077*** (0.0131)	-0.051*** (0.0132)	0.131*** (0.0223)	-0.085*** (0.0229)
Chronic disease	-0.122*** (0.0078)	0.184*** (0.0070)	-0.209*** (0.0134)	0.349*** (0.0133)	-0.350*** (0.0228)	0.616*** (0.0238)
<u>RELIGIOSITY AND SOCIAL CAPITAL CONTROLS</u>						
Ceremony Participation:						
<i>Every day</i>	0.162*** (0.0313)	-0.223*** (0.0311)	0.293*** (0.0575)	-0.430*** (0.0622)	0.534*** (0.0989)	-0.803*** (0.1048)
<i>Few per week</i>	0.140*** (0.0165)	-0.137*** (0.0151)	0.247*** (0.0298)	-0.263*** (0.0292)	0.422*** (0.0504)	-0.446*** (0.0504)
<i>Ones per week</i>	0.119*** (0.0105)	-0.115*** (0.0096)	0.210*** (0.0187)	-0.221*** (0.0186)	0.346*** (0.0317)	-0.366*** (0.0323)
<i>Few per month</i>	0.068*** (0.0106)	-0.080*** (0.0096)	0.117*** (0.0186)	-0.155*** (0.0185)	0.197*** (0.0315)	-0.250*** (0.0321)
<i>Few per year</i>	0.042*** (0.0081)	-0.033*** (0.0073)	0.071*** (0.0139)	-0.063*** (0.0139)	0.117*** (0.0237)	-0.094*** (0.0244)
<i>Never</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>	<i>Reference</i>
Neighborhood Trust	0.068***	-0.042***	0.120***	-0.081***	0.198***	-0.136***

Charity	(0.0039)	(0.0035)	(0.0068)	(0.0067)	(0.0115)	(0.0116)
	0.022*	-0.015	0.041*	-0.029	0.062*	-0.050
Environmental Concern	(0.0115)	(0.0104)	(0.0210)	(0.0200)	(0.0355)	(0.0344)
	-0.034	0.014	-0.063	0.026	-0.100	0.036
Trust Institution	(0.0234)	(0.0209)	(0.0422)	(0.0401)	(0.0716)	(0.0680)
	0.036***	-0.012***	0.064***	-0.024***	0.104***	-0.040***
	(0.0012)	(0.0011)	(0.0022)	(0.0022)	(0.0037)	(0.0038)
<u>TERRITORIAL</u>						
<u>CONTROLS</u>						
Regional Income PC	-0.000	0.000*	-0.000	0.000*	-0.000	0.000*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Public Exp. in Culture PC	-0.015***	0.015***	-0.027***	0.028***	-0.048***	0.050***
	(0.0048)	(0.0043)	(0.0084)	(0.0083)	(0.0142)	(0.0143)
City size:						
Metropolitan Area	-0.044***	0.021***	-0.076***	0.040***	-0.125***	0.073***
	(0.0087)	(0.0079)	(0.0151)	(0.0151)	(0.0255)	(0.0262)
City Up to 10,000 inhab.	0.074***	-0.035***	0.133***	-0.067***	0.231***	-0.116***
	(0.0074)	(0.0067)	(0.0132)	(0.0130)	(0.0223)	(0.0225)
City above 10,000 inhab.	Reference	Reference	Reference	Reference	Reference	Reference
Regional dummies:	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies:	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.357***	0.207				
	(0.3167)	(0.2932)				
Observations	66,258	66,258	66,258	66,258	66,258	66,258
r2	0.110	0.067				
* p<.1, ** p<.05, *** p<0.01						

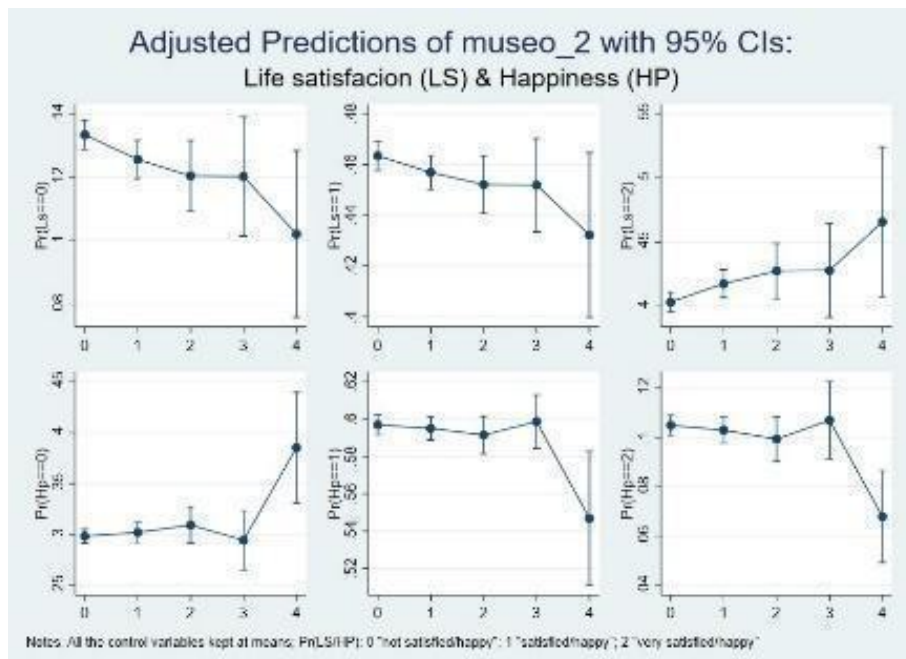
6.2. Sensitivity analysis on Hypothesis 2

The sensitivity analysis proposed in this subsection refers to hypothesis 2 aims to explain and understand the different patterns between life satisfaction and happiness. For this test, we include as an example only the sensitivity analysis related to the life satisfaction and happiness of the cultural activity museum (Figure 7 and Figure 8). The analysis is based on conditional predicted probability and the marginal effect of an individual at means. The plots represent from the left-hand side to the right-hand side the conditional predicted probability (or marginal effect) for "not satisfied", "satisfied", and "very satisfied" (or "not happy", "happy", "very happy"). Further sensitivity analysis of *museum* for conditional predicted probability and marginal effect for the individual *male*, *employee*, and *middle/high school education* (the rest of the variable at kept at means) are reported in Appendix: Further Robustness checks – Figure A2 and Figure A3⁷³.

⁷³ The sensitivity analysis includes 168 plots, for each cultural activity, for each level of life satisfaction and happiness, and for individual specification at means and for individual male, *male*, *employee*, and *middle/high school education*. The results are available upon request to the authors.

