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Bachelor's Thesis

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The Impact of Universal Basic Income on Redistribution and Poverty in Italy: A Multi-Scenario Analysis Using HFCS Data in EUROMOD

Bachelor's Thesis

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Study programme: Bachelor in Economics and Finance

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Year of the defence: 2024

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1. I hereby declare that I have compiled this thesis using the listed literature and resources only.
2. I hereby declare that my thesis has not been used to gain any other academic title.
3. I fully agree to my work being used for study and scientific purposes.

In Prague on 3.1.2024

Tomáš Petrus

References

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Abstract

Microsimulations of universal basic income in EUROMOD aid the ongoing debate over the policy's social implications and budgetary feasibility. The European HFCS data used in this thesis enable wealth taxation as a financing mechanism to make the universal basic income budget-neutral. This thesis examines the effect of three unique scenarios on income redistribution and at-risk-of-poverty rates on different parts of the Italian population. The diversity of Italian regions and the struggle with public debt may severely compromise the feasibility of the scenarios in the real world. The thesis results follow the trend of radically decreasing the overall poverty and inequality seen in complementary research. Accompanied by a fixed wealth tax, the policies present adverse effects towards older age groups that rely on old-age pensions. The social benefits system sees different levels of replacement that significantly affect the impact on vulnerable groups. The thesis raises potential mitigations of the adverse effects that can be analysed in further research. Microsimulation lacks the behavioural impact of universal basic income on individuals, which was captured by the trials conducted in Europe and North America.

Abstrakt

Mikrosimulace základního nepodmíněného příjmu v EUROMOD přisprívají probíhající diskusi o sociálních důsledcích a rozpočtové proveditelnosti této politiky. Evropská HFCS data použitá v této práci umožňují zdanění majetku jako způsob financování, aby byl základní nepodmíněný příjem rozpočtově neutrální. Tato práce zkoumá vliv tří unikátních scénářů na redistribuci příjmů a míru ohrožení chudobou na různé části italské populace. Rozmanitost italských regionů a boj s veřejným dluhem mohou vážně ohrozit proveditelnost scénářů v reálném světě. Výsledky práce následují trend radikálního snižování celkové chudoby a nerovnosti pozorovaný v této oblasti výzkumu. Tyto scénáře, spolu s pevnou daní z majetku, mají nepříznivé dopady na starší věkové skupiny, které se spoléhají na starobní důchody. Systém sociálních dávek má ve scénářích různé úrovně náhraditelnosti, které významně ovlivňují dopad na ohrožené skupiny. Práce nastoluje potenciální zmírnění nežádoucích účinků, které lze analyzovat v dalším výzkumu. Mikrosimulace postrádá behaviorální dopad základního nepodmíněného příjmu na jednotlivce, který je zachycen v provedených studiích v Evropě a Severní Americe.

Keywords

universal basic income, household income, relative poverty, Italy, EUROMOD, HFCS, wealth tax, income inequality

Klíčová slova

základní nepodmíněný příjem, příjem domácností, relativní chudoba, Itálie, EUROMOD, HFCS, daň z majetku, příjmová nerovnost

Title

The Impact of Universal Basic Income on Redistribution and Poverty in Italy: A Multi-Scenario Analysis Using HFCS Data in EUROMOD

Název práce

Dopad základního nepodmíněného příjmu na přerozdělování a chudobu v Itálii: vícescénářová analýza pomocí HFCS dat v EUROMODU

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Acronyms

UBI	Universal Basic Income
NIT	Negative Income Tax
AI	Artificial Intelligence
CSO	Czech Statistical Office
EU-SILC	EU statistics on income and living conditions
HFCS	Household Finance and Consumption Survey
EU	European Union
UK	United Kingdom
EUR	Euro
GBP	British Pound
CAD	Canadian Dolar
MGI	Minimum Guaranteed Income
PIT	Personal Income Tax

1. Introduction

Universal basic income (UBI) has gained global attention as a revolutionary approach to social welfare and the redistribution of wealth and income. UBI provides all citizens with a regular, unconditional sum of money and challenges traditional welfare systems, often involving conditional and bureaucratic processes. The concept, which dates back to philosophical discussions by Thomas More in the 16th century (More, 1516) and later by economists like John Stuart Mill (1848) or Milton Friedman (1962), in the form of negative income tax (NIT) has seen a resurgence in the 21st century due to the income and wealth inequality (Zucman, 2019) (Chancel et al., 2022), job displacement due to automation (Oxford Economics, 2019), and the need for a more streamlined welfare system (Guner et al., 2021).

High public debt (Bank of Italy, 2023), youth unemployment (Browne & Pacifico, 2016), ageing population and other social and economic challenges in Italy create a fertile ground for UBI discussions. An ageing population has also increased the burden on pension schemes and healthcare services, necessitating reforms to ensure sustainability (Eurostat, 2023). Italy's social welfare system includes pensions, healthcare, unemployment benefits, and family support policies; however, the system is very complex and may not cover all vulnerable groups (Ascoli et al., 2015). Significant regional disparities in Italy impact the effectiveness of social welfare (Narazani & Shima, 2008). The economic divide between the industrialised North and the rural South extends to welfare provisions, with southern regions often experiencing higher poverty levels and lower access to social services (Ascoli et al., 2015). These disparities underscore the need for more equitable welfare policies. The political discourse in Italy, particularly movements like the Five Star Movement, has brought UBI into mainstream debates, proposing it as a solution to reduce poverty and stimulate economic growth (Giuffrida, 2019). In 2019, Italy introduced the 'citizens' income', designed to alleviate poverty and address unemployment but it was not a universal basic income. Instead, it was a guaranteed minimum income scheme, conditional and targeted rather than universal. The program involved participants signing an employment pact to re-enter the workforce. The lack of infrastructure to execute the scheme has been pointed out as a problem. The citizens' income scheme costs the Italian government approximately 7 billion EUR annually. Eligible were Italian citizens or residents in Italy for at least ten years with a household income below 9,360 EUR per year and savings under 6,000 EUR. Individuals

received up to 9,360 EUR per year or 780 EUR per month. Nonetheless, in 2024, the program is set to be abolished.

The advent of AI and automation, as discussed in works like Rise of the Robots, presents both opportunities and challenges (Ford, 2015). While technology drives innovation, it also threatens to displace a significant portion of the workforce. UBI offers a safety net, ensuring basic financial security as traditional job structures evolve or diminish. UBI is seen not just as an economic measure but also as a tool for personal empowerment. By providing unconditional income, individuals can pursue education, entrepreneurial endeavours, or creative pursuits without the constraint of financial insecurity. The rise of the gig economy has led to a new form of employment that often needs more stability and benefits of traditional jobs. UBI could provide a base level of security for gig workers, who might otherwise face financial precarity (Srnicek, 2017).

Recent popular literature has made a convincing case for the implementation of UBI (Standing, 2017; Parijs & Vanderbought, 2017; Bregman, 2018; Lowrey, 2018); however, there is still a lack of empirical case studies that focus on the welfare and fiscal side of UBI. This research aims to explore the impact of UBI on income distribution, poverty rates, and inequality in Italy. It simulates and analyses three UBI scenarios to assess their effects by income deciles, household type, gender, age, and labour status. A critical component of this analysis is examining how UBI might reduce poverty, especially among vulnerable populations such as the unemployed. Additionally, the research evaluates the fiscal sustainability of each UBI model, considering budget neutrality. The budget neutrality of a UBI policy is close to impossible without a wealth tax. This research leverages wealth data in HFCS, an alternative input dataset for a tax-benefit microsimulation model EUROMOD. Since the introduction of EUROMOD, most research on UBI microsimulation has been conducted using EU-SILC data. This work contributes to the policy discourse on UBI, providing empirical evidence that could guide the development and implementation of UBI programs in Italy and other European economies. It seeks to offer insights into how UBI could transform welfare systems to address socio-economic challenges, including inequality and inefficiency in existing welfare models.

2. Literature Review

2.1 EUROMOD in UBI Research

EUROMOD, the tax-benefit microsimulation model for the European Union (EU), assesses the financial and social implications of various public policies, including UBI. It is best compatible with the EU statistics on income and living conditions (EU-SILC); EUROMOD enables researchers to evaluate the impact of taxation, social insurance, and public benefits across different demographic groups within EU member states (Sutherland & Figari, 2013). By adjusting model parameters, researchers can simulate different UBI scenarios, assess fiscal implications, and analyse the redistributive effects on household and individual incomes. Several studies have utilised EUROMOD and its derived alternatives to simulate UBI (Henau et al., 2021; Caamal-Olvera et al., 2022; Bezzo, 2021; Aerts et al., 2023; Browne & Immervoll, 2017; Richiardi, 2022; Augustinaitis et al., 2021.

