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The Urban Agenda for the EU: Policy Evaluation

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Contents

1   Abstract

Despite the commitment of the Urban Agenda for the European Union to the development of sustainable cities, questions over its effectiveness remain unanswered. There is not sufficient evidence to suggest that monetary interventions at the local level helped promote sustainability. This thesis analyzes the impact of Cohesion funds on climate mitigation and adaptation indicators in 74 European cities in the programming period 2014–2020. The funds are the biggest financial instrument at the Union's disposal to advance its agenda. The results of multivariate regression modeling show no significant connection between the intervention and outcomes. It may suggest a relative failure of the Agenda to advance sustainability at the local level. Although sample limitations restrict the generalizability of the conclusion, the research makes noteworthy progress on the issue with a novel puzzle question and dataset.

2   Introduction

This thesis critically analyzes the sustainability aspect of the urban policy of the European Union (EU) from the perspective of multi-level governance and attempts to empirically evaluate it. There has been a lot of research inspecting the evolution of European urban policy in its legal and political forms, but fewer authors have attempted to understand whether the policy has been successful in its goals and delivery. The European Regional Development Fund (ERDF) receives 226.3 billion euros, the Cohesion Fund—46.7, and the European Social Fund (ESF) has 101 billion for the 2021-2027 strategy (Pontrandolfi and Dastoli 2021). How effectively this money is administered is an important issue both for scholars and practitioners. Sustainable urban development takes up at least 8% of the national ERDF resources, compared to 5% in the period 2014-2020 ("Urban Agenda for the EU: Pact of Amsterdam" 2016). This represents a turning point in the strategy to accelerate the ecological transition and strive for further territorial equity. However, the literature on public management and urban policy has not produced enough empirical evidence that the European financial interventions have succeeded in their climate action at the local level. Additionally, the end of the working term 2014-2020 of the Cohesion Policy presents an appropriate period to assess the intervention impact. To summarize, the *research problem* of my thesis states that there is a lack of knowledge on whether governments and intergovernmental organizations, such as the EU, can positively influence urban areas from the side of growth and sustainability.

Cities produce around 70% of CO_2 due to energy production and many other carbon-intensive industries are concentrated in urban spaces as well (Dasgupta, Lall, and Wheeler 2022). At the same time, they may become the primary victims of the changes brought by climate change (Corfee-Morlot et al. 2009, 2). I understand sustainability as a dominating answer to the climate issue and I will take it as a primary concept of the thesis. Sustainability comprises two processes: *mitigation* and *adaptation* in which cities and towns have been involved heavily since the early 1990s when municipalities started to address these issues. Mitigation refers to actions to limit the human effect on global warming (and other disasters, such as ozone layer depletion) and adaptation is social adjusting to the consequences of climate change. Whilst interconnected, they involve different policy processes and have

divergent spatial scales. Mitigation should be understood as a practice of reducing emissions of greenhouse gases. It has been pushed by national and international actors targeting a few carbon-intensive sectors, like energy and transportation (Bulkeley, Schroeder, et al., n.d.). Adaptation, conversely, involves a wide range of actors and policy agendas localized in smaller contexts. It can entail both long-term solutions (carbon-neutral productions) and immediate disaster relief (McEvoy, Lindley, and Handley 2006).

Early international policies and climate commitments largely ignored the urban dimension of the issue and put the responsibility solely on states (Betsill and Bulkeley 2007; Bulkeley, Edwards, and Fuller 2014). The understanding that the problem requires a global solution suggested to stakeholders that it was identical to the ozone hole issue, hence, it should have been solved similarly—on a national level—by putting restrictions on all countries. However, this idea ignored the complex multifaceted nature of the climate change problem. Betsill and Bulkeley (2006, 143) suggest "that cities, rather than nation-states, may be the most appropriate arena in which to pursue policies to address specific global environmental problems". There is evidence that cities can produce effective outcomes in both mitigation and adaptation independently of states or intergovernmental organizations. For example, cities participating in networks like CCP (Cities for Climate Protection) have effectively decreased their greenhouse gas (GHG) contribution thanks to city-to-city cooperation (Betsill and Bulkeley 2006). However, in my case, the institutional complexity of the Union makes the analysis more difficult because of the number of different interests and stakeholders.

I have selected the Urban Agenda for the European Union (UAEU) as my case-study because of its novelty as a program and because the EU context is unique in how supranational actors can influence urban politics. The Agenda is an instrument of a partnership between a range of stakeholders, which should drive the urban policy forward and support the development of European cities. This thesis seeks to answer the following *research question*: what is the effect of interventions that encompass the Urban Agenda for the EU on sustainable development of cities where they have been applied? The *goal* of the thesis is to uncover the significance and type of the relationship between the policy intervention and urban factors of sustainability. After surveying the literature, I presuppose that the EU as

a policy actor has been unsuccessful in promoting sustainability at the local level and the effect of the Agenda is insignificant. Some authors suggest that the UAEU will strengthen cities as partners of this EU strategy. Cities can become a counterbalance to the power of the Member States (Mamadouh 2018; Potjer, Hajer, and Pelzer 2018; Purkarthofer 2019). Although it may happen in the future, current evidence indicates that the EU has very limited possibilities in enacting its agenda at the local level. Until now, the Union for the reasons of subsidiarity has mostly failed to exert its influence over urban policy and create an overarching common urban policy scheme (Atkinson 2001; Faludi 2002; De Frantz 2021; Dellmuth and Stoffel 2012; Medina and Fedeli 2015; Svedin 2015).

The changes in urban mobility and environmental pollution should be attributed to other factors, such as local policy and economic transformations. There are several reasons for the policy's relative failure: the inability of the EU actors to develop a comprehensive policy structure and efficiently influence the MSs and the absence of a significant demand for the EU financial instruments; however, these lay outside the scope of this research. This thesis takes the multi-level governance theoretical approach to found its assumptions. It describes how power and policymaking are shared between levels of government and across non-governmental actors. In an attempt to prove my hypothesis, I provide empirical quantitative evidence. I exploit a sample of 74 European cities where the financial instruments of the ERDF have been applied from 2014-2020. It has observations with different socio-economic parameters and levels of sustainability. I use multivariate multiple regressions to test my hypothesis and produce generalizable results. The application of this type of regression allows me to see the relationship between the EU financing and both mitigation and adaptation.

The novelty and strength of this thesis lie in the fact that other research has not attempted to find the link between the ERDF funding and sustainability on the city level for the whole EU.

The first chapter explores the literature on climate change and urban policy in the EU. It examines different theoretical approaches in order to discover why the Union has not been successful in promoting sustainable cities. The second chapter presents my data and regression methods used. In the third chapter, I provide the empirical analysis and show

the results that prove my hypothesis. It concludes by discussing the outcome of the study,
showing its limitations, implications for policymakers, and outlining possible areas for further
research.

3   Literature Review

In this chapter, I am going to elaborate on the choice of multi-level governance for the thesis (section 3.1), explore how scholars tackled the issue of local sustainability (section 3.2), how the existing literature views European urban policy, traces its development in time, and whether it can be deemed successful for the sustainability goals (section 3.3). Finally, I synthesize the literature and point to the lacuna this thesis explores (section 3.4).

3.1   Multi-level Governance in the EU

I employ the multi-level governance (MLG) approach to European policymaking as an analytical tool because it is the most fruitful when confronting the networks of actors. The literature on sustainability shows that the policy involves actors on different levels of politics: local, country, and supranational, but also private who stand apart. The MLG theory was first applied to the Cohesion policy by Marks (1992). It allowed moving from studying the Union purely from an international relations point of view to a perspective that incorporates comparative politics (Bache 2012). Apart from the subsidiarity and proportionality, the Cohesion policy institutes principles of *partnership* and *additionality.* The former requires that partnerships of various actors (national, subnational, Directorates-General, and non-state, like trade unions) are created to cooperate and administer the funds. The additionality simply stipulates that the funds are allocated in addition to finances from other sources (Bache 2012). This goes to show that the funds are multi-level too as they involve contributions from different investors.