Figure 7 shows life satisfaction and happiness are impacted differently by *museum*. Specifically, the predicted probability of being "not satisfied" decreases when we increase the variable *museum*; this suggests that an increase in the frequency of museum visits likely decreases the probability of staying in the "not satisfied" condition. Furthermore, this can be observed for the condition "satisfied", while we observe an increase in the predicted probability of being "very satisfied" when there is an increase in the frequency of museum visits. On the contrary, the predicted probability of being "not happy" is slightly flat up to unit 3 (frequency of "7-12 times" per year) and increases significantly in unit 4 ("more than 12 times"); differently for the conditions "happy" and "very happy" we observe the opposite pattern: the predicted probability in both cases is slightly flat up to unit 3 and decrease significantly in unit 4.

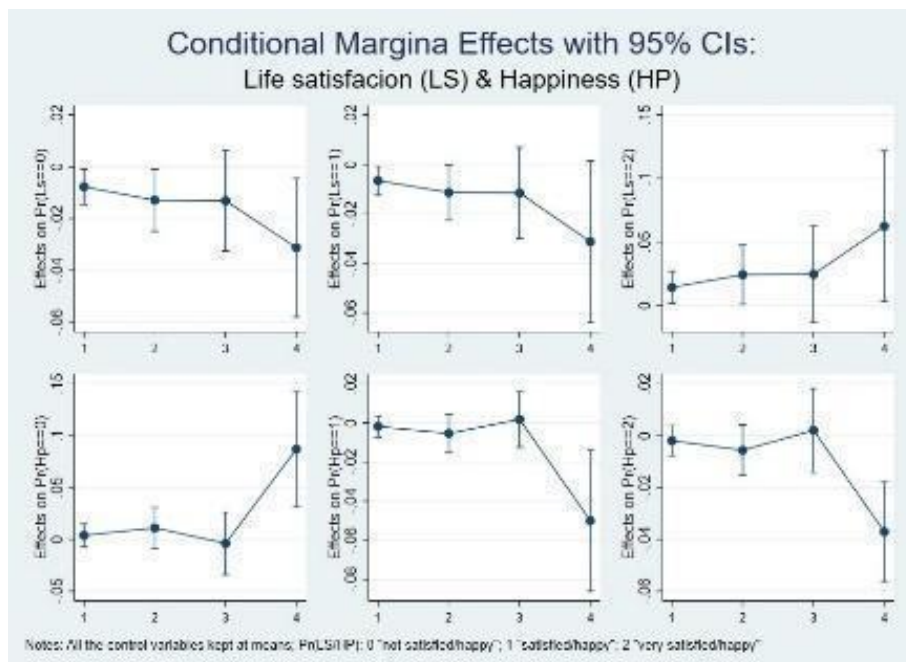
Figure 7 – Conditional (Adjusted) predicted probability of museum at means respect to LS and HP



Source: Our elaboration – data source from *Multiscopo-Aspetti della vita Quotidiana (ISTAT)*; estimation from the ordered probit

Similarly, Figure 8 compares different patterns of the conditional marginal effect of life satisfaction and happiness. The marginal effect of being "not satisfied" decreases when we increase the variable *museum*; this suggests that an additional unit of the *museum* has a decreasing effect on the probability of being "not satisfied"; this is also observable for the condition "satisfied", while we observe an increase in the marginal effect of being "very satisfied". Otherwise, for happiness, the marginal effect of being "not happy" is slightly flat up to unit 3 and increases significantly in unit 4, while for the conditions "happy" and "very happy", we observe the opposite pattern. The results discussed so far suggest that the impact of life satisfaction followed the pattern expected from our hypothesis (H2)⁷⁴, while happiness does not. However, we have also considered that the results can be biased due to endogeneity.

Figure 8 – Conditional marginal effects of museum at means respect to LS and HP



Source: Our elaboration – data source from *Multiscopo-Aspetti della vita quotidiana (ISTAT)*; estimation from the ordered probit

⁷⁴ Given also the other results of cultural activities.

6.3. Robustness checks – Treatment Effects Approach

The aim is to test the average treatment effect (APE) of overall cultural consumption on the two hypotheses under investigation: the first hypothesis refers to the linkages between cultural consumption and SWB proxied by life satisfaction, expected to be positive (H1); the second hypothesis refers to the differentiation of the two components of SWB, life satisfaction and happiness (H2). Tables 5 and 6 show the APE estimations, respectively, for hypothesis 1 and hypothesis 2. The models employed for these estimations are Regression Adjustment (RA), Inverse-Probability Weight (IPW), Inverse-Probability Weight – Regression Adjustment (RA-IPW), Augmented Inverse – Probability Weight (AIPW), Endogenous treatment Effect, and Endogenous treatment regression⁷⁵. More particularly, the first two models (RA, IWP) provide an APE that respectively considers the treatment as non-randomly assigned or models the treatment assigned and does not specify the outcome model; thus, the assumption is that the treatment and the dependent variable have no common confounders. Otherwise, the RA-IPW and AIPW models adopt a treatment model to control for the presence of confounders between the dependent variable and treatment (double-robust property). The last two models address the issue of endogenous treatment, in which unobservable factors impact both dependent and treatment variables. For more details regarding the technical specification of each model, see Appendix: Further Methodological aspect – Table A1.

The results in Table 5 show positive and significant ATE, suggesting that people "treated" with cultural activities experience higher LS and, in turn, higher SWB. However, there is a significant difference across treatment effect estimation: from the left-hand side, the first four estimations, despite different model specifications, show ATE significantly close to each other (between 0.225 and 0.302). However, the endogenous treatment models show ATE dramatically higher (1.273 for the ETEFFECTS and 1.260 for the ETREGRESS). The reason behind the difference is related to the presence of unobserved factors that affect at the same time the

⁷⁵ This command is slightly different from ETEFFECTS. The methods implemented in this command are not naturally in the potential-outcomes framework; we use margins to obtain treatment effects such as the ATE

treatment variable and the outcome. Similarly, we can observe the difference due to endogeneity in the *No treated* coefficients, which represent the baseline of the LS of the people that are "not treated" with culture. In this case, the endogeneity generates a downward bias on the ATE. The unobserved factors, in this case, might be identified in individual dimensions such as family background and personality and affect the outcome and the treatment variable.

In Table 6, the results highlight again two aspects we have observed so far: first, the difference between LS and HP on testing H2; second, the presence of unobserved factors that affect the treatment, meaning the presence of endogeneity (in both estimations for LS and HP). From the left-hand side, the ATE coefficients for LS are again positive and closer to each (between 0.082 and 0.119) compared to the two endogenous treatment models on the right-hand side (0.449 and 0.494), while the HP shows negative ATE (between -0.019 and -0.027 for the first four treatment effect models), not significant for the ETEFFECTS (-0.045) and significant for the ETREGRESS (-0.075). It is important to note that the ex-post estimation reveals that the models have improved the distribution through the weighting factor. Nevertheless, the distributions remain partially unbalanced for the RA and IWP. As a result, there are two potential solutions to this issue. Firstly, it is possible to enhance the treatment model with more precise specifications of the covariates; second, rely on more advanced models, such as IPW-RA and A-IPW, which possess a doubly robust characteristic, leading to more reliable outcomes (Cattaneo et al., 2010; Wooldridge, 2010; StataCorp. 2021). Furthermore, it is essential to acknowledge that other unobserved factors may correlate with the treatment and outcome variables. This issue can be controlled with the two endogenous treatment models (ETEFFECTS and ETREGRESS).