Table 1: Summary of past UBI microsimulations using EUROMOD

STUDY	COUNTRY	SCENARIO COUNT	MONTHLY AMOUNT (IN EUR)*	POLICY FINANCING
HENAU ET AL., 2021	UK (UKMOD)	2	405 and 1609	Tax and social benefits reform
CAAMAL-OLVERA ET AL., 2022	Mexico (MEXMOD)	4	1510 per household	Budget deficit
BEZZO, 2021	UK	5	227 to 282	Budget neutral tax and benefit reform
AERTS ET AL., 2023	Belgium and Netherlands	6	205 to 1235	Tax and social benefits reform
BROWNE & IMMERVOLL, 2017	Finland, France, Italy and UK	1	258 to 527	Benefit replacement
RICHIARDI, 2022	France	4	198 to 516	Benefits replacement and tax reform
AUGUSTINAITIS ET AL., 2021	Lithuania	2	700	None

*Exchange rate conversion 1.1.2024; not adjusted to inflation

2.2 EUROMOD and Italy

In 2017 (Tromp), a comprehensive paper using EUROMOD similar to this one was published. For Italy, it uses the EU-SILC data. This paper investigates the rise of income inequality and its impact on economic policies, focusing on UBI and NIT models in the UK and Italy. It evaluates the consequences of UBI and NIT scenarios on poverty and inequality. The primary policy model is a hybrid NIT (HNIT). Notably, the implementation of the HNIT scheme demonstrated a reduction in poverty and inequality rates, especially in Italy, attributable to its higher initial levels of socio-economic disparities. The study highlighted policy trade-offs between maintaining high work incentives and ensuring a substantial

guaranteed minimum income, emphasising the potential improvements in societal welfare that the HNIT scheme might bring. The paper also suggested incremental adjustments and optimisation, thus enhancing its feasibility and minimising disruptions to existing socio-economic structures.

In another study on Italy, the effects of minimum guaranteed income (MGI) schemes on labour supply are analysed using EUROMOD (Narazani & Shima, 2008). The study explores the impact of different simulated tax regimes: NIT, workfare tax, and UBI at national and regional levels. It was found that the introduction of these tax-transfer rules marginally affects labour supply, suggesting the feasibility of income support policies. However, UBI and NIT, without working hour constraints, show more labour disincentives in the South than in the North, especially as the generosity level of the scheme increases. The welfare effects indicate more "winners" than "losers" in the South due to more households participating in MGI schemes because of their low-income status. This implies that all minimum income schemes benefit the southern region except the least generous workforce tax. The paper concludes the importance of considering regional differences when designing tax-transfer policies, as they significantly impact welfare and behavioural outcomes.

EUROMOD was also utilised to assess the redistributive effects of the Italian tax-benefit system over 13 years (Boscolo, 2019). It aimed to fill a gap in previous analyses by focusing on the impact of proportional taxes and tax-free cash benefits on income redistribution, elements often overlooked in favour of marginal tax rates, deductions, and tax credits. EUROMOD helped quantify the contribution of each tax-benefit instrument under several scenarios representing different extents of the tax-benefit system. The research provided insights into the varying contributions of components like PIT (personal income tax), regional surtax, and various forms of tax-free cash benefits. It also looked at the role of social pensions, family allowances, disability pensions, and other measures in the redistribution process.

2.3 HFCS Data in Microsimulations

The Household Finance and Consumption Survey (HFCS) is conducted by the European Central Bank and national central banks of the Euro area. It provides information on household assets, liabilities, income, and consumption. The data is beneficial in understanding the financial conditions of households and individuals, making it relevant for socio-economic research, including UBI simulation studies. Moreover, the availability of wealth data enables the extension of the UBI simulation by wealth taxation. It is an alternative data source for EUROMOD, previously utilised in tax-benefit microsimulations. By integrating HFCS data into EUROMOD, researchers could simulate and analyse the impact of various tax and benefit policies on income and wealth distributions. This approach enabled the study to consider not only traditional income-based measures of tax-benefit systems but also to incorporate the role of wealth, including wealth taxes and transfers, in evaluating redistributive effects. It has been shown that HFCS data is very contributional and can be used even on a large scale of 16 countries (Kuypers et al., 2018; 2020; 2021).

2.4 Past Experiments

No country adopted UBI entirely in the following 500 years after the publication of More's book. However, the concept of UBI has been trialled in many parts of the world, offering valuable insights into its potential impacts. These trials have primarily focused on assessing UBI's effects on economic stability, social welfare, labour market participation, and overall quality of life. Inevitably, research involving a simulation is a prompt to discuss whether the simulation should be translated into a real-world experiment. Following is a brief description of the most influential trials.

"Mincome" (1975 - 1978)

The experiment from Manitoba, Canada, was a comprehensive study to find what effects UBI have on its residents. The results showed that the UBI positively affects health and education. It also debunked the myth that the UBI has a detrimental effect on the labour market - it did not (Simpson et al., 2017). These intriguing results likely motivated the Ontario UBI pilot between 2017 and 2019.

The New Jersey Income Maintenance Experiment (1967 - 1972)

This experiment did not implement UBI but a NIT for workers with a lower income. The experiment aimed to test whether "free money" hurts work incentives. The result, yet again, disproved any adverse effect on the labour market (Garfinkel, 1972).

Finnish UBI Experiment (2017 - 2018)

It is the first national study of UBI. An income of 560 EUR a month was randomly distributed to unemployed citizens across Finland. The study, which took almost two years, showed no significant difference in employment. However, it did yield an increase in the overall well-being of the recipients (Hiilamo, 2020). Unfortunately, the experiment was cut short because improving well-being was not the primary motive for implementing the experiment.

German UBI Experiment (2020 - 2023)

Germany introduced a 3-year long study to examine UBI effects on people across the entire nation. It will provide 1,200 EUR a month to 2,000 individuals (Forest, 2020). Recently, the experiment was concluded, but results have yet to be analysed and published. This example lacks any published research; however, it is essential because Italy and other European economies and their lawmakers should pay attention to this trend and consider UBI and its applicability.

England's UBI Experiment (starting in 2023)

Historically, there have been minor UBI trials in the UK; however, in 2023, the first English UBI trial was initiated after long anticipation. Randomly selected individuals in two English towns are given monthly 1,600 GBP (approx. 1,800 EUR) (Hussen, 2023). Again, this is a call for Italy to resume its UBI discussion.

Ontario UBI Experiment (2017 - 2019)

This Canadian experiment targeted people with lower incomes as individuals or as a household. Four thousand eligible and randomly selected recipients received 1,415 CAD (approx. 1,000 EUR). Individuals with permanent health problems received more. Nevertheless, the trial was cancelled due to political reasons. The results showed improved mental and physical health and reduced substance (alcohol and tobacco) use (Ferdosi et al., 2022).

The Alaska Permanent Fund Dividend (since 1976)

Alaska's Permanent Fund Dividend provides a unique long-term case study of a UBI-like program. Funded by oil revenues, the dividend is paid to all state residents. The dividend did

not significantly decrease employment and contributed positively to alleviating poverty (Goldsmith, 2010).

2.5 Wealth Taxation

The topic of taxing wealth emerges as economic inequality grows, and more funding for social welfare initiatives like UBI is needed. The theoretical case for wealth taxation is in the principle of tax equity. In other words, those with more financial resources should contribute a larger share to the public. Thomas Piketty (2014) posits that a progressive wealth tax could be a critical tool in curbing the concentration of wealth and fostering economic equality. He presents a case for a progressive wealth tax that reaches up to 2%. Additionally, the argument for wealth taxes aligns with the work on Denmark (Boserup, Kopczuk, & Kreiner, 2018). Empirical analyses of wealth taxation have yielded mixed findings. Some studies indicate wealth tax can generate substantial revenue without harming economic productivity (Scheuer & Slemrod, 2021). However, contrary to Piketty, other research suggests that wealth taxes may lead to capital flight, reduced savings, and investment disincentives, potentially undermining economic growth (Auerbach & Hassett, 2015). In the context of UBI, the wealth tax is often proposed as a financing solution. Wealth tax aligns with UBI by redistributing resources and ensuring universal financial security (Van Parijs & Vanderborght, 2017). The debate over wealth taxation is not merely technical but also ideological. Some scholars argue for the moral imperative of taxing wealth to address social injustices and promote a more equitable society (Murphy & Nagel, 2002).

A report covering EUROMOD microsimulations, EU-SILC data to HFCS data comparisons and wealth taxation was published by the European Commission's Joint Research Centre (Boone et al., 2019). This report covers all necessary differences between the mentioned datasets. It also comprehensively covers a discussion on wealth taxation. However, it focuses on conservative taxation that does not have the potential to finance UBI. Nonetheless, the report is a stepping stone for current research using EUROMOD and HFCS.

3. Data & Model

3.1 Data

This research was affected by data availability. The initial plan of this research was to conduct a simulation on UBI in Czechia; however, EU-SILC data from the Czech Statistical Office (CSO) in Czechia are not accessible for bachelor's and master's theses for working outside of its SafeCentre. CSO began collecting HFCS data in 2020, meaning the data will be available after three years (Czech Statstical Office, 2023). The most recent public HFCS data were published by the Bank of Italy (Bank of Italy, 2023). Therefore, the research focuses on Italy. These are wave 2 data collected between 2013 and 2014 with the income reference year 2014 (Boone et al., 2019).