The topic of multi-level governance in the political economy of climate change has a long history in its vertical and horizontal aspects. The vertical refers to how actors of different levels liaise and the horizontal aspect concerns actors on the same level of hierarchy. 1997 was the year when *Local Environment* published its first paper on cities and climate change (Collier 1997). In it, Collier uses a *multi-level policy framework* to analyze the climate change governance in the European Union. It then appeared in many papers such as Bulkeley and Betsill 2005, 2013; Ehnert et al. 2018; Keskitalo et al. 2010; Peel, Godden, and Keenan 2012; Scott 2011.

MLG became so popular in European studies that Schmitter (2004, 49) even called it "the most omnipresent and acceptable label" for the EU. Nevertheless, some critics point to the conceptual stretches and the normative aspect in some studies. For example, Stubbs (2005) criticizes the application of the MLG to Southern Europe, which fails to account for bad government and clientelist practices in that region. The issue demonstrates the internal complexity of the Union. It has become especially important since the 2000s after the ascension of Eastern Europe. At the moment, the majority of the funding goes there, where the quality of institutions and government accountability is lower than in the West. Whereas accounting for its weaknesses, the MLG framework remains compelling enough for me to adopt it in the research, because it is a useful analytical tool when the policy agenda is transferred to lower levels of government.

3.2 Cities and Climate Action

Now I would like to discuss how cities can deliver sustainability to their citizens. Even though municipalities have been engaging with the issues of climate change since the late 1980s, the literature has been following at a slower pace behind them. The first impactful research came out in the late 1990s (Collier and Levitsky 1997; Deangelo and Harvey 1998; Harvey 1993; Lambright, Chjangnon, and Harvey 1996). Most of the early works are individual case-studies in America, Australia, and Europe (Allman, Fleming, and Wallace 2004; Betsill and Bulkeley 2003; Bulkeley 2000; Davies 2005; Kousky and Schneider 2003; Yarnal, O'Connor, and Shudak 2003). In terms of multi-level governance, the research shows that even without a national commitment to a change in climate policy (especially in the US) or support for municipalities, cities are able to make significant progress on becoming more sustainable (Betsill and Bulkeley 2007). Contrary evidence suggests that "US cities may fail to achieve their targets unless their efforts are accompanied by complementary state and federal policies" (Bai 2007, 21). Depending on institutional constraints, relations between local, national, and international authorities can be beneficial or constraining for the climate change response (Betsill and Bulkeley 2007; Crass 2008). Early papers on the topic of cities and climate change are largely about four areas:

- what competencies and responsibilities municipalities have to address mitigation and adaptation (Collier and Levitsky 1997; Deangelo and Harvey 1998);

- how they can audit their progress and how to assess success (Agyeman and Angus 2003; Easterling et al. 1998);

- which industries and sectors can be affected by local policies (Collier 1996);

- and what cases of local climate action there are (Angel et al. 1998; Kates and Torrie 1998).

The studies suggest that cities are powerful actors of climate action and sustainability but their effectiveness is dependent on the overall development, institutional environment, and available competencies.

3.3   European Urban policy

Finally, I will present how the EU has tackled urban issues and whether its policy is successful. Environmental policy has a relatively long legacy in the EU. Emissions Trading Scheme (ETS) has received particular attention as the most salient policy in the political economy. Most authors considering its introduction and effectiveness examine it through the lens of *grandfathering.* Knight (2013, 410) defines: "emissions grandfathering maintains that prior emissions increase future emission entitlements". This approach is often rejected by scholars in favor of other measures such as Pigouvian taxes, however, it is an important component of the emission framework. Brandt and Svendsen (2003) from the perspective of rent-seeking theory demonstrate that the lobbyist structure of the European policymaking process favors large-industry interest groups, especially early winners. Hence, ETS was only in its current form based on a grandfathering principle as at that time, environmental Pigouvian taxes did not have political acceptability among the veto players. It should be noted that outsiders can also benefit from the scheme. A small but growing proportion of allowances are auctioned (i.e., not given to the current emitters); the number has gone from 5% for the 2005–2007 to at least 10% for the 2008–2012 periods (Hepburn et al. 2006). Despite the existence of this extensive research, the local environment has received far less scrutiny in the literature.

Cities have been on the periphery of European politics until recently but they had a focus on sustainability from the start. Atkinson (2001) writes that the urban perspective on the EU level emerged around 1997-1998 and he does not expect it to be grounded in the acquis for another ten years. One problem is that European cities have significantly less political power than their economic potential could suggest. The disparity between such global cities like Paris, London, and Berlin and economically insignificant countries, such as Malta or Cyprus, on the political level of the EU, is starkly evident. They have no formal representation on these forums from which they can actually benefit (Heinelt 2017). This creates a situation where there are high expectations of municipalities to work toward sustainability and carbon neutrality, but they have little chance of influencing the agenda and policy.

However, scholars consider that if given the opportunity cities can greatly improve the policymaking process. Purkarthofer (2019) based on expert interviews about the new Urban Agenda states that cities become a grassroots element to the Brussels method of steering and their representatives show to be more committed to the task than national bureaucrats. There is a pervasive idea in the literature that municipalities are better at communicating with the citizens and reacting to the aggregated demands than national governments. Mamadouh (2018) further calls for a new contract for sustainability between cities and citizens. Several European urban actors have suggested that the EU policy should strive for a "synergy between development and competitiveness, environmental protection, integration of the disadvantaged, and push for urban revitalization" ("The Acquis URBAN. Using Cities Best Practises for European Cohesion Policy" 2005). On the other hand, according to Medina and Fedeli (2015), the MSs have been reluctant to push for further urban integration. The process of the construction of the European Urban Policy can be attributed mostly to the Commission, which incentivizes the states to follow the policy directions with EU funding. This is especially true for federations, where states have been reluctant or unable to regulate urban/local policy (Faludi 2002).

Program documents of the UAEU pointed to the importance of cities for several reasons: 80% of Europeans lived there and they were the major wealth producers, as well as culture generators, but also social exclusion grew there significantly faster despite the dominating

development hypothesis. Economic cohesion was put as the main principle, i.e. reducing inequalities inside the Union. Until then, there was a focus on competitiveness which created more inter-urban competition (Atkinson 2001). Together with the fact that the documents did not clarify what the urban policy is in itself and the cleavages between winners and losers deepened. Furthermore, the structure of European institutions is problematic: the Commission is limited in what it can influence, while there is little coordination between Directorate-Generals who compete for policy areas. The Agenda made chose to pivot to medium size cities to lessen disparities, but this strategy has its pitfalls, as Moccia (2016) states it has hurt the overall development of Italian cities.

Next, I will carefully examine the new Urban Agenda. In the 2016 Pact of Amsterdam, the Union questioned members' sovereignty in urban policymaking for the first time (De Frantz 2021; Heinelt 2017). Although the Cohesion Policy has provided finances for urban projects before, the states did not agree on the approaches to development. The UAEU as a part of the Pact attempts to do that and mitigate the problems mentioned earlier. It sets out a few objectives:

- "to realise the full potential and contribution of urban areas towards achieving the objectives of the Union and related national priorities in full respect of subsidiarity and proportionality principles and competences;

- to establish a more effective integrated and coordinated approach to EU policies and legislation with a potential impact on urban areas and also to contribute to territorial cohesion by reducing the socioeconomic gaps observed in urban areas and regions;

- to involve urban authorities in the design of policies, to mobilise urban authorities for the implementation of EU policies";

- it will not create new EU funding sources, unnecessary administrative burden, nor affect the current distribution of legal competences and existing working and decision-making structures and will not transfer competences to the EU level" ("Urban Agenda for the EU" 2016).

The last one refers to the fact that the Agenda is not an official legislation and was made to work around the Treaties. Even though the UAEU does not create new funding,

it identifies, supports, and integrates existing funds at different levels, including European structural and investment funds (ESIF).

ESIF operate under the European Investment Bank and consist of "the European Regional Development Fund (ERDF) and Cohesion Fund (CF) for development and structural adjustments of regional economies, economic change, enhanced competitiveness as well as territorial cooperation, European Social Fund (ESF) for employment, social inclusion and education, European Agricultural Fund for Rural Development (EAFRD) for competitiveness of agriculture, sustainable management of natural resources and territorial development of rural communities, and European Maritime and Fisheries Fund (EMFF) for sustainable fishing and coastal communities" ("European Structural and Investment Funds" 2021).