Table 5 – Average Treatment Effects ATE of cultural treatment on Life Satisfaction – HYPOTHESIS 1

Life Satisfaction	RA	IPW	IPW-RA	AIPW	ETEFFECTET	TETREGRESS
ATE	0.249*** (0.0125)	0.302*** (0.0124)	0.227*** (0.0134)	0.225*** (0.0130)	1.273*** (0.0786)	1.260*** (0.0539)
No Treated	6.856*** (0.0115)	6.826*** (0.0113)	6.874*** (0.0125)	6.879*** (0.0120)	6.150*** (0.0749)	
Main model:	Linear	None	Linear	Linear	Linear	Linear
Control Variables	Yes		Yes	Yes	Yes	Yes
Regional dummies	Yes		Yes	Yes	Yes	Yes
Time dummies	Yes		Yes	Yes	Yes	Yes
Treatment Model	None	Probit	Probit	Probit	Probit	Linear
Control Variables		Yes	Yes	Yes	Yes	Yes
Regional dummies		Yes	Yes	Yes	Yes	Yes
Time dummies		Yes	Yes	Yes	Yes	Yes
Lambda						-0.587***
Observation	146,178	151,591	146,078	146,078	146,078	146,078

* p<.1, ** p<.05, *** p<0.01

Notes: the estimations are based on the dataset 2013-2019; LS is an ordered variable from 0 to 10; main and treatment models are available upon request to the authors.

Table 6 – Average Treatment Effects ATE of cultural treatment on Life Satisfaction and Happiness – HYPOTHESIS 2

Life Satisfaction & Happiness	RA	IPW	IPW-RA	AIPW	ETEFFECTET	TETREGRESS
Life satisfaction:						
ATE (Life Satisfaction)	0.088*** (0.0073)	0.119*** (0.0070)	0.083*** (0.0076)	0.082*** (0.0074)	0.494*** (0.0478)	0.449*** (0.0352)
No Treated (Life satisfaction)	1.261*** (0.0066)	1.247*** (0.0062)	1.264*** (0.0070)	1.266*** (0.0067)	0.974*** (0.0448)	
Happiness:						
ATE (Happiness)	-0.019*** (0.0066)	-0.027*** (0.0062)	-0.020*** (0.0069)	-0.019*** (0.0068)	-0.045 (0.0428)	-0.075** (0.0318)
No Treated (Happiness)	0.795*** (0.0060)	0.802*** (0.0055)	0.797*** (0.0063)	0.795*** (0.0061)	0.849*** (0.0405)	
Main model:	Linear	None	Linear	Linear	Linear	Linear
Control Variables	Yes		Yes	Yes	Yes	Yes
Regional dummies	Yes		Yes	Yes	Yes	Yes
Time dummies	Yes		Yes	Yes	Yes	Yes
Treatment Model	None	Probit	Probit	Probit	Probit	Linear
Control Variables		Yes	Yes	Yes	Yes	Yes
Regional dummies		Yes	Yes	Yes	Yes	Yes
Time dummies		Yes	Yes	Yes	Yes	Yes
Lambda (LS)						-0.210***
Lambda (HP)						0.027
Observation	67,386	70,360	67,358	67,358	67,358	67,358

* p<.1, ** p<.05, *** p<0.01

Notes: the estimations are based on the dataset 2017-2019; LS and HP are ordered variables from 0 to 2; main and treatment models are available upon request to the authors.

7. Discussion and Conclusion

This paper is the first empirical investigation of the relationship between culture and well-being by operationalising and disentangling the effects of different types of cultural consumption on subjective well-being and its components (life satisfaction and happiness). Namely, we measured the impact of cultural consumption on SWB in general, and then we measured the different impacts of cultural consumption on life satisfaction and happiness. The expected results are that cultural consumption impact positively SWB in the long run, and there is a significant difference between the two components of life satisfaction and happiness in line with definitions provided by the seminal literature (Diener et al., 2003; Helliwell & Putnam, 2004). Estimates reveal a positive relationship between cultural consumption and SWB in line with the hypothesis at stake. Since culture affects the cognitive and emotional sphere of the individual as well as the spatial context of individual interaction among peers, updating the local cultural outlook using cultural consumption opens new perspectives of culture as a predictor of well-being.

We have also found mixed findings on the two components of SWB, namely, results highlight the positive impact of cultural consumption on life satisfaction (also controlling for individual heterogeneity), while for happiness, it has a heterogeneous impact (negative or not significant). A possible explanation is due to SWB as a multi-dimensional construct. The results are not surprising considering the conceptual and operationalising issues linked to analysing life satisfaction and happiness (several contributions treat the two components as synonymous). As a matter of fact, semantic aspects of their definition (survey and questions-wise) led to difficulties in operationalising them as a proxy. As in many similar studies, there are potential biases from measurement issues that must be considered. Indeed, an individual's life satisfaction (as well as happiness) does not necessarily correspond to one's perception of life satisfaction (and happiness). This judgement is self-assessed and often based on socioeconomic, environmental, and individual circumstances that cannot be observed or fully controlled (Shoham, 2022). These factors could also be conducive to bias in the self-assessment process. Analogous remarks can be carried out about individual statements and memories of one's cultural habits that cannot be checked.

Our results highlight the relevance of developing more sophisticated observation tools to capture the needed information whilst minimising it as far as possible informational noise. This is an exciting challenge for the research to come. Future research development can also be addressed on how to disentangle the black box that links the relationship between cultural consumption and SWB dimensions. Perhaps, the individual background could also determine the "basket" of cultural goods individuals consume. Although there are several exceptions of individuals that invert the sorts in their favour, we expect that due to the hierarchy of needs (Benzecry & Collins, 2014), individual background (such as family and personality), and territorial aspects can generate a significant difference in terms of cultural consumption patterns among individuals. It means that answers supposed to capture culture are affected by current non-cultural influences like economic business cycles, social trends and environmental conditions (Shoam, 2022). Nevertheless, due to the importance of culture, the encouraging results of our analysis push the interest towards devoting time and resources to capture culture in quantitative dimensions to enable empirical research on culture and its outcomes.