The survey is divided into two parts: one addresses the household as a whole, and the other focuses on individual household members. This enables an analysis of household-level and individual-level financial circumstances, which is crucial for assessing the impact of UBI policies. The dataset includes core socio-demographic variables such as age, employment status, and household composition, essential for analysing UBI's potential implications for various population segments. For this research, the greatest strength of HFCS data compared to EU-SILC data is the inclusion of asset data. Data on assets are pivotal for wealth taxation (Boone et al., 2019). Table 2 shows the key differences between the 2014 HFCS and EU-SILC for Italy.

Table 2: Overview of 2014 data differences

Parameter	**EU-SILC**	**HFCS**
Households	17 985	8 156
Individuals	42 791	19 290
Mean disposable income (EUR)	17 562	15 484
Gini-coefficient	0,314	0,340

Source: Summarised findings of Boone, Derboven, Figari, Kuypers, & Verbist (2019)

The input data requirements for EUROMOD are (Figari et al., 2007): (a) the database must be a recent, representative sample of households; (b) the database must contain information on primary gross incomes; (c) the database must contain information about individual characteristics and within household family relationships; (d) the database must contain information on housing costs and other expenditures that may affect tax liabilities or benefit entitlements; (e) specific other information on characteristics affecting tax liabilities or benefit entitlements is also necessary; (f) the same reference periods should apply to personal characteristics and income information corresponding to it and (g) there should be no missing information from individual records or for individuals within households. Most of the requirements are met (Boone et al., 2019).

HFCS data is subject to potential sampling biases like any survey-based study. Non-response or under-reporting, especially from households at the extremes of the wealth distribution, can skew the results. Italy is one of few countries unaffected by the oversampling of the wealthy in the wave 2 HFCS data (Boone et al., 2019). Another possible limitation, especially compared to the annual EU-SILC, is that HFCS is conducted every three years. The time separation may lead to gaps in capturing rapid economic changes or shifts in household finances.

3.2 Model

EUROMOD was developed by the Institute for Social and Economic Research at the University of Essex, and, as mentioned, it is a tax-benefit microsimulation model for policy analysis within the European Union. EUROMOD is publicly available to download in a Windows operational system along with models that include all policies for all 27 EU member states (Figari et al., 2007). The latest EUROMOD software from September 2023 and the latest public release of the model I5.0+ from January 2023 (European Commission, 2023) were used. EUROMOD also offers an online version, which is user-friendly and beneficial for simple policy simulations; however, it does not allow for a UBI simulation. EUROMOD operates on microdata, typically from household surveys, to simulate the effects of tax-benefit policies on household incomes. It allows for detailed analysis at the individual and household levels. EUROMOD was designed to function with EU-SILC data, whose variables correspond to those in EUROMOD. Data, such as the HFCS, must be converted to

be compatible with EUROMOD. The input data for EUROMOD needs to include several compulsory variables (EUROMOD, 2018).

The model allows researchers to alter policy parameters, making it suitable for exploring a wide range of hypothetical scenarios (Sutherland & Figari, 2013), including implementing UBI. As noted, EUROMOD covers all EU member states, allowing for comparative analysis of policy impacts across different countries. This feature is valuable in understanding the varied effects of policies on different national contexts. UBI allows researchers to input specific UBI parameters and assess their impact on income distribution, poverty rates, and public finance. Moreover, it can evaluate the redistributive effects of UBI, including how it would interact with existing tax-benefit systems and potentially replace specific social welfare programs. By simulating both the current welfare state and a UBI scenario, EUROMOD can provide comparative insights into the effectiveness and efficiency of UBI as an alternative social policy.

EURMOD is a static model, and while it effectively simulates policies' immediate fiscal and distributional impacts, it does not account for broader macroeconomic effects or long-term behavioural changes (Sutherland & Figari, 2013). Furthermore, the accuracy of EUROMOD's simulations depends heavily on the underlying data sources' quality, relevance, and timeliness, which may vary across countries. Using EUROMOD effectively requires technical expertise and a deep understanding of tax-benefit systems. Misinterpretation or misuse of the model could lead to inaccurate policy conclusions. Learning to work with EUROMOD and its compatibility with HFCS data has been challenging. Educational sources are available for working with EUROMOD, yet they lack uniformity, resulting in scattered information. Most of the available information focuses on working with EU-SILC data, and the published research on HFCS data in EUROMOD offers little explicit guidance. Adjusting HFCS variables into EUROMOD is not uniform, and every study, including this one, is inventive. This is an issue for cross-compatibility and comparison.

4. Methodology

4.1 Data Collection

The HFCS wave 2 data on Italy were downloaded in a CSV file along with the documentation directly from the Bank of Italy website (2023).

4.2 Data Preparation and Conversion

Firstly, all the conventions of EUROMOD modelling and converting data were followed (EUROMOD, 2018). All the necessary variables for EUROMOD were found and renamed in a Microsoft Excel sheet. Most necessary variables had to be recalibrated, such as the labour status variable with different values in EU-SILC and HFCS. Where data on necessary variables were not available, values were set to 0. Missing values were also set to 0. Moreover, EUROMOD inputs cannot include letters that were present in all of HFCS identification numbers. After attaining all the necessary variables, any other relevant variables in the data for UBI simulation were sought out. All of these additional variables were income, benefit or asset variables. Instead of creating new variables, the closest variable possible was picked to prevent overlap of variables, which aligns with the modelling conventions. The complete list of variables used can be found in the appendix. Data on assets were only available on a household level. However, EUROMOD input data is on an individual level. To overcome this, the asset value was distributed between members of the households between its members 16 years old and older. This age limit was based on HFCS data recognising an individual as economically active at this age. Analogously, the financial, rental and lump-sum incomes were assigned to individuals older than 16; this is controversial as these incomes are conventional for 18 and older individuals. Nevertheless, the same process was followed as with asset division. Social transfers and private transfers were divided between all household members regardless of age, as some transfers, such as scholarships, are intended for individuals younger than 16. Nevertheless, the potential changes of the age barrier are negligible in the simulations. Income data from the HFCS had to be divided by 12 as EUROMOD recognises monthly values only. The required input format for EUROMOD is a text tab-separated value file.

4.3 Baseline Simulation

To simulate relevant policy effects, it is crucial to have a baseline simulation which reflects the real-world situation. After selecting Italy in EUROMOD, the baseline dataset was inserted. The only change in the policies was renaming variables for EUROMOD to read the dataset correctly; an example is the variable yiy (income from financial investments), as HFCS data only included one value for this variable, whereas EUROMOD had more sub-values, such as income from interest, bonds or dividends. These incomes are taxed at a flat rate of 26%, except the income from government bonds, which is taxed at 12,5%. For the simplicity of this research, all income from financial investments from HFCS data was taxed by 26%. All of these changes were made in a newly created year, "IT_2014_baseline", so the original year "IT_2014", was kept intact. After running the simulation, the EUROMOD Statistics Presenter and In-depth Analysis tools were used to understand the data. The Statistics Presenter was used while adjusting all the variables. Once the baseline simulation was complete, I used the In-depth Analysis tool. This is because the Statistics Presenter tool requires a fraction of the time to load.

Table 3 compares values from the baseline simulation to the EUROMOD baseline report that uses EU-SILC data from 2014 (Ceriani, 2017). Ideally, the baseline simulation from the HFCS data would be cross-checked with a simulation with the EU-SILC data; however, this was not possible for the reasons mentioned.

Table 3: Baseline simulation comparison to a 2014 EU-SILC Italy baseline report

Parameter	***Baseline***	***Report***
Total incomes (billion EUR)	562	567
Total pensions (billion EUR)	274	263
Mean Disposable income (EUR)	14 864	17 127
Poverty risk (%)	23 %	19 %
Gini-coefficient	0,34	0,31

Source: Author's EUROMOD simulation and Ceriani, 2017

4.4 Hypothetical UBI Scenarios

Within the socio-economic context of Italy, UBI is explored through three hypothetical scenarios: ambitious, moderate, and conservative. The naming of the scenarios is orientational, not descriptionary. Each scenario encapsulates distinct policy modifications tailored to reflect varying reformative intensity, from profound systemic overhauls to more reasonable, incremental adjustments. Existing real-world policies inspire the scenario attributes. This section refers to the theory behind the scenarios; the section Design Choices contains a detailed description of decisions and assumptions.

The **ambitious scenario** is a paradigm shift, advocating for a comprehensive reconfiguration of the welfare state. It proposes a significant UBI provision that would replace all existing social security benefits except privately funded ones. This approach aligns with the radical visions of UBI, which advocate for a simplified social security system, reducing bureaucratic complexity and potentially increasing efficiency in benefit distribution.

The **moderate scenario** adopts a more measured approach, integrating UBI into the existing social security framework. In this construct, UBI acts as a foundational layer of social protection, complementing, rather than supplanting, existing benefits. The implementation involves a recalibration of benefits. The moderate scenario provides a middle ground between the ambitious and conservative scenarios.