All the funds allocate loans and other financial instruments to projects that are nominated by individual cities or their Member States with the purpose of leveling development and wealth across the Union. The goal of the Agenda is to turn the urban policy from a marginal aspect of European policymaking into an integrated approach across all levels, policy sectors, and stakeholders. The UAEU takes on an explicitly anti-silo—integrated approach: the policy is encompassing and claims to consider various spatial and temporal consequences of the interventions. In line with the Cohesion policy, the Urban Agenda delivers its activities through partnerships. 25 Member States, 82 cities and metropolitan regions, 12 regions, and 15 directorate-generals come together to form 14 partnerships ("Urban Agenda for the EU: Pact of Amsterdam" 2016).

Purkarthofer (2019) suggests that the EU is making a move toward *soft* planning and development not through regulations and directives but through partnerships. It certainly has some benefits given that the partnerships can bypass national officials and do not require any new funding while involving cities in the process. However, the author does not indicate whether the Agenda will be successful. There are some clear issues: their nonbinding nature (no new legislation is created) and the potential lack of incentive to participate for parties.

Another strand of literature has investigated whether the EU urban policy is a sign of globalization and has negatively affected urban and rural development. Some suggested that the inclusion of towns and cities into the larger context of the EU may hurt them (De Frantz 2021), but others disagree (Molle 2002).

De Frantz (2021) made a thorough study of the Urban Agenda as a programmatic document. It introduces the stakeholder mechanism into urban policymaking and transnational cooperation. Although there are benefits to reap from the soft EU approach, some worry it will lead to higher inequality and undermining of direct democracy. She also confirms the mentioned idea of winners and losers. The author raises the same issue as Atkiston 20 years before. According to De Frantz, there are bound to be conflicts of interests over the objectives between bodies with different government capacities. Combined with the noninclusion of social stakeholders, it will be difficult to create a common strategy and achieve results. However, overall, she contends that the politicization of urban contexts on the European level may bring more developed pluralism to transnationalism.

Conversely, Molle (2002) studied an argument of Globalization against Regionalism and their influence on European cohesion principles. The conclusion is that globalization has not been a threat to migration, equality, and development in cities so far and the author advocates further integration in regional policy in the EU.

In addition, the urban policy as an inter-sector field touches different competency areas. Svendin (2015) contemplating sustainable urban policy states that the EU needs further improved integration of functions and policies. A "green innovation boost" in research, innovation, and implementation policies can be useful. Moreover, the author suggests identifying which items should be on an EU list for green urban consideration.

From a gender perspective, Hurtado (2017) analyzed the urban policy in the EU from 1997 to 2017 to uncover whether gender has a definitive role in policymaking. Even though the Treaty of Amsterdam explicitly promotes gender mainstreaming and requires policymakers to analyze how different gender groups will be affected by such policy, the urban dimension has largely been lacking any gender aspect. This fact establishes that urban policy hinders the objective of social equity (between men and women) within the Union. In her opinion, it becomes crucial when initiatives for sustainable cities start for the period 2014–2020 co-funded by ESIF. It reveals that there are several peripheral issues for the Agenda to consider such as gender mainstreaming.

Now I am going to review empirical research that considered how the Cohesion funds affected social outcomes and specifically the promotion of sustainable cities. Despite this

extensive research done on the topic of the Agenda prior and posterior to the Pact of Amsterdam, very little examination has been presented to assess whether empirical evidence can support the claim that it has succeeded in its declared objectives.

Ex ante assessment of projects is mandatory and is always conducted by the Commission or another body but ex post analysis has much lower priority for EU officials (Pontrandolfi and Dastoli 2021). The research is mostly done in terms of costs—benefits, for instance, investment and transport passengers but largely ignores sustainability and wider effects of the intervention.

The Commission produces reports on the major projects such as European Commission and Directorate-General for Regional and Urban Policy (2020b, 2020c, 2020a), in which they present positive effects from their investments. However, the reports come much after the project is finished, for example, the Rios-Antirio bridge was opened in 2004 and the report was published in 2020. Even though it is essential to trace the effects decades after the investment, such pace does not strongly influence the decision-making in the present. Besides, it does not allow to make a robust ex post analysis, because after 15 years many other exogenous variables will affect the effectiveness of the infrastructure project.

Nadler and Nadler (2018) conducted a study of the EU JESSICA program targeted at regeneration programs in cities. It consisted of 2000 projects with high financial risk across 28 Member States. The novelty of the program was that it switches to revolving financial instruments instead of traditional grants. They argue that from the supply side it offered more affordable money, but in such cases of low-interest rates and high grant availability the demand for the instrument was questionable. Besides, the sustainability criterion was highly dubious and unchecked. They suggest that in presence of already affordable money, it is improbable to suggest that businesses should sign up for the EU funding accepting their sustainability criteria. However, now when money is becoming more expensive with the rising rates and high inflation, such instruments may become more popular.

In another study, Anguelov and Angelova (2019) show a positive impact for Bulgarian municipalities from the EU funds based on the interviews with officials from those towns. The respondents reported better development and general attitudes toward the environment and the EU.

This differs to some other findings. For instance, Pontrandolfi and Dastoli (2021), analyzing a case study of one area in Italy where there was an investment by the Structural funds, conclude that despite these funds some objectives were not reached and some indicators even worsened. These papers in sustainability were largely small case studies without a claim for generalization. While possessing strong internal validity, they do not allow to make a conclusion about the whole EU.

Although for urban studies it is a relatively new topic, the effects of European funds have received significant attention in economics. Scholars particularly studied how they affected unemployment, economic growth, and development when applied. Nevertheless, after decades of policy intervention, there appears no consensus on the issue (Barca 2009). There are as many works that find a positive influence on economic outcomes (Anguelov and Angelova 2019; Dorin-Madalin 2015; Pellegrini et al. 2013), as those that do not (Dall'erba and Le Gallo 2007; Jong, Vignetti, and Pancotti 2019). In a meta-study of 17 papers, Dall'erba and Fang (2017) conclude that the ERDF exhibit an extremely ambiguous effect on economic growth, however, there is an implication that the delivery has become better in recent years because newer research reports more positive results and the larger impact of the funds. Any nexus between the CP loans and grants and economic variables appears unstable across papers and largely depends on data and methods (Bachtrögler, Fratesi, and Perucca 2020; Mohl and Hagen 2010; Pellegrini et al. 2013). At the moment, I can assume that this conclusion about economy should be applied to urban sustainability as well.

3.4   Summary

After reviewing the literature, it can be said that climate action and sustainability remain a puzzling subject for scholars. MLG framework presents an adequate and effective theory to conduct policy evaluation in the EU. Cities are major pollutants but also the first victims of climate change. They can be quite effective both in terms of mitigation and adaptation, but their efficiency is dependent on relations with state, national, and supranational bodies, and available resources. The EU attempts to provide such resources through the Structural funds and establish urban agency with the partnerships. However, research showed that European urban policy was often ambiguous, stating sustainability goals but arguably failing

at policy formulation and delivery. There are mixed opinions on whether the Agenda could be successful in its objectives. Empirical research on the impact of Cohesion funds is ambivalent too. The results seem to depend on the particular research design and set of data. However, there has been very little research on funds' effect on sustainability indicators. Whereas there may be a theoretical understanding why the policy lacked complete success, there is not enough evidence to support that. For this reason, I consider my thesis to be rather promising and useful in establishing policy success. The lacuna is clear and my original design should make a contribution to the topic.

4 Data and Methodology

This chapter discusses the exploited variables, data collected, and methods used. The research is based on a case study of the investment projects part of the ERDF. The data were obtained from the Joint Research Centre (Joint Research Centre 2022) and the financial information from 2014–2020 ERDF Major Projects ("ESIF 2014-2020 ERDF CF Major Projects" 2021) of the European Commission. I used an unbalanced sample of cross-section type.[1] The major projects were selected on two criteria: they need to be situated in a city and target a sustainability aspect. The dataset has 74 cities in the latest available year (2016-2020)[2]. Descriptive statistics can be observed in table 1. The sample includes cities that received little financing and sizable amounts such as Bucharest, which had 4.5bln euros (almost four times as much as the next one). As far as I know, this is the first research to assess the impact of the major projects on urban sustainability.