At the same time, it is important to stress that even if some cultural consumptions were not significantly linked with happiness, this does not mean that they do not contribute to this component of SWB. These activities might positively affect other aspects of SWB that were not measured by the data available that summarise a specific snapshot that could not capture the specific moment in which they benefit from consuming culture in terms of happiness. As already emphasised, a richer set of instruments is most likely needed to capture the complex effects of cultural activities on various dimensions of well-being. Despite its caveats, our study has policy implications. First of all, due to the positive impact and the spillover that culture can generate on individuals, the policies should support culture as a merit good, going beyond the trivial debate on supporting culture by state effort or market dynamics. Secondly, there could be largely untapped opportunities for well-being improvement in the absence of policies that promote or incentivise public cultural consumption. A more active policy intervention in this regard could probably be useful jointly with the place-based policy. So joint policy efforts could enhance

sustainable development, social inclusion, and welfare. In that sense, culture could be a powerful tool for policymakers and institutions to pursue new approaches to welfare promotion and effectively allocate public resources in the public interest. Finally, policies addressing improving well-being and welfare, in turn, will relate to health policies. SWB, associated with higher life satisfaction, reduces anxiety and depression levels and other related health challenges. That is to say: sustaining cultural consumption (and participation) is a cost-effective intervention for complex health diseases that may not have current healthcare solutions while alleviating pressures on limited health resources. Once properly recognised as a systematic spillover effect of cultural participation SWB, policymakers can sustain a new instance of public measures for individual and social health.

References

- Aguilera, A. M., Escabias, M., & Valderrama, M. J. (2006). Using principal components for estimating logistic regression with high-dimensional multicollinear data. *Computational Statistics and Data Analysis*, 50(8), 1905–1924. <https://doi.org/10.1016/j.csda.2005.03.011>
- Ala-Mantila, S., Heinonen, J., Junnila, S., & Saarsalmi, P. (2018). Spatial nature of urban well-being. *Regional Studies*, 52(7), 959–973. <https://doi.org/10.1080/00343404.2017.1360485>
- Alderson, A. S., Junisbai, A., & Heacock, I. (2007). Social status and cultural consumption in the United States. *Poetics*, 35(2–3), 191–212. <https://doi.org/10.1016/j.poetic.2007.03.005>
- Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and happiness: Are Europeans and Americans different? *Journal of Public Economics*, 88(9–10), 2009–2042. <https://doi.org/10.1016/j.jpubeco.2003.07.006>
- Ateca-Amestoy, V., Villarroya, A., & Wiesand, A. J. (2021). Heritage engagement and subjective well-being in the European union. *Sustainability (Switzerland)*, 13(17), 1–16. <https://doi.org/10.3390/su13179623>
- Ballas, D. (2013). What makes a “happy city”? *Cities*, 32. <https://doi.org/10.1016/j.cities.2013.04.009>
- Ballas, D., & Tranmer, M. (2012). Happy people or happy places? a multilevel modeling approach to the analysis of happiness and well-being. *International Regional Science Review*, 35(1), 70–102. <https://doi.org/10.1177/0160017611403737>
- Benzecry, C., & Collins, R. (2014). The high of cultural experience: Toward a microsociology of cultural consumption. *Sociological Theory*, 32(4), 307–326. <https://doi.org/10.1177/0735275114558944>
- Biagi, B., Ladu, M. G., & Meleddu, M. (2018). Urban Quality of Life and Capabilities: An Experimental Study. *Ecological Economics*, 150(November 2017), 137–152. <https://doi.org/10.1016/j.ecolecon.2018.04.011>
- Bjørnskov, C., Dreher, A., & Fischer, J. A. V. (2008). Cross-country determinants of life satisfaction: Exploring different determinants across groups in society. *Social Choice and Welfare*, 30(1), 119–173. <https://doi.org/10.1007/s00355-007-0225-4>
- Blessi, G. T., Grossi, E., Sacco, P. L., Pieretti, G., & Ferilli, G. (2016). The contribution of cultural participation to urban well-being. A comparative study in Bolzano/Bozen and Siracusa, Italy. *Cities*, 50, 216–226. <https://doi.org/10.1016/j.cities.2015.10.009>
- Brambilla, M., Michelangeli, A., & Peluso, E. (2013). Equity in the City: On Measuring Urban (In)quality of life. *Urban Studies*, 50(16), 3205–3224. <https://doi.org/10.1177/0042098013484539>
- Campagna, D., Caperna, G., & Montalto, V. (2020). Does Culture Make a Better Citizen? Exploring the Relationship Between Cultural and Civic Participation in Italy. *Social Indicators Research*, 149(2), 657–686. <https://doi.org/10.1007/s11205-020-02265-3>

- Carlisle, S., & Hanlon, P. (2008). "Well-being" as a focus for public health? A critique and defence. *Critical Public Health*, 18(3), 263–270. <https://doi.org/10.1080/09581590802277358>
- Carlisle, S., & Hanlon, P. (2007). Well-being and consumer culture: A different kind of public health problem? *Health Promotion International*, 22(3), 261–268. <https://doi.org/10.1093/heapro/dam022>
- Cattaneo, M. D. (2010). Efficient semiparametric estimation of multi-valued treatment effects under ignorability. *Journal of Econometrics*, 155(2), 138–154.
- Chesher, A., Rosen, A. M., & Siddique, Z. (2019). Estimating Endogenous Effects on Ordinal Outcomes.
- Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., Danigelis, N. L., Dickinson, J., Elliott, C., Farley, J., Gayer, D. E., Glenn, L. M. D., Hudspeth, T., Mahoney, D., McCahill, L., McIntosh, B., Reed, B., Rizvi, S. A. T., Rizzo, D. M., ... Snapp, R. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological Economics*, 61(2–3), 267–276. <https://doi.org/10.1016/j.ecolecon.2006.02.023>
- Crociata, A., Agovino, M., & Luigi Sacco, P. (2013). Cultural access and mental health: an exploratory study. *Social Indicators Research*, 118(1), 219–233. <https://doi.org/10.1007/s11205-013-0426-4>
- Crociata, A., Agovino, M., & Sacco, P. L. (2015). Recycling waste: Does culture matter? *Journal of Behavioral and Experimental Economics*, 55(November), 40–47. <https://doi.org/10.1016/j.socec.2015.01.005>
- Daykin, N., Orme, J., Evans, D., Salmon, D., Mceachran, M., & Brain, S. (2008). The impact of participation in performing arts on adolescent health and behaviour: A systematic review of the literature. *Journal of Health Psychology*, 13(2), 251–264. <https://doi.org/10.1177/1359105307086699>
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, Culture, and Subjective Well-Being: Emotional and Cognitive Evaluations of Life. *Annual Review of Psychology*, 54(1), 403–425. <https://doi.org/10.1146/annurev.psych.54.101601.145056>
- Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 29(1), 94–122. <https://doi.org/10.1016/j.joep.2007.09.001>
- Doyle, J., Armstrong, R., & Waters, E. (2008). Key issues in Cochrane systematic reviews: cultural and economic considerations. *Journal of Public Health*, 30(3), 342–344. <https://doi.org/10.1093/PUBMED/FDN065>
- Eakin, M. (2003). Arts and health. *J Public Health Medicine*, 25(1), 84–85.
- Easterlin, R. A. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence. In *International Journal of Managing Projects in Business* (Vol. 7, Issue 3, pp. 449–472). <https://doi.org/10.1108/IJMPB-01-2013-0003>
- Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior and Organization*, 27(1), 35–47.
- Fancourt D, Finn S., (2019) What is the evidence on the role of the arts in improving health and well-being? A scoping review. Copenhagen: WHO Regional Office for Europe; (Health Evidence Network (HEN) synthesis report 67).

