

The Italian case study

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The research project is implemented in the framework of H.F.R.I call “Basic research Financing (Horizontal support of all Sciences)” under the National Recovery and Resilience Plan “Greece 2.0” funded by the European Union –Next Generation EU (H.F.R.I. Project Number: 016638).

**Regulation (EU) 2023/955 of 10
May 2023**

In relation to the additional efforts required to reduce emissions in the building and transport sectors, as provided for in Directive 2003/87/EC (ETS2), the **Climate Social Fund** is being established to finance **concrete measures to tackle energy poverty and transport poverty, both in the short and long term**, in order to limit the impact on the most vulnerable consumers.

The **Social Climate Plan (SCP)** draws on the resources of **the Climate Social Fund**, which has an estimated total budget of around €87 billion at European level. The SCP must be submitted by June 2025 and must be aligned with the **provisions of the PNIEC** (Integrated National Energy and Climate Plan).

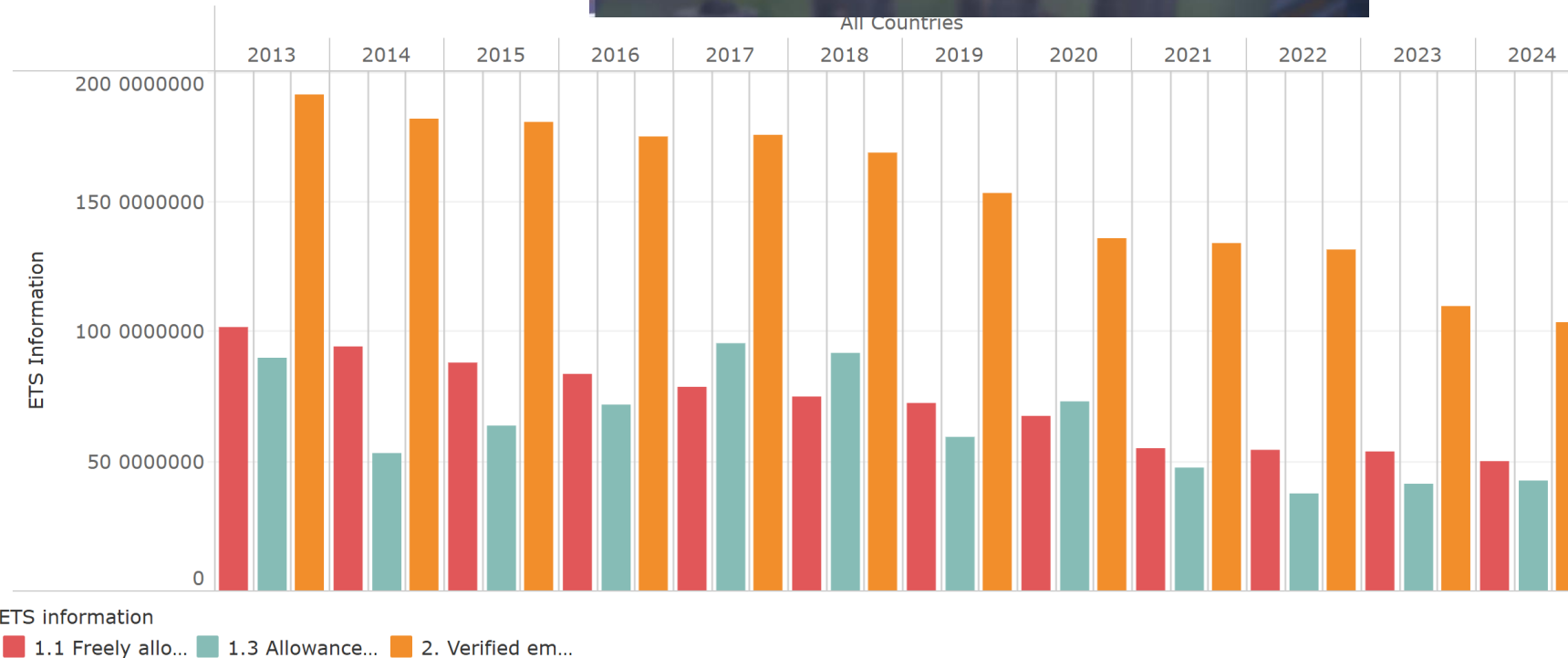
The research project is implemented in the frame
Resilience Plan “Greece 2.0” funded by the Euro

EU ETS

EU Emissions Trading System

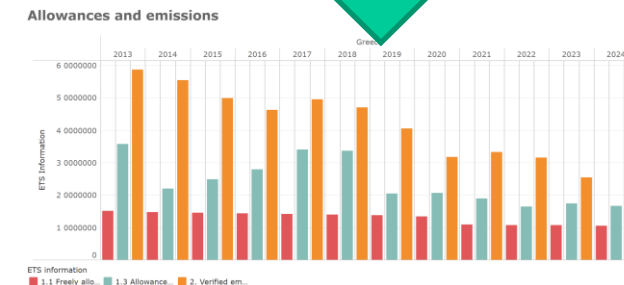
upport of all Sciences)” under the National Recovery and
016638).