The **conservative scenario** offers a minimalist interpretation of UBI, functioning as an ancillary benefit to the current welfare system. It posits a modest UBI amount as a supplemental income. The conservative scenario satisfies fiscal constraints and avoids potential work disincentives associated with more generous UBI schemes. It presents a politically acceptable version of UBI.

4.5 Simulation and Analysis

In EUROMOD, the year "IT_2014_baseline" was copied to create "IT_2014_ambitious". For the hypothetical scenarios, new policies had to be made for UBI and wealth taxation policies. The UBI policy was done from scratch with two eligibility criteria for adults and children. The wealth tax policy used the outline of the real estate tax policy; it was adjusted so that all assets were taxed uniformly. The moderate and conservative scenarios were copied from the ambitious scenario. Tax rates were set for each of the scenarios.

Ideally, all four scenarios (including the baseline simulation) would run on the same dataset. However, because of the complexity of the social welfare system replacement, it was more efficient to incorporate the change within the input dataset. Therefore, four different datasets for each scenario were used; see Appendix for the summarised changes in the datasets.

The datasets were inserted into the model, and the three hypothetical scenarios ran simultaneously. The same procedure as with the baseline simulation was followed: firstly, the indicative Statistics Presenter tool was used to save time; secondly, once confident, the In-depth Analysis tool was used. The output from the EUROMOD tools is in an Excel sheet format. The data are separated into three sections: 1. fiscal, 2. distributional and 3. inequality and poverty. To better understand the data, visual aids such as bar charts showing percentage changes and tables with colour scale conditional formatting were used. This helped to better convey the results of this research in this paper.

5. Design Choices

This section will explore the methodology and assumptions behind the hypothetical UBI scenarios.

5.1 Design Choice 1: UBI Amount

UBI aims to provide a safety net for households and individuals. An effective way to provide this is to look at relative poverty. Relative poverty is broadly understood as having less than 40 to 70 % of the national median income. The UBI amounts in this research are at 60%, 40%, and 20% of the median income in Italy as of 2014 for the ambitious, moderate and conservative scenarios, respectively. Similarly, Aerts et al. (2023) simulated UBI amounts at 60, 30 and 10 %. The 60% threshold aligns with the default EUROMOD threshold. In comparison, the 40% level represents the lowest possible poverty line. The 20% threshold, on the other hand, offers a pragmatic UBI level, potentially more feasible within current fiscal constraints. The highest level of 60% is hypothesised to reduce poverty significantly but raises questions about budgetary sustainability and labour market incentives; however, using EUROMOD, we cannot measure labour incentives. The middle level of 40% offers a balance, potentially reducing poverty effectively while being more fiscally sustainable. The lowest level of 20% explores the minimal impact that a modest UBI could have, serving more as a supplementary income rather than a primary means of support.

5.2 Design Choice 2: UBI Recipients

Adults will receive the full UBI amount described in the previous design choice. Children under 18 receive half of this amount. This reduction reflects that children have practical monetary needs, which are subjectively lower than adults. The reduction aligns with the reductions in previous simulations where the UBI received by children is up to 45% (De Henau, Himmelweit, & Reis, 2021). In a real-world setting, children would not be allowed to receive UBI directly; it would go through their guardians. However, the children were set as recipients to simulate a scenario where the entire UBI amount goes to the child. It is subjectively likely that in a real-world setting, some part of the child's UBI would be lost to the consumption of the guardian. By setting the UBI to the fixed value, the simulation ensures UBI's foundational philosophy of universality and inclusivity. This design mirrors proposals by Van Parijs and Vanderborght (2017), who argue for universal coverage to

eliminate bureaucratic complexities and stigmatisation associated with means-tested welfare programs.

5.3 Design Choice 3: Benefit Replacement

In the ambitious scenario, UBI is meant to replace existing social benefits, excluding private pensions. The replacement reflects a transformative view of UBI, positing it as a universal solution that simplifies the social security system and reduces administrative complexities. However, in a real-world scenario or further research, providing a transition period for phasing out old-age pensions is necessary, allowing individuals to adapt financially. The end goal of the ambitious scenario is to replace old-age pensions. Therefore, that is the case in the scenario.

In contrast, the moderate and conservative scenarios offer a more cautious approach. Here, UBI is integrated into the existing framework of social benefits. Benefits are aggregated and reduced by the UBI amount, maintaining a safety net while introducing UBI as an additional support layer. This model aligns with the concept of UBI as a supplement to, rather than a replacement for, current welfare mechanisms (Aerts, Marx, & Verbist, 2023). Moreover, the moderate scenario halves the subtracted benefits, balancing UBI's fiscal demands. Partial replacement preserves targeted support but adds complexity in administration and might not fully capitalise on UBI's potential for simplification.

5.4 Design Choice 4: Progressive Income Tax Rate

Tax progressivity asserts that higher-income people should contribute more to public finances. In the hypothetical UBI scenarios, tax rates are set to increase analogously to the highest rates found in Europe, a decision based on the premise of aligning with proven international models. The highest rate tax rate in Europe is currently in Finland and Austria (PwC, 2023) at 55% and in Belgium, Netherlands and Slovenia at 50%. The highest tax rates used in this paper are 50%, 55% and an ambitious 60%; a similar approach was undertaken in one of the EURMOD working paper series (Richiardi, 2022). Adjusting Italy's income rates according to different European Economies might be challenging because of different economic backgrounds. Nevertheless, adjusting the income tax rates is one of the many inevitable steps to finance UBI.

Table 4: Personal income progressive tax rates (%)

Limit (EUR)	Baseline	Ambitious	Moderate	Conservative
>15,000	23	32	29	27
>28,000	27	38	35	31
>55,000	38	53	49	44
>75,000	41	57	52	48
above	43	60	55	50
Multiplier		~1,4	~1,3	~1,2

5.5 Design Choice 5: Wealth Tax

Integrating a wealth tax in the UBI scenarios reflects a strategic approach to finance the UBI initiative while addressing wealth inequality. This tax is set at 2% in the conservative scenario, 2.5% in the moderate scenario, and 3% in the ambitious scenario. Wealth taxation is inspired by Piketty's (2014) advocacy to counteract the concentration of wealth. Piketty argues that wealth taxes are essential in redistributing wealth and reducing inequality, thereby contributing to a more equitable society. He proposes to set up a progressive tax rate of up to 2%; however, for practical reasons, the tax rates are fixed in this simulation. As Italy has a negligible wealth tax on real estate, the new wealth tax will be the primary driver of UBI financing.

5.6 Design Choice 6: Income from Rent Tax

Italian landlords can opt for a fixed tax on rental income of 21%. Incorporating a higher tax on income from rent as part of the UBI financing mechanism addresses wealth distribution and resource allocation. The decision to set fixed rent tax rates at 50%, 40%, and 30% for the ambitious, moderate, and conservative scenarios, respectively, is based on the European tax landscape; France’s highest tax rate is 30% and Denmark’s 56,5%. This approach ensures that property and real estate revenue contributes fairly to the financing of the UBI.

5.7 Design Choice 7: UBI Taxation

UBI is exempt from taxation in the proposed scenarios. This approach aligns with the philosophy of providing a guaranteed income to tackle poverty and ensure basic financial security for all citizens. This is supported by the notion that UBI should remain a net benefit to recipients, uneroded by taxation, to maintain its effectiveness as a tool for poverty reduction and social equality. Nevertheless, some simulations (Aerts, Marx, & Verbist, 2023) make UBI taxable to make the policy fiscally sustainable.

5.8 Design Choice 8: Capital Gains Tax

Italy has a capital gains tax in place. The tax is 26% on all income from financial investments, with only one exception. The exception is income from Italy's government bonds, a subsidy to promote government bonds. Unfortunately, the HFCS data do not provide the income breakdown from financial investments. Therefore, the income must be taxed uniformly. In the baseline scenario, the income is taxed analogously by 26%. In moderate and conservative scenarios, the tax aligns with the highest rates in France, Finland and Ireland, reaching up to 34% (PwC, 2023). In the ambitious scenario, the rate is set more ambitiously at 36%. The capital gains tax is increased to 36%, 34%, and 32% for the ambitious, moderate, and conservative scenarios to generate additional revenue for UBI.

5.9 Design Choice 9: Tax on Unexpected Income

Unexpected financial gains, such as lump-sum transfers, often not due to regular economic activities, can contribute significantly to wealth accumulation. The idea is to tax such incomes at a rate equivalent to the capital gains tax, set at 36%, 34%, and 32% for the ambitious, moderate, and conservative scenarios, respectively.