- Ferrer-i-Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics*, 89(5–6), 997–1019. <https://doi.org/10.1016/j.jpubeco.2004.06.003>
- Galloway, S. (2006). Cultural participation and individual quality of life: A review of research findings. *Applied Research in Quality of Life*, 1(3–4), 323–342. <https://doi.org/10.1007/s11482-007-9024-4>
- Gómez-Zapata, J. D., Herrero-Prieto, L. C., & Rodríguez-Prado, B. (2021). Does music soothe the soul? Evaluating the impact of a music education programme in Medellín, Colombia. *Journal of Cultural Economics*, 45(1), 63–104.
- Goldman, A., (2001); The aesthetic. In *The Routledge Companion to Aesthetics*. B. Gaut and D. Mcleaver Lopes, eds., pp. 181–192. London: Routledge.
- Graziano, P., Rizzi, P., Piva, M., & Barbieri, L. (2019). A Regional Analysis of Well-Being and Resilience Capacity in Europe. *Scienze Regionali*, 18(Special Issue), 551–574. <https://doi.org/10.14650/94667>
- Grossi, E., Blessi, G. T., Sacco, P. L., & Buscema, M. (2012). The Interaction Between Culture, Health and Psychological Well-Being: Data Mining from the Italian Culture and Well-Being Project. *Journal of Happiness Studies*, 13(1), 129–148. <https://doi.org/10.1007/s10902-011-9254-x>
- Grossi, E., Compare, A., Lonardi, C., Cerutti, R., Callus, E., & Niero, M. (2013). Gender-related Effect of Cultural Participation in Psychological Well-being: Indications from the Well-being Project in the Municipality of Milan. *Social Indicators Research*, 114(2), 255–271. <https://doi.org/10.1007/s11205-012-0144-3>
- Grossi, E., Sacco, P. L., Blessi, G. T., & Cerutti, R. (2011). The Impact of Culture on the Individual Subjective Well-Being of the Italian Population: An Exploratory Study. *Applied Research in Quality of Life*, 6(4), 387–410. <https://doi.org/10.1007/s11482-010-9135-1>
- Grossi, E., Tavano Blessi, G., & Sacco, P. L. (2019). Magic Moments: Determinants of Stress Relief and Subjective Well-being from Visiting a Cultural Heritage Site. *Culture, Medicine and Psychiatry*, 43(1), 4–24. <https://doi.org/10.1007/s11013-018-9593-8>
- Hacking, S., Secker, J., Spandler, H., Kent, L., & Shenton, J. (2008). Evaluating the impact of participatory art projects for people with mental health needs. *Health and Social Care in the Community*, 16(6), 638–648. <https://doi.org/10.1111/j.1365-2524.2008.00789.x>
- Hand, C. (2018). Do the arts make you happy? A quantile regression approach. *Journal of Cultural Economics*, 42(2), 271–286. <https://doi.org/10.1007/s10824-017-9302-4>
- Helliwell, J. F., Layard, R., Sachs, J. D., De Neve, J.-E., Aknin, L. B., & Wang, S. (Eds.). (2023). *World Happiness Report 2023*. New York: Sustainable Development Solutions Network.
- Helliwell, J. F., & Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 359(1449), 1435–1446. <https://doi.org/10.1098/rstb.2004.1522>
- Hutter, M. (1996). The impact of cultural economics on economic theory. *Journal of Cultural Economics*, 20(4), 263–268.