Allowances and emissions



Year	Euro / ton
2025	73
2020	25
2015	8

Greece



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ETS2: buildings, road transport and additional sectors

*Energy/Fuel and human **PO**verty: public policy and **RE**commendations in **S**outhern **E**urope
December 3-4, 2025*

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OBJECTIVE OF THE FUND

The introduction of the emissions trading system for buildings and road transport in the ETS II Directive could have an impact on energy and transport costs. These effects will mainly affect the most vulnerable groups, who may also lack the financial capacity to invest in reducing fossil fuel consumption. Therefore, support measures have been provided for investments aimed at increasing energy efficiency and access to zero- and low-emission mobility and transport.

STAKEHOLDERS

- Vulnerable households, including households in energy poverty
- Vulnerable micro-enterprises
- Vulnerable transport users who are particularly affected by energy and transport poverty

SOCIAL CLIMATE FUND

Fund capacity: €65 billion

Reference period: 2026-2032

Addendum to Member States' national contributions: min. 25%

Total Fund: €86.7 billion

Allocation to Italy: €7 billion

If the emissions trading system established under Directive 2003/87/EC is postponed until 2028, the maximum amount available to the Fund would be €54.6 billion – Italy €5.9 billion [By 15 July 2026 – Article 30k of Directive 2003/87/EC]



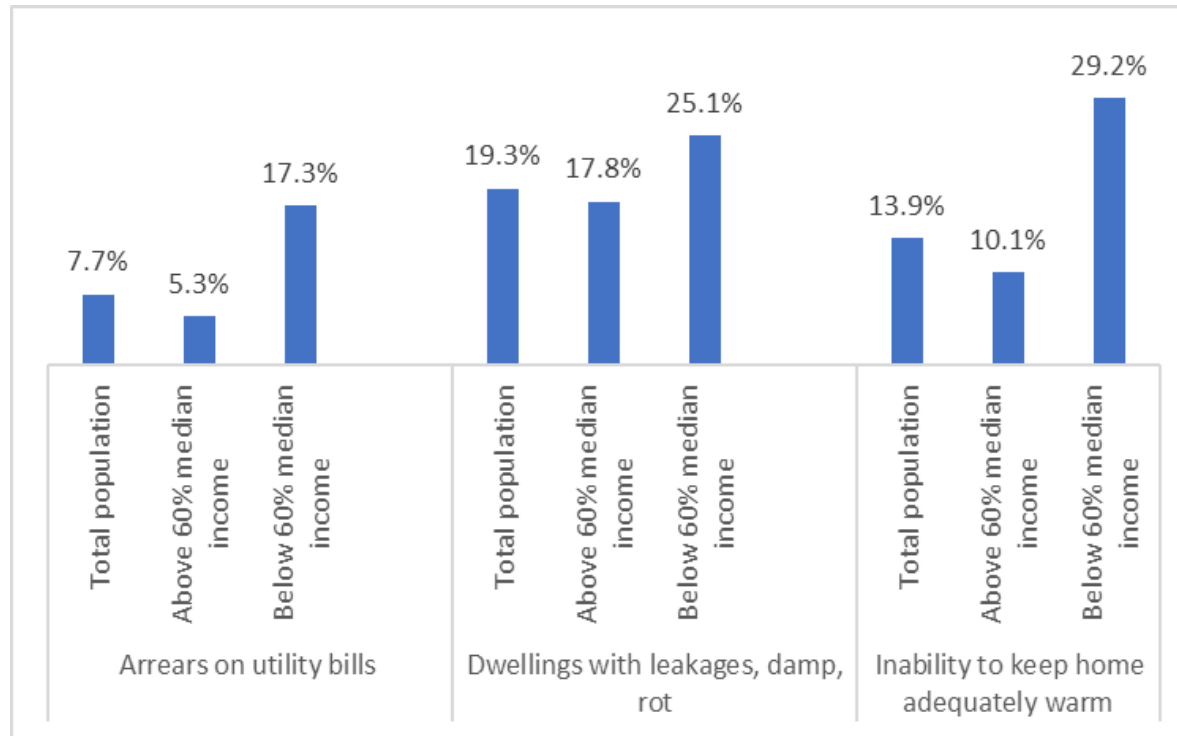
In order to access Social Fund contributions, a **Social Climate Plan (SCP)** must be submitted by June 2025, 'based on the 2024 update of the PNIEC' (*)