Table 1: Descriptive statistics

Statistic	N	Mean	Median	St. Dev.	Min	Max
Dependent Variables						
CO emissions	54	26,605.95	12,477.11	42,802.9	834.993	237,778.7
CO_2 emissions	54	8,031.09	3,557.566	18,269.17	300.9	128,688.2
NH_3 emissions	54	1,949.543	1,416.527	1,664.295	213.45	7,886.65
Transport performance	54	81.815	84.152	15.19	51.396	137.402
Network efficiency	54	1.761	1.698	0.305	1.472	3.641
Independent Variable						
EU Financing	74	235,006k	95,833k	565,076k	17mln	4,538,261k
Control Variables						
Population	74	388,696.8	198,312	536,804.9	10,913	3,101,002
Women	74	110.3	109.75	5.806	99.1	126.400
Infant mortality	74	4.041	3	2.343	0	9
Unemployment (%)	74	12.047	11.5	6.987	2	30

4.1 Dependent Variables

Sustainability is an evasive concept, one thorny to operationalize (Mega and Pedersen 1998; Verma and Raghubanshi 2018). There are debates about whether sustainability should include non-environmental issues, like health and inequalities. Following the Union's approach

1. Total number of missing values is 120 (13.5%)
2. The list of cities can be found in table 5

to sustainability and its goals, I employ variables that should reflect both mitigation and adaptation to some degree. I also select some of the indicators from the research by Shen et al. (2011) and Michalina et al. (2021). I decided to go for the narrow understanding excluding other issues, such as health, education, and politics. The former are carbon monoxide, carbon dioxide, and ammonia emissions (tons). Carbon dioxide is the most important greenhouse gas. Carbon monoxide while not being a GHG, is an indicator for combustion. It is created when burning oil, gas, and coal, so we ought to expect lower values of it from more sustainable economies. Further, it indirectly contributes to the greenhouse effect by increasing the concentration of other gases (prominently ozone and methane) ("Which Gases Are Greenhouse Gases?" 2022). Ammonia is detrimental to the environment as a pollutant. Mainly produced in agriculture, it has negative effects on the biodiversity of ecosystems and human and animal health. For example, in the UK economic costs of ammonia at current levels is between £580m and £16.5bn per year (Guthrie et al. 2018, ii). The logarithm of values is used to correct for skewed distribution.

For the adaptation, I selected variables related to primarily transport. Transport performance is the accessible population divided by the nearby population. The transport operates well if everyone around can be reached quickly. "Network efficiency is an index that indicates the distance between the connectivity offered by an existing, planned or modelled transport network and the connectivity offered by an ideal network." (Joint Research Centre 2022). Values closest to 1 represent the best system.

First, I attempted to construct a composite index of sustainability encompassing all my variables using the principal component analysis. The technique should produce unambiguous results without any loss of variance. However, having six principal components, I would need to use four to explain at least 90% of variance. It means that it is impossible to significantly reduce the dimensionality. Other methods would not be valid, as the indices have different scales and for transport performance higher values represent better outcomes. For those reasons, I decided to analyze my dependent variables separately.

4.2   Independent Variable

The EU regulation (European Parliament and Council 2021) stipulates that ERDF supports policy according to the following objectives:

- "a more competitive and smarter Europe by promoting innovative and smart economic transformation and regional ICT connectivity

- a greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate change mitigation and adaptation, risk prevention and management, and sustainable urban mobility

- a more connected Europe by enhancing mobility

- a more social and inclusive Europe implementing the European Pillar of Social Rights

- a Europe closer to citizens by fostering the sustainable and integrated development of all types of territories and local initiatives."

ERDF has a few directions of financing including the major projects, money for which is allocated through the Member States. Correspondingly to the Cohesion policy, the major projects have thematic objectives and I have picked projects relating to sustainability: "preserving and protecting the environment, promoting climate change adaptation and risk prevention, promoting social inclusion and combating poverty, promoting sustainable transport and removing bottlenecks, and supporting the shift towards a low carbon economy" ("ESIF 2014-2020 ERDF CF Major Projects" 2021). This sample also constitutes the majority of the projects. Projects located outside of a city or town, like a highway construction, were not included.

The major projects are registered from 2014–2020 and are mostly large infrastructure schemes. Their total costs are more than 50 million euros each, thus they are subjected to an assessment approval by the Commission. The Directorate-General only publishes approved projects. Major projects were chosen for the study because the effect of the financial intervention should be the easiest to trace at a larger scale. Bigger investments should have a

more noticeable impact. There is a great variation in financing: the smallest project received 1.5 million from the EU and the largest—1 billion. The projects are aggregated on a city level then. Because the distribution of the variable is skewed to the left, I use logarithms of its values. If the intervention is successful, every additional euro should have a significant correlational effect on the dependent variable.

4.3   Control Variables

For control variables, I employ population, unemployment (%), infant mortality, and a number of female residents (per 100 male). Higher population leads to higher emissions and complicates transport connectivity. A logarithm is taken to correct for skewness. Unemployment—a politically salient phenomenon—affects the climate policy. Further environmental restrictions are assumed to bring about layoffs. If short-term considerations dominate the policymaking, climate action can be difficult to pursue. At the same time, high unemployment is a sign of economic struggles which could reverse the emissions (Babiker and Eckaus 2007). Infant mortality is a well-used measure for economic development and human capital. Women display more negative attitudes toward climate change than men and believe in its harmful effects for the future. They are also more likely to perceive it as a risk to themselves and their families (Matthew Ballew and Maibach 2018). As a result, they may push for more climate-friendly policies than men. Women also represent a majority in many green parties, which means that cities with a higher proportion of women are likely to be more sustainable.

4.4   Methods

4.4.1   Imputation

Due to the high amount of missing values, I employ imputation methods. I follow Rubin's rules of imputation (1987) in my analysis. The data is imputed with Multivariate Imputations by Chained Equations (MICE) and Amelia (Honaker, King, Blackwell, et al. 2011) methods. Five new datasets are created for each where the observed values remain and five values are predicted for each missing. This reflects the uncertainty about the observations

and the pooled results should be the most accurate.[3] I only report Amelia models, it being

a more advanced method, but the results are similar across MICE too.[4]

4.4.2   Modeling

The general form for the multivariate multiple regression is

$$Y_{n \times m} = \beta_{(r+1) \times m} X_{(r+1) \times n} + \varepsilon_{n \times m} \tag{1}$$

where βs are coefficients, Y is every dependent variable, and X is regressors. ε is an error (Johnson and Wichern 2007). Indices show that we have a matrix of combinations of parameters.

I model several equations:

$$\log CO2_n = \beta_0 + \beta_1 \cdot \log Finance_n + \Sigma \beta_i \cdot controls_n + \varepsilon_n \tag{2}$$

$$\log CO_n = \beta_0 + \beta_1 \cdot \log Finance_n + \Sigma \beta_i \cdot controls_n + \varepsilon'_n \tag{3}$$

$$\log NH3_n = \beta_0 + \beta_1 \cdot \log Finance_n + \Sigma \beta_i \cdot controls_n + \varepsilon''_n \tag{4}$$

$$Transport\ Performance_n = \beta_0 + \beta_1 \cdot \log Finance_n + \Sigma \beta_i \cdot controls_n + \varepsilon'''_n \tag{5}$$

$$Network\ Efficiency_n = \beta_0 + \beta_1 \cdot \log Finance_n + \Sigma \beta_i \cdot controls_n + \varepsilon''''_n \tag{6}$$

The necessity to estimate the models together is due to the fact that the coefficients

covary. The covariance needs to be taken into account to calculate the confidence intervals,

but the values of the coefficients would be the same in OLS models. The assumptions of the

model are linearity, the insignificance of outliers, homoscedasticity, normality of residuals,

and no multicollinearity. The results are calculated on each dataset and then pooled together.

3. All the statistical computing is done via R (R Core Team 2020). Code scripts are available upon request.
4. A crucial assumption of the method is that the missings are distributed randomly, but it is not fulfilled in my dataset. There are 20 cities for which there were not available sustainability data. It means that the accuracy of imputations will be lower.