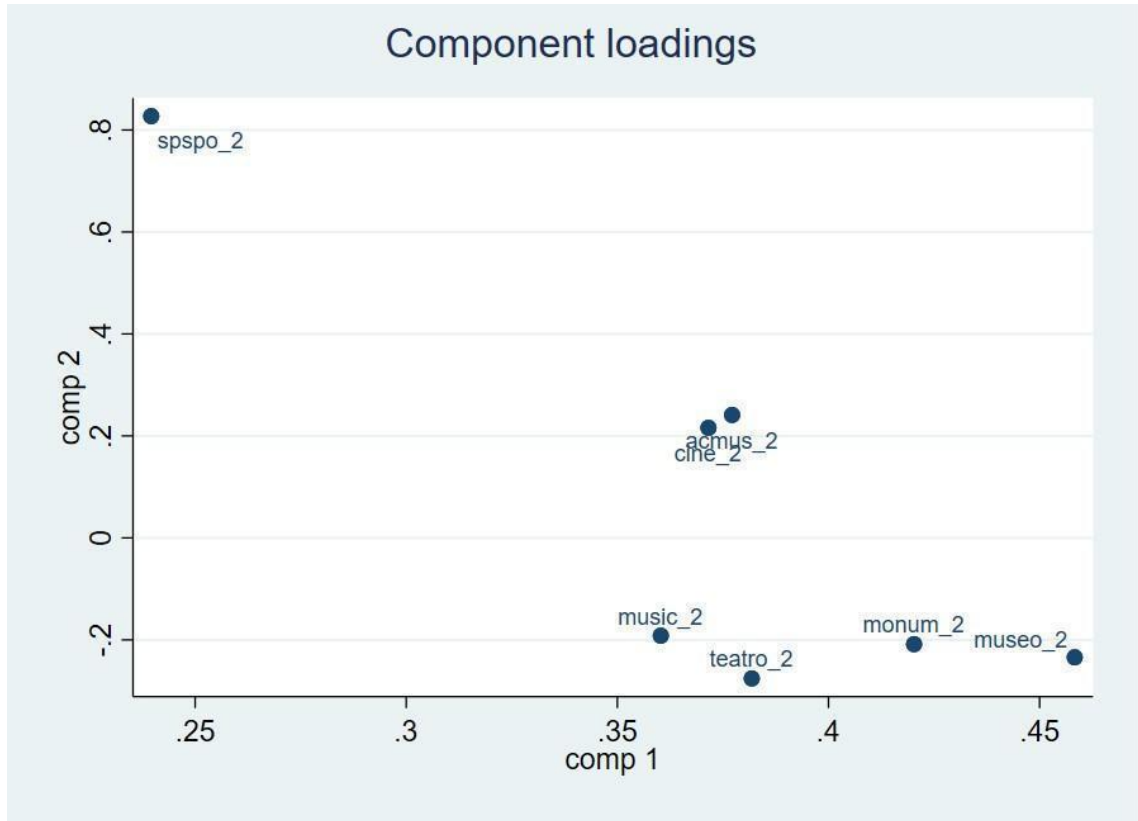
- Hyypä, M. T., Mäki, J., Impivaara, O., & Aromaa, A. (2006). Leisure participation predicts survival: A population-based study in Finland. *Health Promotion International*, 21(1), 5–12. <https://doi.org/10.1093/heapro/dai027>
- Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: A review and recent developments. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 374(2065). <https://doi.org/10.1098/rsta.2015.0202>
- Karasawa, M., Curhan, K. B., Markus, H. R., Kitayama, S. S., Love, G. D., Radler, B. T., & Ryff, C. D. (2011). Cultural perspectives on aging and well-being: A comparison of Japan and the United States. *International Journal of Aging and Human Development*, 73(1), 73–98. <https://doi.org/10.2190/AG.73.1.d>
- Konlaan, B. B., Björby, N., Bygren, L. O., Weissglas, G., KaSWBson, L. G., & Widmark, M. (2000). Attendance at cultural events and physical exercise and health: A randomised controlled study. *Public Health*, 114(5), 316–319. <https://doi.org/10.1038/sj.ph.1900670>
- Konlaan, B. B., Bygren, L. O., & Johansson, S. E. (2000). Visiting the cinema, concerts, museums or art exhibitions as determinant of survival: A Swedish fourteen-year cohort follow-up. *Scandinavian Journal of Public Health*, 28(3), 174–178. <https://doi.org/10.1177/14034948000280030501>
- Lenzi, C., & Perucca, G. (2018). Are urbanised areas source of life satisfaction? Evidence from EU regions. *Papers in Regional Science*, 97(March 2018), S105–S122. <https://doi.org/10.1111/pirs.12232>
- Litchfield, J., Reilly, B., & Veneziani, M. (2012). An analysis of life satisfaction in Albania: An heteroscedastic ordered probit model approach. *Journal of Economic Behavior and Organization*, 81(3), 731–741. <https://doi.org/10.1016/j.jebo.2010.12.020>
- Louis, V. V., & Zhao, S. (2002). Effects of family structure, family SES, and adulthood experiences on life satisfaction. *Journal of Family Issues*, 23(8), 986–1005. <https://doi.org/10.1177/019251302237300>
- Michalos, A. C., & Kahlke, P. M. (2008). Impact of arts-related activities on the perceived quality of life. *Social Indicators Research*, 89(2), 193–258. <https://doi.org/10.1007/s11205-007-9236-x>
- McCrea, R., Shyy, T. K., & Stimson, R. (2006). What is the strength of the link between objective and subjective indicators of urban quality of life? *Applied Research in Quality of Life*, 1(1), 79–96. <https://doi.org/10.1007/s11482-006-9002-2>
- Ng, YK. (2022). Happiness or Life Satisfaction?. In: *Happiness—Concept, Measurement and Promotion*. Springer, Singapore. https://doi.org/10.1007/978-981-33-4972-8_4
- Nikolova, M., Graham, C. (2022). The Economics of Happiness. In: Zimmermann, K.F. (eds) *Handbook of Labor, Human Resources and Population Economics*. Springer, Cham. https://doi.org/10.1007/978-3-319-57365-6_177-2
- Quaglione, D., Cassetta, E., Crociata, A., Marra, A., & Sarra, A. (2019). An assessment of the role of cultural capital on sustainable mobility behaviours: Conceptual framework and empirical evidence. *Socio-Economic Planning Sciences*, 66(May 2018), 24–34. <https://doi.org/10.1016/j.seps.2018.07.005>

- Rapacciuolo, A., Perrone Filardi, P., Cuomo, R., Mauriello, V., Quarto, M., Kisslinger, A., Savarese, G., Illario, M., & Tramontano, D. (2016). The Impact of Social and Cultural Engagement and Dieting on Well-Being and Resilience in a Group of Residents in the Metropolitan Area of Naples. *Journal of Aging Research*, 2016. <https://doi.org/10.1155/2016/4768420>
- Reyes-Martínez, J. (2021). Cultural Participation and Subjective Well-Being in Latin America: Does Ethnic-Racial Ascription Matter? *Scientific Annals of Economics and Business*, 68, 53–70. <https://doi.org/10.47743/SAEB-2021-0031>
- Reyes-Martínez, J., Takeuchi, D., Martínez-Martínez, O. A., & Lombe, M. (2021). The Role of Cultural Participation on Subjective Well-Being in Mexico. *Applied Research in Quality of Life*, 16(3), 1321–1341. <https://doi.org/10.1007/s11482-020-09811-8>
- Rözer, J., & Kraaykamp, G. (2013). Income Inequality and Subjective Well-being: A Cross-National Study on the Conditional Effects of Individual and National Characteristics. *Social Indicators Research*, 113(3), 1009–1023. <https://doi.org/10.1007/s11205-012-0124-7>
- Sabatini, F. (2005). Measuring social capital in Italy: an exploratory analysis. University of Bologna, Faculty of Economics, Third Sector and Civil Economy Working Paper Series, 12.
- Sacco, P. L. (2011). Culture 3.0: A new perspective for the EU 2014-2020 structural funds programming. EENC Paper, April 2011.
- Shoham, A. (2022). The Fundamental Endogeneity of Survey-Based Cultural Dimension. In *British Journal of Management*. <https://doi.org/10.1111/1467-8551.12599>
- Sirgy, M. J., Uysal, M., & Kruger, S. (2017). Towards a Benefits Theory of Leisure Well-Being. *Applied Research in Quality of Life*, 12(1), 205–228. <https://doi.org/10.1007/s11482-016-9482-7>
- Sørensen, J. F. L. (2013). Rural–Urban Differences in Life Satisfaction: Evidence from the European Union. *Regional Studies*, 48(9), 1451–1466. <https://doi.org/10.1080/00343404.2012.753142>
- StataCorp. 2021. Stata: Release 17. Statistical Software. College Station, TX: StataCorp LLC.
- Stutzer, A. (2004). The role of income aspirations in individual happiness. *Journal of Economic Behavior and Organization*, 54(1), 89–109. <https://doi.org/10.1016/j.jebo.2003.04.003>
- Tavano, G., & Correspondence, B. (2014). Cultural Participation, Relational Goods and Individual Subjective Well-Being: Some Empirical Evidence. *Review of Economics*, 14.
- Throsby, D. (n.d.). ON THE SUSTAINABILITY OF CULTURAL CAPITAL.
- Węziak-Białowolska, D., & Białowolski, P. (2016). Cultural events - Does attendance improve health? Evidence from a Polish longitudinal study. *BMC Public Health*, 16(1), 1–9. <https://doi.org/10.1186/s12889-016-3433-y>
- Wheatley, D., & Bickerton, C. (2019). Measuring changes in subjective well-being from engagement in the arts, culture and sport. *Journal of Cultural Economics*, 0123456789. <https://doi.org/10.1007/s10824-019-09342-7>
- Wooldridge, J. M. 2010. *Econometric Analysis of Cross Section and Panel Data*. 2nd ed. Cambridge, MA: MIT Press.