Table 5: Hypothetical scenarios summary

Design Choice	Ambitious	Moderate	Conservative
UBI for adults (EUR)	788	525	263
UBI for children (EUR)	394	263	131
Benefits replacement (%)	100	~70	~20
Highest income tax rate (%)	60	55	50
Fixed wealth tax (%)	3,0	2,5	2,0
Fixed tax on rental income (%)	50	40	30
Fixed capital gains tax & tax on unexpected income (%)	36	34	32

6. Results

6.1 Introduction to Results

This thesis will contribute to an ongoing UBI dialogue by presenting empirical data from a hypothetical scenario simulation. The results examine the impact of UBI on income distribution, poverty, inequality, and the national budget in Italy. The results presented herein are derived from the author's EUROMOD simulation. The following sections will dissect the results, articulating the complex interplay between UBI's theoretical promise and its practical implications when applied to the current Italian economic structure.

6.2 Income Distribution

In this section, we explore the shifts in income distribution. This analytical process illuminates the redistributive effects of UBI across various parts of the Italian population.

6.2.1 Income Deciles

Table 6: Household income change (%) by income deciles

Decile	Baseline (EUR)	Ambitious	Moderate	Conservative
1	430	368	225	90
2	1 052	136	79	28
3	1 122	78	39	12
4	1 356	50	23	4
5	1 651	27	10	-2
6	1 864	10	2	-4
7	2 250	6	-2	-6
8	2 578	-4	-8	-8
9	3 081	-18	-16	-11
10	4 941	-38	-29	-20
All	2101	10	1	-5

The ambitious scenario exhibits the most considerable gains in the lower deciles (Table 6). This observation aligns with the UBI's underlying principle of supporting economically vulnerable groups. The data indicate a surge in income by 368% in the lowest decile under the ambitious scenario compared with the conservative scenario's 90% rise. The most significant income decrease is in the tenth decile. Seven deciles show an increased income in the ambitious scenario; this results in an average 10% increase in income. The average income remains similar in the moderate scenario. On the contrary, only four deciles show an increase in the conservative scenario, with the average income decreased by more than 5%.

6.2.2 Household Type

Table 7: Household income change (%) by income deciles

Household type	Ambitious	Moderate	Conservative
One adult < 65, no children	8	-1	-8
- Female adult	6	-2	-8
- Male adult	9	0	-8
One adult ≥ 65, no children	-62	-46	-21
- Female adult	-59	-45	-21
- Male adult	-68	-48	-22
One adult with children	73	39	4
- Female adult	79	42	6
- Male adult	39	18	-3
Two adults < 65, no children	16	6	-3
Two adults, at least one ≥ 65, no children	-48	-38	-21
Two adults with one child	35	18	1
Two adults with two children	51	27	4
Two adults with three or more children	55	26	-4
Three or more adults, no children	26	12	1
Three or more adults, with children	68	37	8

Single-adult households with children experience significant upticks in income under the ambitious scenario (73%), which may translate into alleviating the financial strains typically associated with single-parenting (Table 7). The main driver of this increase is single-mother households (79%). Overall, households with children see their incomes increase in almost every situation. For adults without children, the change in income is less significant. On the contrary, there is a substantial decline in income in households with individuals aged 65 and above; this effect amplifies with increasing replacement of social benefits.

6.2.3 Labour Status

Table 8: Income change (%) by labour status

Labour status	Baseline (EUR)	Ambitious	Moderate	Conservative
Employer or self-employed	1 706	-12	-17	-20
Employee	1 413	33	17	2
Pensioner	1 517	-49	-37	-19
Unemployed	652	108	64	25
Student	1 097	47	22	1
Sick or Disabled	1 103	3	-8	-7

The UBI scenarios also present a varied impact on different labour statuses. The data reflect an alleviation of financial precarity for the unemployed, with a 108% increase in mean equivalised income under the ambitious scenario (Table 8). This significant rise hints at the potential macroeconomic implications of UBI, such as stimulating consumer spending and incentivising workforce participation. As seen in household types, older individuals' incomes decreased under every hypothetical scenario.

6.2.4 Gender

Table 9: Income change (%) by gender

Gender	Baseline (EUR)	Ambitious	Moderate	Conservative
Women	1 218	15	4	-4
Men	1 260	17	6	-4

The data suggest a general income increase across both sexes, with the ambitious scenario presenting a 15% income increase for females and a 17% increase for males (Table 9). The conservative scenario shows a similar decrease in income in both males and females.

6.2.5 Age

Table 10: Income change (%) by age

Age range	Ambitious	Moderate	Conservative
0 - 14	55	30	4
15 - 24	56	30	5
25 - 49	39	20	3
50 - 64	15	4	-4
65 - 79	-45	-36	-20
80+	-41	-35	-19

The age-based assessment shows a substantial income increase for the younger demographics. For individuals up to 24, there is more than a 50% increase in the ambitious scenario, which may have long-lasting positive ramifications for youth welfare and investment in future generations (Table 10). The increase for younger generations is contrasted by the significant income decreases for individuals over 65.

Overall, the simulation results of income distribution under different UBI scenarios in Italy depict a complex tapestry of potential outcomes. These outcomes do not operate in isolation; they are interwoven with societal values, fiscal realities, and the multidimensional aspects

of economic equity. As we transition to the subsequent sections, which will scrutinise poverty rates and inequality measures, the implications of these income distribution findings will be further contextualised within the broader socio-economic framework of UBI's potential implementation.

6.3 Poverty Rates

This section examines the alterations in the at-risk-of-poverty rates across various demographics. As shown in Figure 1, the at-risk-of-poverty rates decrease in all UBI scenarios. The decrease for the ambitious and moderate scenarios is comparable, indicating that UBI might not necessarily be as high to reduce poverty.

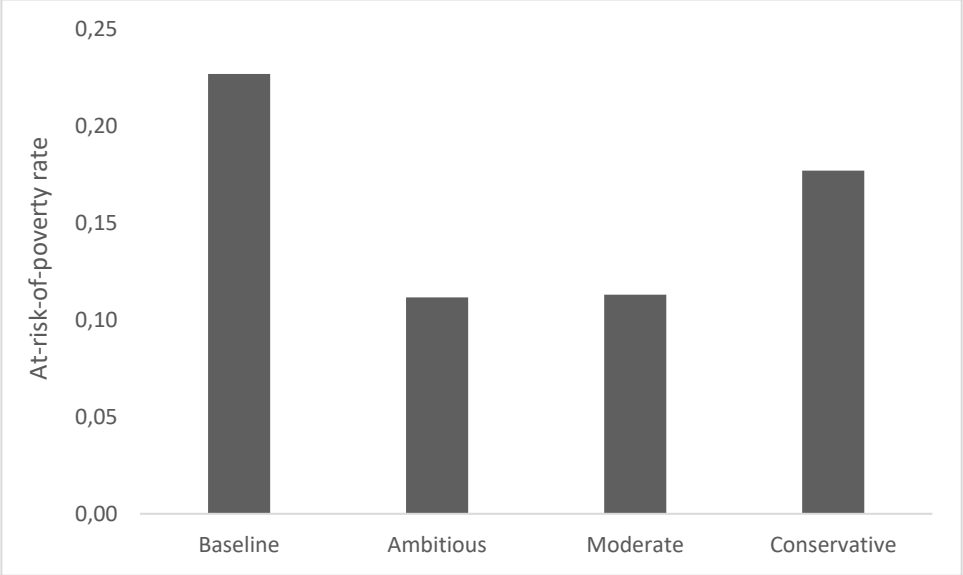

Figure 1: Mean at-risk-of-poverty rates

6.3.1 Household Type

Table 11: At-risk-of-poverty-rate (%) by household type

Household type	Baseline	Ambitious	Moderate	Conservative
One adult < 65, no children	22	13	19	20
- Female adult	25	16	23	23
- Male adult	19	10	16	18
One adult ≥ 65, no children	19	62	52	26
- Female adult	22	62	55	29
- Male adult	10	62	42	17
One adult with children	49	1	26	51
- Female adult	52	1	27	54
- Male adult	21	6	15	28
Two adults < 65, no children	16	7	8	14
Two adults, at least one ≥ 65, no children	6	31	23	17
Two adults with one child	19	3	5	16
Two adults with two children	25	2	5	18
Two adults with three or more children	37	3	4	25
Three or more adults, no children	21	4	4	12
Three or more adults, with children	42	2	4	22

Single adults and households with children, especially single-parent households, see significant poverty reduction under the ambitious scenario (Table 11). For households with children, poverty might disappear in the ambitious scenario. The conservative scenario offers

a compromise between the decreases in poverty for younger households and the increases in poverty for older households.

6.3.2 Labour Status

Table 12: At-risk-of-poverty-rate (%) by labour status

Labour status	Baseline	Ambitious	Moderate	Conservative
Employer or self-employed	13	13	12	18
Employee	13	1	2	6
Pensioner	6	36	23	13
Unemployed	59	4	13	40
Student	32	5	8	21
Sick or Disabled	27	15	22	26

The ambitious UBI scenario demonstrates a reduction in the at-risk-of-poverty rate for the employees, the unemployed, students and the sick or disabled (Table 12); the moderate and conservative scenarios offer similar results with less substantial changes. In contrast, the conservative scenario exhibits a more modest reduction. The retiree group sees an increase in the at-risk-of-poverty rate under the ambitious scenario, suggesting that a UBI might interact complexly with existing old-age pension benefits and requires careful policy consideration to prevent unintended adverse effects on this vulnerable group.