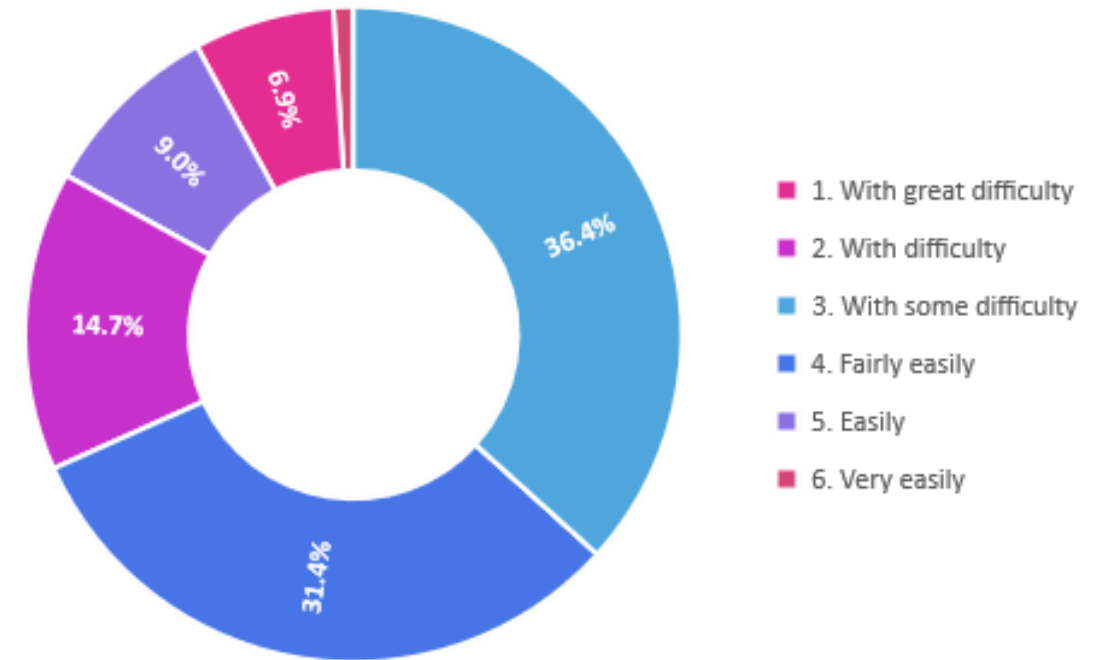
MEASURES

- Temporary:
income support – **may not exceed 37.5% of total costs**
- Long-term:
structural – 'lasting'

Average values of energy poverty EU-SILC indicators



Ability to make ends meet, average values



Trends in energy expenditure over time for a typical family
(ARERA electricity and gas consumption).

Classe di valore ISEE	Numero DSU	
	valori assoluti	valori %
nullo	343.518	3,3%
da 0,01 a 4.999,99	1.750.294	16,9%
da 5.000,00 a 9.999,99	2.222.152	21,4%
da 10.000,00 a 14.999,99	1.752.404	16,9%
da 15.000,00 a 19.999,99	1.282.970	12,4%
da 20.000,00 a 24.999,99	929.629	9,0%
da 25.000,00 a 29.999,99	654.589	6,3%
da 30.000,00 a 34.999,99	449.989	4,3%
da 35.000,00 a 39.999,99	304.526	2,9%
da 40.000,00 a 44.999,99	199.588	1,9%
da 45.000,00 a 49.999,99	131.342	1,3%
da 50.000,00 a 59.999,99	152.737	1,5%
da 60.000,00 a 69.999,99	79.323	0,8%
da 70.000,00 a 79.999,99	44.221	0,4%
da 80.000,00 a 89.999,99	25.084	0,2%
da 90.000,00 a 99.999,99	14.950	0,1%
oltre 100.000,00	34.031	0,3%
Totale	10.371.347	100%

ISEE Observatory: Single Substitute Declarations (DSU) and ISEE value
INPS February 2025 (The data reported in this Statistical Observatory refer to DSU certified with Ordinary ISEE value in the period 2016-2024).

ISEE value class	INPS DATA DSU NUMBER
nil	343,518
from 0.01 to 4,999.99	1,750,294
from 5,000.00 to 9,999.99	2,222,152
TOTAL =	4,315,964

For ISEE below €4,999.99, a benefit of 100% of the cost of the intervention should be considered.
For lower incomes (ISEE between €5,000.00 and €9,999.99), an ADDITIONAL benefit could be considered to supplement the existing tax deduction (36% tax deduction for main residences in 2026) using part of the funds from the Social Climate Plan.