Appendix

A. Appendix – Further Methodological aspects

Appendix – Figure A1 - Principal Component loadings plot



Source: Source: Our elaboration – data source from Multiscopo-Aspetti della vita quotidiana (ISTAT)

Appendix – Table A1 - Treatment effects models specifications

<i>Regression Adjustment RA</i>	Corrects the outcome model to account for the non-random treatment assignment.
<i>Inverse-Probability Weight IPW</i>	Corrects the treatment assignment without specifying the outcome model.
<i>IPW-RA</i>	Uses the IPW weight to correct the regression coefficients subsequently employed to perform the RA (double-robust property).
<i>Augmented IPW</i>	Add a bias-correction term to the IPW. If the bias-correction is equal to 0, the model employed is the IPW; otherwise, the bias-correction terms adjust the estimation. In this case, the outcome model has to be correctly specified (double-robust property).
<i>AIPW</i>	
<i>Endogenous Treatment Effect</i>	To control for the endogeneity of the treatment assignment, the estimator includes residuals from the treatment model in the models for the potential outcomes, known as a control-function approach. This method controls for endogeneity by including the residuals from the treatment assignment model as a regressor in the models for the potential outcome.
<i>ETEFECTS (Stata command)</i>	
<i>Endogenous treatment regression</i>	Estimate the ATE and the other parameters by employing a linear regression model augmented with an endogenous binary-treatment variable. Estimation is by full maximum likelihood, a consistent two-step estimator, or a control-function estimator. It can be employed when the outcome may not be conditionally independent of the treatment
<i>ETREGRESS (Stata command)</i>	

Source: Cattaneo, (2010); Wooldridge, 2010

Appendix – Equation A1 - Treatment model employed for the RA, IPW-RA, AIPW, ETEFFECTS, and ETREGRESS

$$\begin{aligned}
 \text{Treatment}_i[0; 1] = & Z_0 + Z_1 \text{Sex}_i + \\
 & Z_2 \text{Age}_i + Z_3 \text{Work position}_i + Z_4 \text{Internet Access}_i + Z\beta_5 \text{Gen. trust}_i + \\
 & Z_6 \text{Reg. income PC} + Z_7 \text{Pub exp culture PC}_i + \emptyset \text{Reg. Dummy}_i + \delta \tau_i + \varepsilon_{it}
 \end{aligned}$$

B. Appendix – Further Robustness checks

Appendix – Table A2a - Regression Checks by Sub-samples of education level, HYPOTHESIS 1 - ordered probit

Life Satisfaction ~ SWB	Elementary or No title	Middle/High school	University or PhD
Museum	0.062 (0.0447)	0.031*** (0.0080)	0.011 (0.0115)
Monument visits	0.035 (0.0491)	0.018** (0.0076)	0.023** (0.0107)
Theater	0.070* (0.0384)	0.049*** (0.0078)	0.037*** (0.0109)
Cinema	0.070*** (0.0244)	0.032*** (0.0043)	0.004 (0.0076)
Classic Music	-0.147*** (0.0531)	-0.007 (0.0100)	0.013 (0.0125)
Concerts	0.050 (0.0431)	-0.005 (0.0069)	0.001 (0.0115)
Sports Events	0.036 (0.0227)	0.039*** (0.0040)	0.030*** (0.0082)
<i>Controls variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Regional dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Time dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Observations	10107	106289	26890

* p<.1, ** p<.05, *** p<0.01

Note: the estimations are based on the dataset 2013-2019

Appendix – Table A2b - Regression Checks by Sub-samples of work position –ordered probit

Life satisfaction ~ SWB	Self-employed	Employees	Student or Unemployed	Retired or Housewife
Museum	0.025 (0.0167)	0.032*** (0.0096)	0.015 (0.0133)	0.016 (0.0171)
Monument visits	0.036** (0.0161)	0.008 (0.0089)	0.012 (0.0127)	0.048*** (0.0160)
Theater	0.037** (0.0158)	0.044*** (0.0089)	0.055*** (0.0142)	0.048*** (0.0168)
Cinema	0.016 (0.0105)	0.002 (0.0058)	0.052*** (0.0064)	0.042*** (0.0095)
Classic Music	-0.016 (0.0179)	0.003 (0.0116)	-0.013 (0.0161)	-0.002 (0.0196)
Concerts	-0.008 (0.0170)	0.000 (0.0092)	-0.012 (0.0105)	0.011 (0.0144)
Sports Events	0.048*** (0.0099)	0.044*** (0.0058)	0.031*** (0.0059)	0.031*** (0.0092)
<i>Controls variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Regional dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Time dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Observations	14347	49737	55050	24152

* p<.1, ** p<.05, *** p<0.01

Note: the estimations are based on the dataset 2013-2019

Appendix – Table A3a - Regression Checks for PCR to control for multicollinearity, HYPOTHESIS 1

Life satisfaction ~ SWB	Ordered Probit	Ordered Logit
Museum and Monuments	0.037*** (0.0021)	0.067*** (0.0036)
Theatre and Cinema	0.022*** (0.0031)	0.038*** (0.0053)
Classic Music and Concert	-0.015*** (0.0033)	-0.027*** (0.0056)
Sport Events	-0.014*** (0.0035)	-0.024*** (0.0061)
<i>Controls variables</i>	<i>Yes</i>	<i>Yes</i>
<i>Regional dummies</i>	<i>Yes</i>	<i>Yes</i>
<i>Time dummies</i>	<i>Yes</i>	<i>Yes</i>
Observations	143190	143190
r2		