6.3.3 Gender

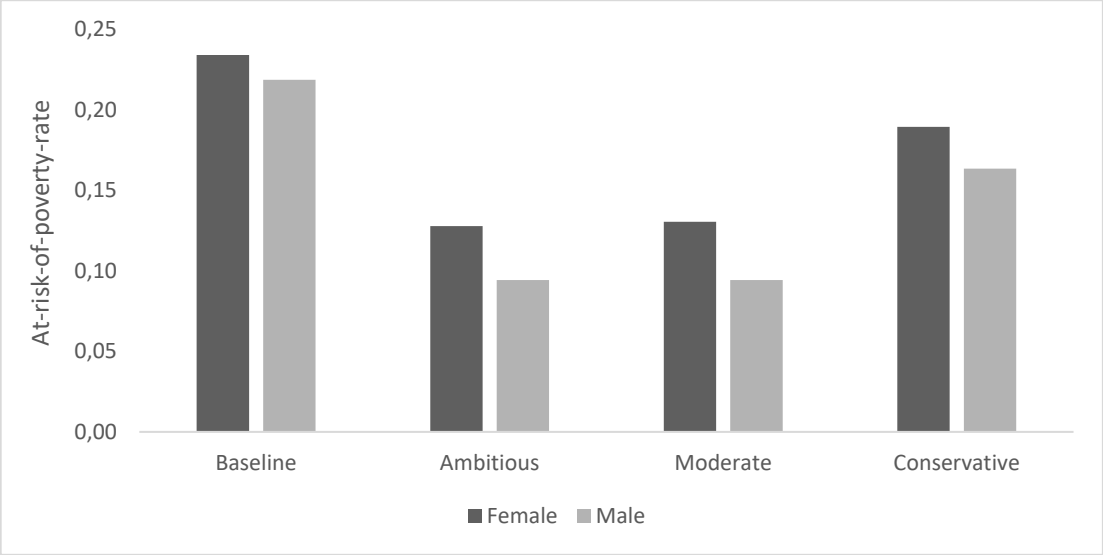

Figure 2: At-risk-of-poverty rates by gender

The data on gender (Figure 2) reveal a downward trend in poverty rates for both females and males across all UBI scenarios, with the ambitious scenario again showing the most substantial reduction. This aligns with UBI's goal of providing a financial safety net that benefits everyone.

6.3.4 Age

Table 13: At-risk-of-poverty-rate (%) by age

Age range	Baseline	Ambitous	Moderate	Conservative
0 - 14	30	2	6	21
15 - 24	36	3	6	21
25 - 49	25	3	6	16
50 - 64	21	9	9	15
65 - 79	9	34	26	17
80+	13	39	34	22

Examining the data by age groups, the young (0-24) experience notable decreases in poverty rates, especially under the ambitious scenario, which may have implications for child and youth poverty. For the eldest age groups (65+), the scenarios present a different picture, with significant increases in the poverty rates.

6.4 Inequality

6.4.1 Gini Coefficient

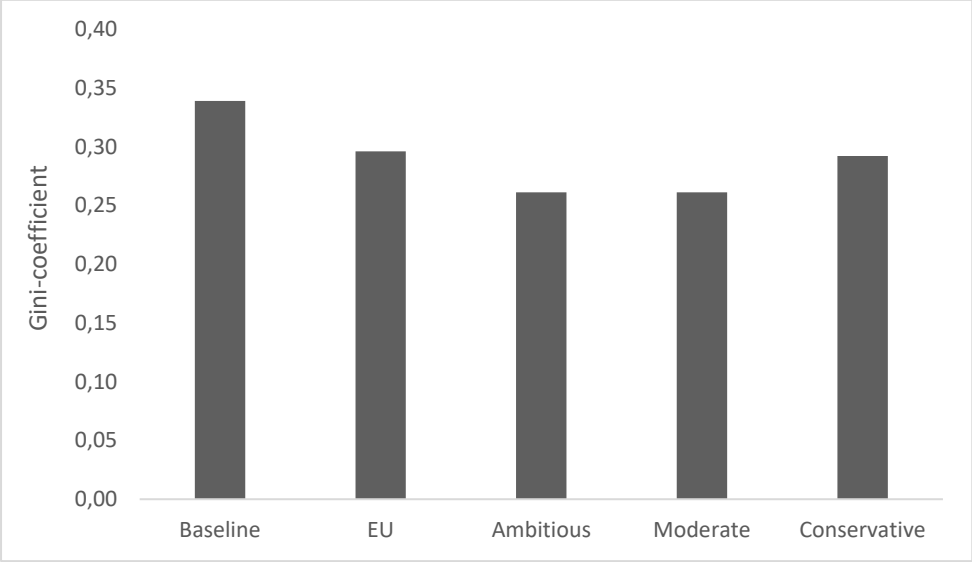

Figure 3: Gini-coefficients of hypothetical UBI scenarios

The Gini coefficient is expressed as a value between 0 and 1, where 0 signifies perfect equality and 1 denotes maximum inequality. The baseline Gini index for Italy reflects high income inequality above the average in the EU (Figure 3). In all of the scenarios, the coefficient decreases below the EU average, which shows the effectiveness of UBI on inequality. Coincidentally, the coefficient is identical for the ambitious and moderate scenarios.

6.4.2 S80/S20 Income Ratio

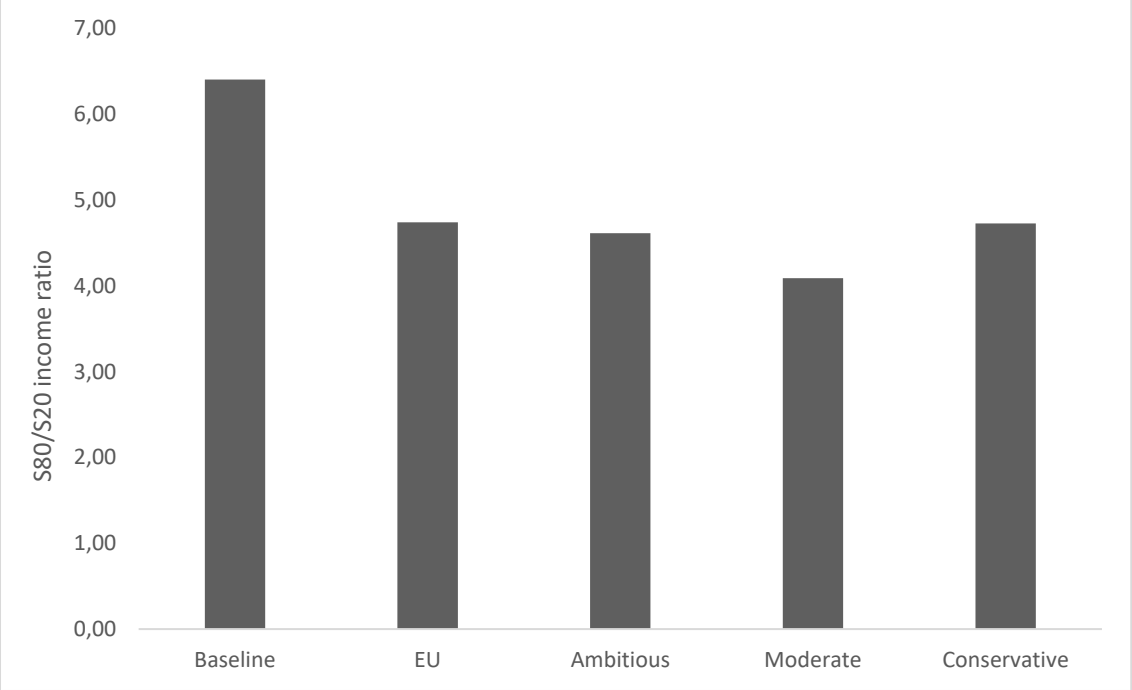

Figure 4: S80/S20 income ratio of hypothetical UBI scenarios

The S80/S20 ratio, which compares the income of the top 20% to that of the bottom 20%, provides additional insight into the distributional consequences of UBI. In all three scenarios, this ratio decreases, suggesting that the top earners' income is less starkly contrasted with that of the lower earners (Figure 4). The ambitious and the conservative scenarios lead to a decreased value comparable to the EU average. The moderate scenario provides the most significant decrease. Inequality is more than a numerical expression; it has profound implications for social justice, access to opportunities, and the overall health of a society. As such, while reducing numerical inequality is crucial, the ultimate goal should be to foster a society where the distribution of wealth allows for the well-being and advancement of all its members. A well-designed UBI program could significantly contribute to a more equitable society. However, the policy design must be meticulously calibrated to navigate the complex trade-offs between inequality reduction and fiscal sustainability.

6.5 Fiscal

The introduction of UBI presents a paradigm shift in social welfare policy that necessitates examining fiscal impacts. The fundamental question revolves around budgetary neutrality and how these UBI scenarios compare against the current financial baseline.