5   Results

In this chapter, I report the results of my empirical analysis. Generally, the EU has been successful in mitigation, with an emphasis on GHG emissions. By 2020, the whole Union has decreased its yearly GHG by 26% of the 1990 level (taken as a starting point). However, when looking more attentively, the evidence reveals that the history of EU climate action is more complicated. As graph 1 ("EEA Greenhouse Gases - data viewer" 2021) shows, the progress is nonlinear throughout the years and in some years an increase in GHG was recorded. Even that decrease is underwhelming when comparing the planned reduction in emissions with actual results (graph 2). It was more than three times lower by 2020.

Figure 1: Annual percentage change in GHG emissions in EU-27 ("EEA Greenhouse Gases - data viewer" 2021)

Figure 2: ERDF decrease of GHG implementation progress ("EEA Greenhouse Gases - data viewer" 2021)

Of course, inter-country differences need to be considered. As a part of the Cohesion Policy, ESI funds are supposed to equalize members' disparities and redistribute wealth

from rich countries to the rest. However, it is arguable whether such an approach fits the issue. Graph 3 ("Annual EU greenhouse gas inventory 1990–2020 and inventory report 2022" 2020) demonstrates that the top five pollutants consistently belong to the *more developed regions* (except East Germany, Southern Italy, Poland, and some areas of Spain). Hence, investing in them can provide a larger benefit (in tons), even if the per capita CO_2 is one of the highest in Estonia and Czechia.

Figure 3: GHG emissions in the EU, by country ("Annual EU greenhouse gas inventory 1990–2020 and inventory report 2022" 2020)

However, most of the major projects I studied belong to the less developed regions. To consider the nature of the major projects, overall, there are 573 projects for the period 2014–

2020. Most of them are infrastructure investments. Only seven belong to the 'promotion of climate change adaptation' objective. 519 are about sustainability. 122 have happened in an urban area and are sustainability-related. In my sample, the majority are classified as 'promoting sustainable transport' (49). Typical ones are building a road, a train station, a metro line, or a bridge. Many of those not in cities relate to constructing highways. The idea of such projects is to improve mobility and connections between richer and poorer regions for easier travel of people and capital. However, they do not advance a low-carbon economy or improve sustainability. Interestingly, only one project targets clean energy—the extension of the hydroelectric power plant on Madeira (also counting those outside of urban areas). Therefore, even a glance shows the ambivalent relation between the projects and the objectives.

Second, the main independent variable does not have strong correlations with the outcomes (figures 4, 5). It only moderately correlates with the NH_3 emissions (0.35) and population (0.45). Scatter plots also do not show any dependence.

Now I present the estimates of the modeling for each dependent variable. Table 2 shows that financing only positively correlates with CO emissions. Although significant, the value is rather small, only about 0.2 of σ for every log euros all else equal. As predicted, the treatment does not influence other outcomes. The control variables do not act as expected, however. Unemployment slightly decreases NH_3 emissions, but the population increases them. This does align with the theory, but for other variables, there is no correlation. R^2 has rather low values as well, approximating 0.2 only for carbon dioxide and ammonia.

5.1   Robustness Check

Pillai, Wilks, Hotelling-Lawley, and Roy tests (table 3) compare models with and without the log EU financing. They indicate that the regressor is statistically insignificant.

Breusch-Pagan test suggested heteroscedasticity (BP= 40, p-value$< 4 \times 10^{-8}$)[5]. Thus I use heteroscedasticity-robust standard errors instead (table 4). The results did not significantly change for the Financing variable. The plots suggest that the residuals are distributed normally.

5. Scatter plots show a considerable variance of residuals (figures 6, 7, 8, 9, 10.)

Table 2: MLM Regression

	$\log CO$	$\log CO_2$	$\log NH_3$	Transport performance	Network efficiency
log Financing	0.306*	0.172	0.286	1.5	−0.02
	(0.183)	(0.126)	(2.092)	(2.092)	(0.042)
Unemployment	−0.02	−0.014	−0.032**	0.89	−0.02
	(0.022)	(0.025)	(0.015)	(0.267)	(0.042)
Women	−0.008	−0.002	0.007	0.0003	−0.001
	(0.024)	(0.03)	(0.02)	(0.322)	(0.006)
Infant mortality	0.126	0.009	0.017	0.095	−0.007
	(0.08)	(0.073)	(0.055)	(0.828)	(0.08)
log Population	0.69	0.035	0.238**	2.443	−0.032
	(0.2)	(0.221)	(0.11)	(1.799)	(0.008)
Constant	3.85**	3.952	3.332	22.44	2.584
	(3.882)	(4.539)	(3.198)	(48.464)	(1.799)
N	74	74	74	74	74
Average R^2	0.182	0.083	0.226	0.045	0.07

*p < .1; **p < .05; ***p < .01

Table 3: Multivariate Tests

Test	DF	Statistic	p-value
Pillai	64	0.074	0.415
Wilks	64	0.926	0.415
Hotelling-Lawley	64	0.079	0.415
Roy	64	0.079	0.415

Table 4: MLM Regression with heteroscedasticity-robust SE

	$\log CO$	$\log CO_2$	$\log NH_3$	Transport performance	Network efficiency
log Financing	0.312**	0.226	0.026	1.498	−0.023
	(0.144)	(0.143)	(0.098)	(1.524)	(0.053)
Unemployment	−0.034	−0.02	−0.034**	0.098	−0.02
	(0.014)	(0.022)	(0.015)	(0.189)	(0.041)
Women	−0.005	−0.08	0.007	0.001	−0.001
	(0.034)	(0.014)	(0.02)	(0.256)	(0.007)
Infant mortality	0.026	0.008	0.01	0.05	−0.001
	(0.081)	(0.045)	(0.274)	(0.28)	(0.008)
log Population	0.069	0.05	0.28***	2.124*	−0.001
	(0.113)	(0.124)	(0.879)	(1.44)	(0.035)
Constant	3.8	4.04	3.294*	22.43	2.541*
	(3.410)	(5.039)	(2.18)	(38.291)	(1.431)
N	74	74	74	74	74

*p < .1; **p < .05; ***p < .01

I calculated DFBetas and Cooks distance measures to check whether influential observations can influence the results. The estimates were robust to the iterative exclusion and control of an influential observation: the signs and significance of coefficients did not change.

Reduced-form results are reported in table 6. They are not much dissimilar to the general model.

6   Discussion

This thesis set out with the goal of figuring out the nexus between the Cohesion funding and sustainability in the EU. I attempted to answer the question of what the relationship between EU investments in major projects and mitigation and adaptation indicators is of cities where they happened in the period 2014–2020. The results are quite ambiguous. The modeling suggests that the financing instrument had no effect on adaptation or mitigation, except it positively correlates with CO emissions. CO is of course produced while burning fuel, including in internal combustion engines. Hence, the projects that built new roads and attracted more cars may increase exhaust pollution. Nevertheless, it does not explain why there is no connection with CO_2 emissions. As discussed, multivariate tests did not show any significance for the financing variable, which is why I am inclined to disregard this coefficient. The discrepancy may be due to the restrictions of the data.

There are a number of arguments why the EU money had no effect on the sustainability indicators. First, the literature that studied the impact of structural funds is ambivalent, some scholars found no effect (Dall'erba and Le Gallo 2007; Jong, Vignetti, and Pancotti 2019). Second, the theoretical studies on the Urban Agenda showed its internal contradiction (Faludi 2002; De Frantz 2021; Medina and Fedeli 2015; Svedin 2015) and they could have led to nonexistent results. The projects selected do not satisfy all the objectives of the ERDF. As mentioned, many infrastructure projects are about building highways and roads and only one project out of 573 concerns clean energy. In my opinion, European disregard for the energy industry and self-sufficiency became a huge hindrance this year when imports of fuels from Russia came into question. The projects are not placed in regions where the most GHG pollution happens—Germany, Spain, and Italy. There is also only one project on climate change adaptation in a city—the flood protection of Kłodzko, Poland. None concern the weather: how to adapt to extreme heat in cities that were not built for that. All these tasks require sizable investments that many cities do not have themselves and that is where European money might have been applied.