* p<.1, ** p<.05, *** p<0.01

Note: the estimations are based on the dataset 2013-2019

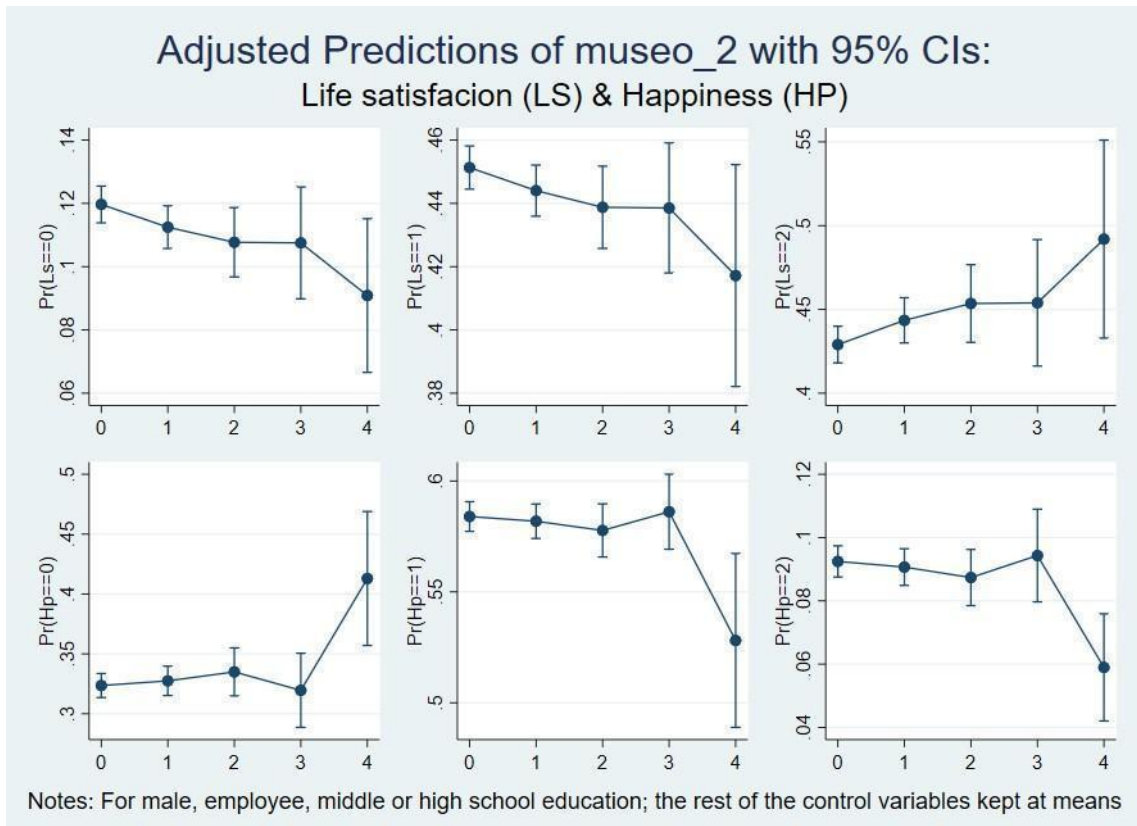
Appendix – Table A3b - Regression Checks for PCR to control for multicollinearity, HYPOTHESIS 2

Life satisfaction & happiness	Ordered Probit		Ordered Logit	
	LS	HP	LS	HP
Museum and Monuments	0.041*** (0.0036)	-0.013*** (0.0034)	0.068*** (0.0061)	-0.020*** (0.0059)
Theatre and Cinema	0.010* (0.0055)	-0.016*** (0.0053)	0.015 (0.0093)	-0.024*** (0.0091)
Classic Music and Concert	-0.018*** (0.0059)	-0.012** (0.0056)	-0.027*** (0.0098)	-0.024** (0.0096)
Sport Events	0.012* (0.0064)	-0.007 (0.0062)	0.016 (0.0107)	-0.014 (0.0106)
<i>Controls variables</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Regional dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Time dummies</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Observations	66258	66258	66258	66258

* p<.1, ** p<.05, *** p<0.01

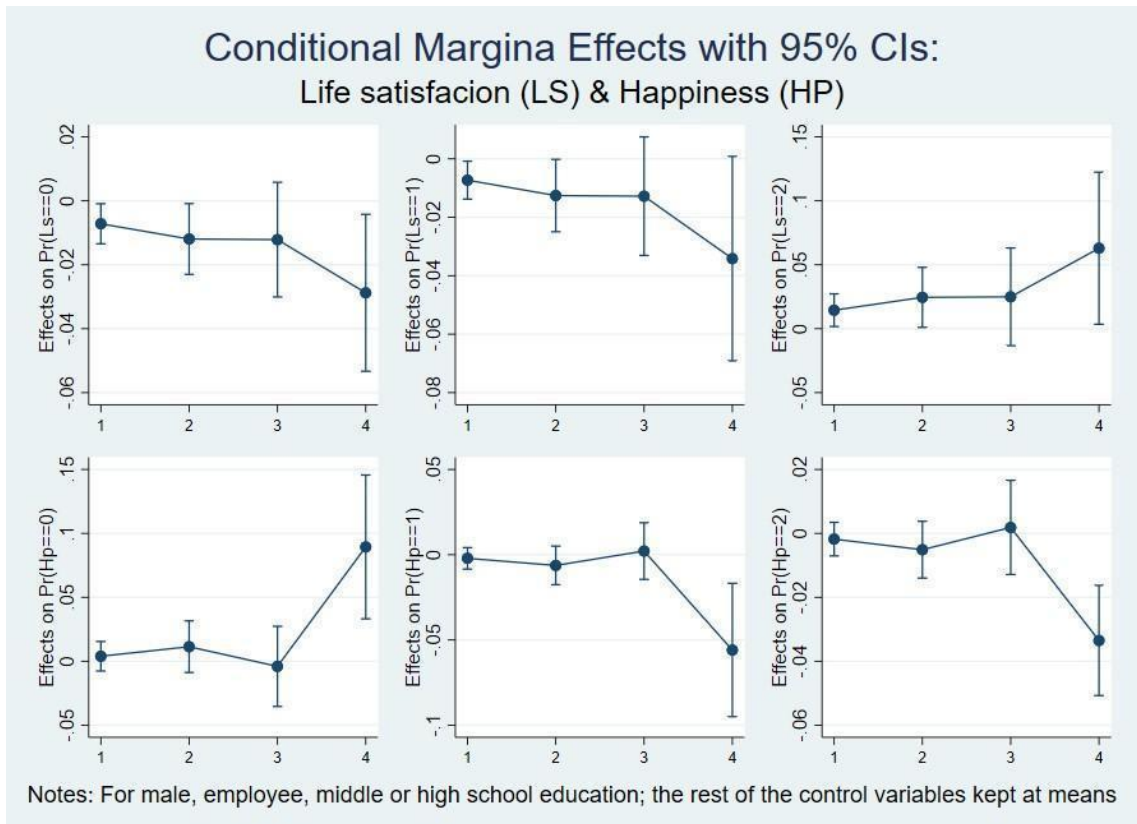
Note: the estimations are based on the dataset 2017-2019

Appendix – Figure A2 - Conditional (Adjusted) predicted probability of museum for male, employee, middle/high school education for LS and HP



Source: Our elaboration – data source from Multiscopo-Aspetti della vita quotidiana (ISTAT); Pr(LS/HP): 0 "not satisfied/happy"; 1 "satisfied/happy"; 2 "very satisfied/happy"; estimation from the ordered probit

Appendix – Figure A3 - Conditional marginal effects of museum for male, employee, middle/high school education for LS and HP



Source: Our elaboration – data source from Multiscopo-Aspetti della vita quotidiana (ISTAT); Pr(LS/HP): 0 "not satisfied/happy"; 1 "satisfied/happy"; 2 "very satisfied/happy"; estimation from the ordered probit