6.5.1 Budget Neutrality

Budget neutrality is a crucial fiscal parameter, indicating whether the UBI program is financially sustainable without increasing the overall deficit.

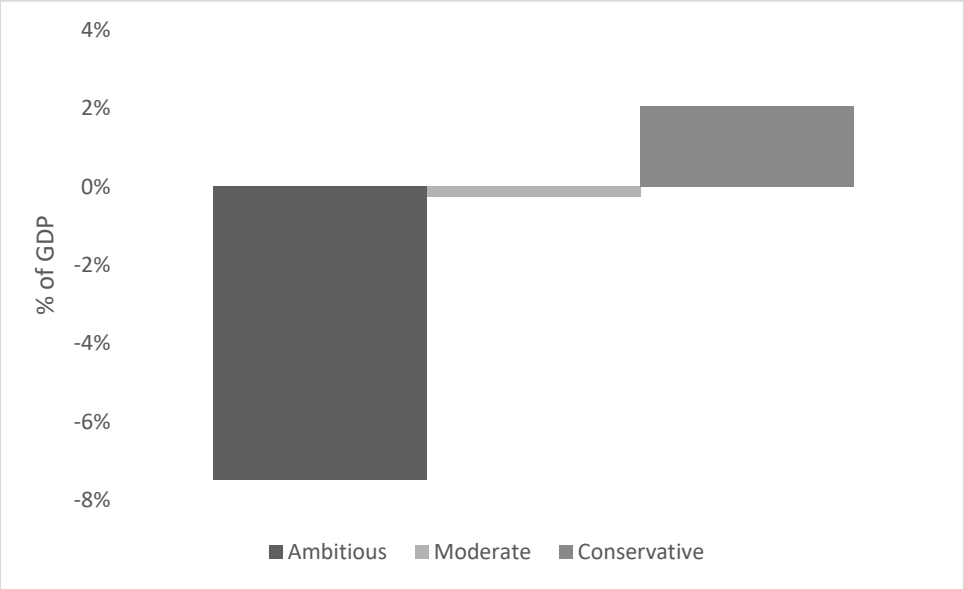

Figure 5: UBI scenarios impact on the national budget

The data reveals that the ambitious scenario would increase the budget deficit by more than 7% of GDP, translating to a deficit increase of 123 billion EUR compared to the baseline (Figure 5). This considerable deviation underscores the substantial fiscal impact of the ambitious UBI plan, which posits an aggressive redistribution strategy with profound social and economic implications. The deficit suggests that the ambitious scenario could necessitate either spending cuts in other areas or increased borrowing, thereby introducing potential risks to fiscal stability. The conservative scenario is marked by a surplus, signifying a 2% positive variance relative to GDP from the baseline, equating to an increase of 33 billion EUR. This indicates that the conservative UBI model could be more fiscally restrained, with less redistribution and reduced risk of budgetary imbalance. The

conservative scenario may limit the transformative potential of UBI but ensures greater fiscal prudence, which could be a strategic choice in times of economic uncertainty. The moderate scenario offers a middle ground, showing a marginal deviation from budget neutrality. This scenario represents a compromise between the ambitious and conservative approaches, attempting to balance the socio-economic benefits of UBI with the need for fiscal responsibility.

6.5.2 Tax Burden

UBI necessitates a re-evaluation of the tax structure to finance the redistribution of income. The average tax burden, represented as a percentage of income, is a critical measure indicating the extent to which each income decile contributes to tax revenues under different UBI scenarios.

Table 14: Tax burden (%) by income deciles

Decile	Baseline	Ambitious	Moderate	Conservative
1	23	16	20	26
2	23	20	23	28
3	22	22	24	27
4	23	26	27	31
5	25	31	31	35
6	25	32	31	35
7	26	36	36	37
8	27	40	39	39
9	28	44	42	41
10	34	57	53	49

Under the ambitious UBI scenario, the lower deciles experience a reduction in tax burden, with Decile 1 witnessing a significant decrease from the baseline of 23% to 16%. This reduction aligns with the progressive nature of the scenario, aiming to alleviate the tax

impact on lower-income groups. Conversely, the higher deciles see an increased tax burden, with Decile 10's tax rate escalating from 34% to 57%, indicating a substantial rise in their contribution to the fiscal pool. The conservative scenario presents a less pronounced but evident shift in the tax burden towards the higher income deciles. While the lowest deciles experience an increase in tax rates, suggesting a less progressive tax structure, the highest deciles face a significant rise in tax burden, albeit lower than in the ambitious scenario. The moderate scenario shows a less radical redistribution of the tax burden, with lower deciles benefiting from a decreased tax rate and the higher deciles facing an increase, though not as steep as in the ambitious scenario.

7. Discussion

7.1 Impact Assessment

This section assesses the impact of the hypothetical UBI scenarios based on five main demographical traits: (a) families with children as these are more vulnerable to poverty due to children's economic dependency, and UBI should target these families to promote family planning and counterweigh an ageing population, (b) students and youth as young individuals face high unemployment rate in Italy and a UBI could help avoid poverty and promote entrepreneurship and other means to job creation, (c) the unemployed as they are one of the most susceptible groups to be at risk of poverty, (d) the elderly as they face new challenges with UBI replacing old-age pensions which are the most significant social expenditure, (e) gender discrepancy as gender pay gaps has been an economic phenomenon and UBI could serve as a counter force. All three hypothetical UBI scenarios provide an overall improvement in income inequality and at-risk-of-poverty rates. This is substantial empirical evidence that UBI effectively mitigates inequality and poverty under any UBI amount.

The policy changes under the scenarios decrease at-risk-of-poverty rates for all households with children, except for the one adult with children in the conservative scenario (2% increase). These results suggest an overall improvement in living conditions, which could help parents spend more time raising their children rather than stressing about material deprivation. The alleviation from poverty could also help physical and mental health, increasing productivity and reducing health insurance claims. Providing universal rather than targeted benefits is possibly more efficient because of the social stigma associated with benefit collection that may result in inefficiencies (Moffitt, 1983). Italy faces system issues due to an ageing population and an alarmingly low fertility rate (1,3 births per woman) (The World Bank, 2023). This issue is temporarily mitigated by immigration. Nevertheless, structural changes are needed to promote more births per woman without families falling into poverty.

Without universal support for the young, an increased fertility rate may not suffice in counteracting an ageing population. Italy faces one of the highest youth unemployment rates in the EU, and this makes the 15-24 age group the most susceptible to poverty in Italy (36%).

UBI for young adults could be a stepping stone between education and employment. Moreover, with UBI, young adults may have more time to pick an occupation of their liking rather than being prematurely forced into employment. UBI could also level out the economic backgrounds, providing more equal opportunities. As a result, young adults could pursue education, which could have long-term positive effects.

Italy faces more than high youth unemployment. The unemployment rate in Italy peaked at 13% in 2014 (The World Bank, 2023). To protect the unemployed, UBI could prevent a sudden fall into poverty. This is a safety net not only for the unemployed but also for their children and other dependent members of the household. UBI could potentially increase consumption that would, in turn, lead to increased labour demand, making the policy changes sustainable (Hall et al., 2019)

The results for all UBI scenarios show a decreased income and increased poverty for all pensioners and households with elderly. This is a challenge in UBI and wealth taxation discussions because this vulnerable group cannot fall into poverty for the sake of other age groups. Poorer elderly and worsening physical and mental health could result in harmful long-term effects such as an increase in health insurance claims. More dependent elderly would also result in their children supporting them, creating a poverty cycle. This adverse impact of UBI on the elderly could be avoided by a transition period. If individuals receive UBI since birth, it may be assumed that savings will increase to provide a substitute for pensions. However, current older adults and the elderly would not have the opportunity of increased savings to serve as a financial buffer in retirement. The transition to a complete UBI could, therefore, last decades.

Men and women experience an overall increase in income, with men seeing a slightly higher increase than women. The potential explanation is that women were recipients of a larger share of social benefits that were replaced entirely; this assumption holds as the difference in incomes is the smallest in the conservative scenario. Nonetheless, the overall effect remains positive as the gender wage gap increases.

7.2 Consistency of Results to Existing Literature

None of the previously mentioned UBI microsimulations used a wealth tax; therefore, the results will inherently differ from this research. Nevertheless, it is essential to review two main trends: (a) the overall downtrend in poverty and inequality and (b) the adverse UBI impact on the elderly. The study by Browne and Immervoll (2017) is one of the first studies of its kind and focuses on the UBI impact on income deciles; reviewing the similarity of UBI effects on specific demographic groups is impossible. However, the study shows a similar trend in the overall decrease in poverty rates. Similarly, a study (Aerts et al., 2023) inspired by Browne and Immervoll shows a significant downtrend in overall poverty; specifically, it shows major decreases in poverty for children and working-age adults; however, it offers a slight uptick in poverty for the elderly which is consistent with this study. The increase was recorded only at the highest UBI amount and was less substantial than this research's. The explanation is the wealth tax that targets asset-rich individuals such as the elderly. The study on Lithuania by Augustinaitis et al. (2021) shows a different picture; for all UBI scenarios, it records a poverty rate decrease for all demographic groups, including the elderly. This is unsurprising because the study did not examine UBI financing and the needed trade-offs between social welfare and fiscal feasibility. The overall decrease in poverty for other demographic groups is consistent with this paper. The working paper on France (Richiardi, 2022) shows that the elderly (62+ in this case) make up the majority of losers in all of the UBI scenarios. Although the poverty rate increases for the elderly are not similar to this paper, it shows that a UBI is not a policy aimed at this demographic group. The overall results for the remaining adults and children correspond to this paper.