Furthermore, it is a known fact in public management that projects never reach all their goals. Planners and managers have incentives to undervalue costs and overestimate benefits.

Additionally, poor management and technical errors contribute to failures, especially for long-term enterprises (Flyvbjerg 2007). For example, rail projects overestimate their demand by 51% compared to reality (Flyvbjerg, Skamris, and Buhl 2003). The same could be applied to the sustainability impact.

6.1   Limitations

The strength of the thesis is limited by data restrictions and endogeneity. First, even though I am speaking about the EU in general, the intervention happened in around half of the countries. But this is the principle of the policy that it is only delivered to the underdeveloped regions. Second, the selection bias lies in the fact that I selected the sustainability projects and only those that were approved by the Commission. Unfortunately, this limitation could not be removed, because of the data availability. Third, the number of missings is rather high for a dataset of this size. The small sample and missings restricted the quality of statistical analysis and accessible methods. For example, the limited number of observations did not allow for cross-validation. It can negatively affect the external validity of the research. As for internal validity, the question is whether another measure for adaptation or mitigation could result in different outcomes. However because I used several indicators for each and they share the same coefficients, I should not expect different results in that case. Another concern is that the used data were collected in different years, hence accurate measurements of effects are not possible. In this case, I had to choose more observations rather than fewer but from the same year for the reasons mentioned.

Moreover, the endogeneity issue was not solved. The sustainability indicators can certainly affect the amount of money invested (for example, less sustainable cities attract more funding) and there could be a confounder not accounted for. One way to overcome it could be randomized control trials. However, the fund allocation is not structured in that way. They are selected on a cost-benefit basis, not randomly. To ensure good policy assessment, the Commission and the partnerships could establish random fund allocation among the selected projects as a primary method. Quasi-experiments were previously exploited in the literature to study the impact of Cohesion funds (Becker, Egger, and von Ehrlich 2010; Pellegrini et al. 2013). And they showed positive causation of the funds on economic development.

But they studied entire regions, not cities, which made their design not applicable to me.[6] The first causal inference papers on Cohesion policy appeared only several years ago (Pontrandolfi and Dastoli 2021), hence the lacuna requires further investigation. Despite these limitations, I believe this research makes an important contribution to the field estimating the impact of major projects in cities.

6.2   Recommendations

Building on this study, there are a few suggestions I can make. The results of this thesis may argue that the selection process for the major projects should be reimagined. All of them ought to consider sustainability as an aim because at the moment not all projects satisfy all Cohesion objectives. Projects related to mobility need to strive for carbon neutrality, fewer in road construction and more in alternative transport. Energy should become a priority, otherwise, EU 2030 climate targets will be difficult to reach. The projects should invest in clean energy and cities will benefit the most from it as major electricity consumers.

A natural progression of this work would be to analyze all other project investments by the funds to test whether the results hold. Additionally, more data could overcome the constraints outlined. A further study may assess the long-term effects of the intervention by exploiting panel data. The seeming contradiction that carbon monoxide emissions and funds positively correlate should be additionally studied. However, it may be a result of the data restrictions. The causality issue could be addressed as well in the future, for example with the Arellano-Bond method.

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6. The treatment was the threshold (75% of GDP level below average in the EU) for a region to be classified as underdeveloped.

7   Conclusion

The thesis aimed to identify the relationship between the major projects as a part of the ERDF and ESIF and the sustainability indicators in the European cities. The paper argued that so far the UAEU has been unsuccessful in promoting sustainability. Based on the sample of 74 cities and multivariate multiple regression results, it may be concluded that the policy intervention has no significant connection with the sustainability outcomes. A discussion of the current policy reveals some shortcomings. It goes in line with other research that did not find a positive influence of the funds. While the data constraints limit the generalizability of the results, this approach provides new insights into sustainable cities. Considerably more work will need to be done to improve on the data and methods to prove the lack of any success for the Agenda. Based on this conclusion, decision-makers may need to improve on the criteria when choosing projects to finance to better apply the sustainability principles. Being one of the first papers to put such a question into quantitative terms and use this set of data, the thesis made sufficient advances in establishing the social effect of European funds.

8   Appendix 1

Table 5: Cities in the Sample

Artemida	Athens	Bacau	Bari
Botosani	Boulogne-sur-Mer	Braila	Bratislava
Bucharest	Budapest	Bydgoszcz	Calheta
Catania	Coimbra	Constanta	Cosenza
Craiova	Dresden	Florina	Gdansk
Gdynia	Góra Kalwaria	Iasi	Inowroclaw
Katowice	Klodzko	Koropi	Koice
Kraków	Krk	Lamia	Limassol
Lisboa	Ljubljana	Lódz	Napoli
Nowe Miasto Lubawskie	Olomouc	Olsztyn	Osijek
Ostróda	Ostrow Wielkopolski	Palermo	Piraeus
Plovdiv	Plzen	Pompei	Porec
Porto	Poznan	Radom	Riga
Rijeka	Rybnik	Salerno	Sofia
Split	Swinoujscie	Szczecin	Székesfehérvár
Thessaloniki	Torun	Trogir	Varazdin
Vilnius	Vratsa	Walbrzych	Walcz
Warszawa	Wroclaw	Zadar	Zagreb
Zapresic	Zilina		

9   Appendix 2

Table 6: Reduced-Form. Without other Covariates

	$\log CO$	$\log CO_2$	$\log NH_3$	Transport performance	Network efficiency
log Financing	0.37**	0.243	0.221	3.096*	−0.02
	(0.148)	(0.165)	(0.11)	(1.709)	(0.036)
Constant	2.798	3.781	3.074	23.827	2.1***
	(2.781)	(3.1)	(2.056)	(31.75)	(0.666)
N	74	74	74	74	74

*p < .1; **p < .05; ***p < .01
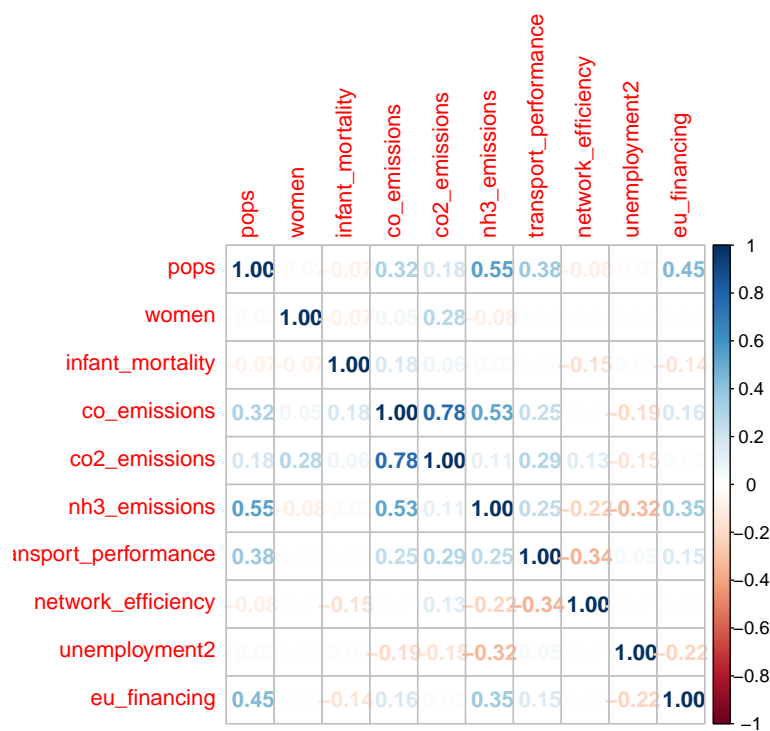
Figure 4: Correlation plot of all the variables before imputation