In summary, the consistency of the overall decreases in poverty in most of the population is evident with similar studies; however, the consistency of this paper on the impact of UBI on the elderly is not. Nevertheless, two studies (Aerts et al., 2023; Richiardi, 2022) have shown that UBI does not favour the elderly in all scenarios.

Furthermore, it is unfortunately impossible to compare this microsimulation to the trials conducted in the real world due to different data outputs. The trials aimed to measure employment and the recipients' behaviour; however, EUROMOD nor HFCS can capture the changes recorded in the real world. The trials have shown improved recipients' well-being (Hiilamo, 2020; Ferdosi et al., 2022) and no significant adverse effects on the labour market (Simpson, Mason, & Godwin, 2017).

7.3 Feasibility of UBI Financing

Assuming that the scenarios are accompanied by a transition period, they might serve as a basis for UBI policy in Italy. The moderate and conservative scenarios offer roughly budget-neutral policies; however, a substantial part of the increased tax revenue to finance UBI is generated from the fixed wealth tax beyond any wealth taxation proposal. This makes the scenarios, including the ambitious, not feasible in Italy. Moreover, introducing UBI in moderate and conservative scenarios created a new layer to the complex welfare system, potentially harming the promise of UBI to simplify social welfare benefits. An EU-wide wealth tax would have to be implemented to prevent capital flight. Through the lens of wealth taxation, the scenarios are not feasible but offer a perspective on financing needs. The remaining policy changes are relatively consistent with the real-world situation in other EU states. An alternative to a radical wealth tax could be the combination of a moderate progressive wealth tax and increased corporate tax. Firms and corporations are not included in the HFCS or EU-SILC databases and, therefore, cannot be simulated. The wealth tax incorporates a tax on the value of private businesses, which could indirectly serve as a form of tax on firms. The scenarios provided an indicative picture of the many possibilities for UBI financing; nevertheless, the policy changes are not feasible in the real-world setting and require careful adjustments. The section on further research offers ideas on how to develop such research.

7.4 Limitations

The HFCS in Italy used to conduct this research is ten years old. This significant limitation affects the research relevance. Studies used as reference points in this research have already used newer data on Italy and other European economies. This limitation was caused by poor data availability for theses in Czechia. Nevertheless, this data served in the author's learning process that can be leveraged later with more relevant data. Although HFCS data contains asset data and can be used for wealth taxation, it is not compatible with EUROMOD by default. The researcher must convert variables into a recognisable format to make HFCS data compatible. In the process of conversion, the dataset is subject to human error. The error is mitigated by comparing the baseline simulation to the results on baseline reports. HFCS does not contain data on some necessary variables, and values must be set to 0. This makes the dataset not entirely comparable with the EU-SILC data, which serve as a reference point.

Furthermore, HFCS data is only beginning to be used for EUROMOD simulations; more research using HFCS on EUROMOD, including the simulations of UBI and wealth tax, is needed.

Another significant source of limitations is the design choices and the overall construction of the hypothetical UBI scenarios. Most scenario designs were based on inspiration from other studies and real-world data; however, the inspiration was not based on reviewed literature but on the EUROMOD working paper series and the author's subjective understanding. The most significant limitation within this context is the inclusion of an abnormally large fixed wealth tax. The feasibility of such a tax was already discussed. A progressive wealth tax proposed by Piketty (2014) would not be sufficient to ensure budget neutrality; therefore, the author placed a potentially unrealistic fixed wealth tax on all citizens. The lack of progressivity is notable in wealth and rental income taxation; this limitation was introduced knowingly to simplify the multifaced tax reforms. Moreover, there were only three scenarios, limiting the comparison of UBI scenarios. There are infinite possible unique UBI scenarios, and it is improbable that one of the three proposed scenarios is close to the overall best approach to UBI implementation. The construction of UBI scenarios followed a systematic process to fit into recognised literature. This inevitably compromises the UBI simulation as it may require invention and rethinking beyond current welfare and tax systems.

7.5 Further Research

This research contributes to the trend of microsimulating UBI scenarios on specific economies and applying HFCS data in EUROMOD. There are several possibilities for improving and deepening the research on UBI in Italy. Firstly, comparative research on regional differences in UBI impact would aid policy formation. This research would reflect the need to analyse Italy's Southern and Northern regions separately. As mentioned, implementing UBI requires a transition period to make future pensioners less dependent on old-age pensions and more on private savings that should theoretically increase with UBI received from birth. Further research on UBI should extend the static microsimulation and accommodate for behavioural, health and labour market changes. Behavioural changes might unravel the impact of UBI on consumption and savings to assess the sustainability of

the radical policies. Sustainability must be considered concerning the national budget; for UBI to work, public finance must remain sustainable. Further research should break down individual tax revenue and government expenditure components.

8. Conclusion

The UBI simulations in this research have shown significant improvements in poverty rates and income inequality for everyone except pensioners. The older population segment relies heavily on old-age pensions that comprise most government expenditures. Financing a UBI policy requires a rethinking of the social benefits, including pensions; this leads to significant reductions in pensions because UBI should substitute this income in the long run. Therefore, the implementation of UBI has to be accompanied by a transition period that would help individuals increase savings and be less dependent on public pensions in the later stages of life. The remaining population segments, including children and adults, either show improvements in poverty or no difference. This is crucial in considering how to aid vulnerable groups such as single parents, the unemployed or the young adults carrying the burden of an ageing Italian population. Moreover, it is suggested that income and poverty improvements in households with children and young adults could improve an alarmingly low fertility rate in Italy. UBI is deemed to have long-term beneficial effects as past UBI trials have shown improvement in physical and mental health. These positive effects result from individual liberty that allows working-age adults to educate themselves and be inventive in their contributions to society.

The primary source of tax revenue to finance UBI comes from wealth taxation. The research used a fixed wealth tax (2 - 3 %) inspired by Piketty's (2014) proposal of a progressive wealth tax. Although such a high wealth tax is not feasible in the real world, the simulation tried to capture some income firms generate by taxing their monetary value. This was possible by converting the HFCS dataset into EUROMOD, which is conventionally used with the EU-SILC dataset that does not include asset data.

UBI was once again proven to be a powerful tool in tackling poverty and income inequality; however, the policy is very different to the current Italian system, which has already tried

integrating a similar benefit. UBI's radicality may not be possible to exercise at a large scale in an economy struggling with high public debt. Nevertheless, the recent UBI trials indicate that this revolutionary policy will remain in economic debates; further research on UBI potentially paves the way to a poverty-free economy.

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List of Appendices

Appendix no. 1: Complete list of variables used in EUROMOD input file (table)

Variable name	HFCS origin	Variable meaning
idperson	RA0010	personal identification number
idhh	SA0010	household identification number
dwt	HW0010	weight
idfather	-	father identification number
idmother	-	mother identification number
idpartner	-	partner identification number
dag	RA0300	age
dgn	RA0200	gender
dms	PA0100	marital status
ddi	-	disability level
dct	-	country of residence
dec	-	current status in education
loc	-	ocuupation
les	PE0100x & PE0200	labour status
lhw	PE0600	hours worked per week
bunct01	PG0510	unemployment benefits
poa	PG0310	pension
ypp02	PG0410	private pension
boa	-	contributory old-age pension
poa00	-	other pension
bsa00	HG0110	social transfers
ypt00	HG0210	private transfers
yem	PG0110	income from employment

yse	PG0210	income from self-employment
yiy	HG0410	income from financial investments
yprrt02	HG0310	rental income
yemxp	HG0610	lump-sum income
amrmv	DA1110	value of main residence
aip	DA1120	value of other property
aca	DA1130	value of vehicles
aot	DA1131	value of valuables
apb	DA1140	value of private business
afc	DA1200	value of financial investments
aco	aip+aca+aot+apb+afc	sum of assets
bho	-	new social benefit after UBI

Appendix no. 2: Differences in the four input datasets

Dataset	Characteristic
Baseline	All variables as in Appendix no. 1
Ambitious	Missing benefit variables (bunct01+poa+bsa00)
Moderate	Missing benefit variables (bunct01+poa+bsa00) and including variable bho, noting 50% of summed benefits subtracted by UBI amount
Conservative	Missing benefit variables (bunct01+poa+bsa00) and including variable bho, noting summed benefits subtracted by UBI amount