10   Appendix 3
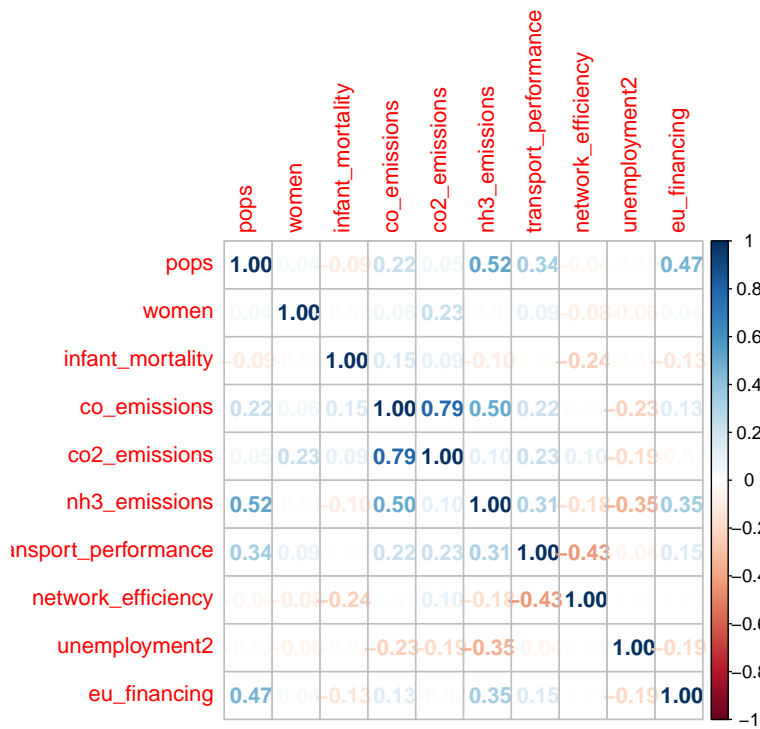
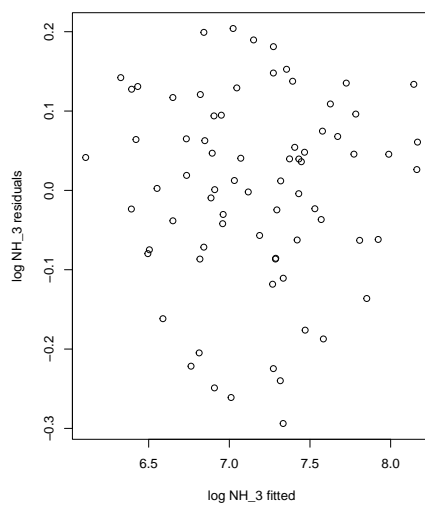Figure 5: Correlation plot of all the variables after imputation
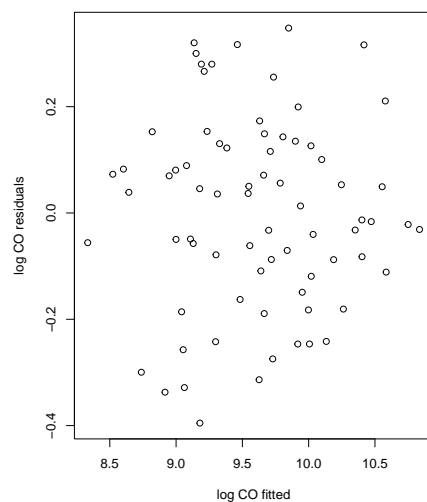
Figure 6: Residuals vs Fitted CO

11   Appendix 4
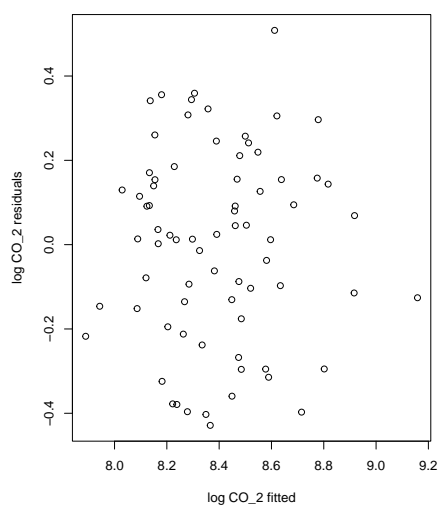
Figure 7: Residuals vs Fitted CO_2
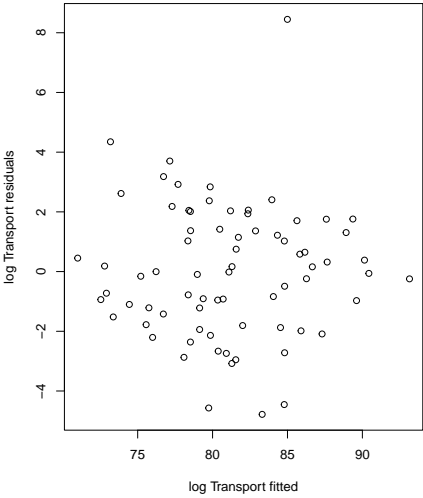
Figure 8: Residuals vs Fitted NH_3
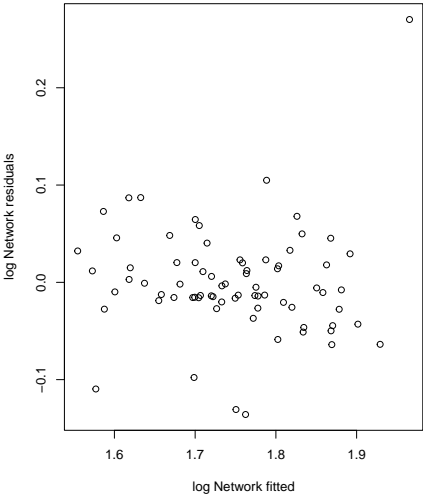
Figure 9: Residuals vs Fitted Transport performance

Figure 10: Residuals vs Fitted Network efficiency

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Thesis Report

Mikhail Astakhov

September 15, 2021

Contents

1 Introduction

The treaty of Paris was signed 70 years ago, which became a foundation of the modern European Union. In its long history the politics of the Member States changed dramatically. Thanks to the association, we can observe a unified policy in many areas of economy, interior and exterior politics, and others. However, one piece of policy remains less regulated and largely unstudied. The EU has mostly failed to exert its influence over urban policy. Sub-national politics is arguably beyond their power and has remained untouched for the longest time. Nevertheless, cities have been mentioned in the European documents since 1980s. As a part of this development process, the concept of *sustainable/integrated urban development* emerged (Medeiros, Pitanguy, and Medeiros 2019; Fernández-Prado and Castro 2019). The European Union official stance recognizes cities as centers of innovation, growth, and democracy. As a part of the Pact of Amsterdam, the Urban Agenda for the EU was launched in 2016. It sets out a few objectives:

1. "to realise the full potential and contribution of urban areas towards achieving the objectives of the Union and related national priorities in full respect of subsidiarity and proportionality principles and competences";

2. "to establish a more effective integrated and coordinated approach to EU policies and legislation with a potential impact on urban areas and also to contribute to territorial cohesion by reducing the socioeconomic gaps observed in urban areas and regions";

3. " to involve urban authorities in the design of policies, to mobilise urban authorities for the implementation of EU policies";

4. "it will not create new EU funding sources, unnecessary administrative burden, nor affect the current distribution of legal competences and existing working and decision-making structures and will not transfer competences to the EU level" ("Urban Agenda for the EU" 2016).

Even though the Agenda does not create new funding, it identifies, supports, and integrates existing funds at different levels, including European structural and investment funds (ESIF). ESIF work under the European Investment Bank and consists of "the European Regional Development Fund (ERDF) and Cohesion Fund (CF) for development and structural adjustments of regional economies, economic change, enhanced competitiveness as well as territorial cooperation, European Social Fund (ESF) for employment, social inclusion and education, European Agricultural Fund for Rural Development (EAFRD) for competitiveness of agriculture, sustainable management of natural resources and territorial development of rural communities, and European Maritime and Fisheries Fund (EMFF) for sustainable fishing and costal communities" ("European structural and investment funds" 2021). All the funds allocate loans and other financial instruments to projects that are nominated by individual cities or their Member States.

The goal of the Agenda is to turn urban policy from a marginal aspect of European policymaking into an 'integrated approach across all levels, policy sectors, and stakeholders". Many authors suggest that the UAEU will strengthen cities as "objects, sources and partners of this soft EU strategy" (Mamadouh 2018; Potjer, Hajer, and Pelzer 2018; Purkarthofer 2019). Cities have been on the periphery of the European politics until recently. In Europe like everywhere else they have significantly less political power than economic potential could suggest. The disparity between such global cities like Paris, London, and Berlin and economically insignificant countries such as Malta or Cyprus on the political level of the EU is starkly evident. They have no formal representation on these forums from which they can actually benefit. Purkarthofer states that "city representatives not only bring an informal, grassroots style to the EU bureaucracy, but they also embrace their new role more enthusiastically than national and EU officials" (Purkarthofer 2019). Mamadouh 2018 further expects "mayors and local governments [...] to be better equipped than the states and the national governments to deal with the daily concerns of their citizens" and calls for a new contract for sustainability between cities and citizens. A number of European urban actors have suggested that the EU policy should strive for "synergy between development and competitiveness, environmental protection, integration of the disadvantaged, and push for urban revitalization ("The Acquis URBAN. Using Cities Best Practises for European Cohesion Policy" 2005). On the other hand, according to Medina and Fedeli (2015), the MSs have been reluctant to push for further urban integration. The process of the construction of the European Urban Policy (EUP) can be attributed mostly to the Commission , which incentivizes the states to follow the policy directions with EU funding. This is especially true for federations, where states have been reluctant or unable to regulate urban/local policy (Faludi 2002).

While there is no consensus on whether the internal consistent EUP has formed, there is even less evidence on its social outcomes. The *research problem* of my thesis states that there is not enough knowledge on whether governments and intergovernmental organizations can positively influence urban areas from the side of growth and sustainability. I have selected the UAEU because of its novelty as a program and because the EU context is unique in how supranational actors can influence urban politics. In the thesis, I answer the following *research question*: what is the effect of interventions that encompass Urban Agenda for the EU on sustainable development of cities where they have been applied? The *goal* of the thesis is to uncover the significance and type of the relationship between the policy issue and urban factors of sustainability. Considering the existing literature, I suggest that the EU as a policy actor has been unsuccessful in promoting sustainability and the effect of the Agenda is insignificant. The changes in urban mobility, environment, and others should be attributed to other factors, such as local policy and economic transformations. I see several reasons for its relative failure: inability of the EU actors to develop a comprehensive policy structure and efficiently influence the MSs, and absence of significant demand for the EU financial instruments.

2 Theory

In this chapter, I am going to explore how the existing literature views European urban policy, traces its development in time, and whether it can be deemed successful. Atkinson writes that the urban perspective on the EU level emerged around 1997-1998 (Atkinson 2001). Program documents pointed to the importance of cities for several reasons: 80% of Europeans lived there, they were the major wealth producers, as well as culture generators, but also social exclusion grew there significantly faster despite the dominating development hypothesis. Economic cohesion was put as the main principle. The author argues that there is little possibility of EU Urban Policy in the nearest ten years. First, the consensus on what the urban policy is does not exist. Secondly, "emphasis on competitiveness has the potential to create more inter-urban competition", hence deeper cleavage between winners and losers. Further, the structure of European institutions is problematic: the Commission is limited in what it can influence, while there is little coordination between Directorate-Generals who compete for policy areas.

Leal Filho, Úbelis, and Bērziņa (2015) contemplating on sustainable urban policy state that the EU needs further improved integration of functions and policies. A "green innovation boost" in research, innovation and implementation policies can be useful. Moreover, they suggest identifying which items should be on an EU list for green urban consideration.

Nadler and Nadler (2018) make a study of the EU JESSICA program targeted at regeneration programs in cities . It consisted of 2000 projects with high financial risk across 28 Member States. Novelty is that the program switches to revolving financial instruments instead of traditional grants. They mention that from the supply side it offers more affordable money, but in such cases of low interest rates and high grant availability the demand for the instrument is questionable. Besides, the sustainability aspect is highly dubious and unchecked. In presence of already affordable money, it is improbable to suggest that businesses should sign up for the EU funding accepting their sustainability criteria.

Delmuth and Stoffel in their work try to produce a causal link between "urban local grant allocation and the electoral incentives on the recipient side" (Dellmuth and Stoffel 2012). They select several German cities from 2000 to 2006 and conclude that even though distributors have full discretion in selecting projects on sub-national level (on the national level money is divided by the EU), they should be in accordance with the EU goals, but electoral concerns can still distort the allocation.

Molle studies an argument of Globalization against Regionalism and their influence on European cohesion principles. The statement is that globalization has not been a threat to migration, equality, and development so far and the author suggests further integration in regional policy in the EU (Molle 2002).

De Frantz (2021)makes a thorough study of the Urban Agenda as a programmatic document. It introduces the stakeholder mechanism into urban policymaking and transnational cooperation: "while planners expect wide benefits from this soft EU approach, globalisation

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critics fear that inequalities undermine urban diversity and democratic empowerment". She also confirms the mentioned idea of 'winners and losers'. According to De Frantz, "by turning urban complexity into an object of European policy-making, the claim for functional effectiveness may raise interest conflicts over different political objectives. [...] Inequal capacities and differing interests between a wide range of governmental bodies and weak inclusion of social stakeholders may inhibit a joint strategy." However, overall she contends that politicization of urban contexts on the European level "may strengthen a pluralist transnational vision".

From a gender perspective, Hurtado has analyzed the urban policy in the EU from 1997 to 2017 to uncover whether gender has a definitive role in the policymaking (Hurtado 2017). Despite the fact that the Treaty of Amsterdam explicitly promotes gender mainstreaming and requires policymakers to analyze how different gender groups will be affected by such policy, the urban dimension has largely been lacking any gender aspect. This fact establishes that urban policy hinders the objective of social equity (between men and women) within the Union. She considers it especially important since "the Members States are starting to implement the initiatives for sustainable urban development co-funded by the Structural Funds' in this period of the Cohesion Policy (2014-2020)".

Despite this extensive research done on the topic of the Agenda prior and posterior to the Pact of Amsterdam, very little examination has been presented to assess whether any empirical evidence can support the claim that it has any results connected with the declared goals. For this reason, I consider my thesis to be very promising and useful in establishing the policy success.

3 Data and Methodology

First, I discuss exploited variables, then my identification strategy and methods. I use a time-series–cross-section type sample. The levels are projects with investments from ESIF and country (Member State). The data are obtained from the official portal for European data (`data.europa.eu`). My dependent variable is the level of sustainability in a urban unit ("Sustainable Development Indicators" 2021). It is a complex index composed of several indicators: energy consumption of transport as a share of Gross Metropolitan Product (GMP), the share of rides by bicycle and public transit, and greenhouse emissions divided by GMP. The index is constructed via principle components. The indicators are chosen in line with the official position of the EU: these parameters are the most important in estimating the sustainability. As for the independent variable, I exploit the monetary measure of investments (in euros). For control variables, socioeconomic characteristics are included: unemployment, racial diversity (% of white population), median wage, population, general living space (in m^2).

The identification strategy is as follows, I assume that invested projects are successful according to the UAEU goals if the sustainability level increases because of them. To test that I estimate what effect one euro invested has on my index of sustainability. Regression methods are used. Baseline model:

$$Sustainability_{ij} = \beta_0 + \beta_1 \cdot Investment_i j + \sum \beta_{ij} \cdot Controls_{ij} + \varepsilon_{ij}$$

where β are coefficients, i and j are country and project indices. ε is an error.

As for case selection, I choose a number of projects that can produce robust results for regressions. The projects have either received funding or not. This lets me compare similar cases/cities to test the link. The funding intervention in question should produce a discontinuity which can be measured. The presence of such discontinuity would allow to suggest the presence of the effect of policy (theoretically it can be positive or none). Referring to my hypothesis, I expect no effect to exist.

Table 1: Planned Timeline and Deliverables

October 31, 2021	Update literature review
November 30, 2021	Determine theoretical mechanism for modeling and formulate hypotheses
December 31, 2021	Collect data
February 28, 2022	Analyze data and test hypotheses
March 31, 2022	Update models and collect more data if necessary after initial analysis
April 30, 2022	Write theoretical and methodological chapters
May 31, 2022	Write an empirical chapter
April-May 2022	Thesis workshop at York
June, 30 2022	Finish thesis writing
July 31, 2022	Thesis submission deadline
September 2022	Thesis defense

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