ISEE	0 Households in absolute poverty	5,000 Families in energy poverty	10,000
	3b) NEW measure to be included in the Plan		3a) Measure IN FORCE to be included in the Plan
Maximum cost of intervention	€5,500		€5,500
Tax deduction			36% = €1,980.0 (*) (over 10 years: €198 per year)
PSC benefit	100% non-repayable €5,500		64% non-repayable €3,520

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SOCIAL FUND FOR THE CLIMATE (Reference period 2026-2032)

- a) **Vulnerable households, including households in energy poverty**
- b) Vulnerable micro-enterprises
- c) Vulnerable transport users who are particularly affected by energy and transport poverty



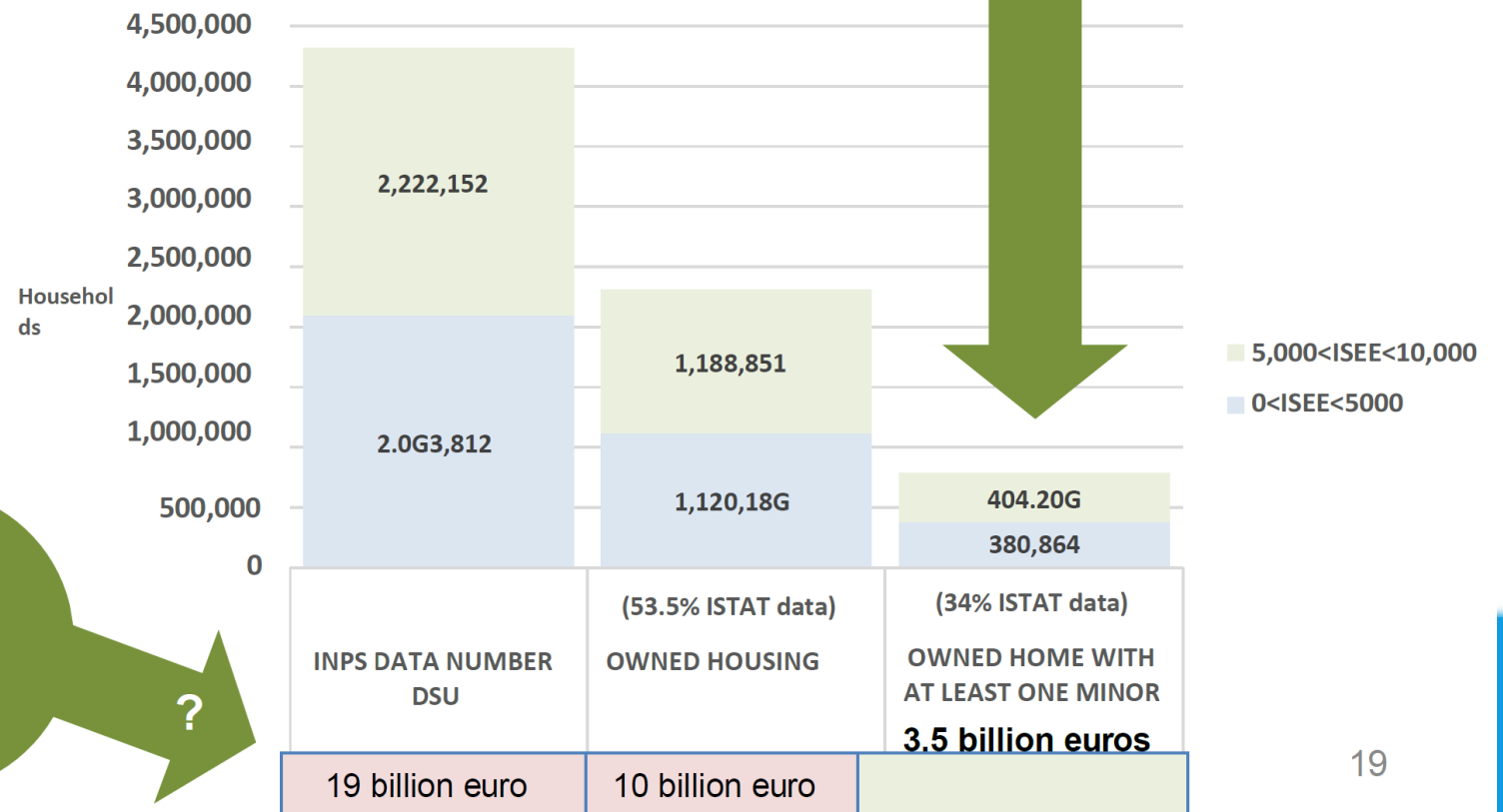
Allocation Italy
7 billion euro

Specific reference cost of
€5,500 for each
intervention

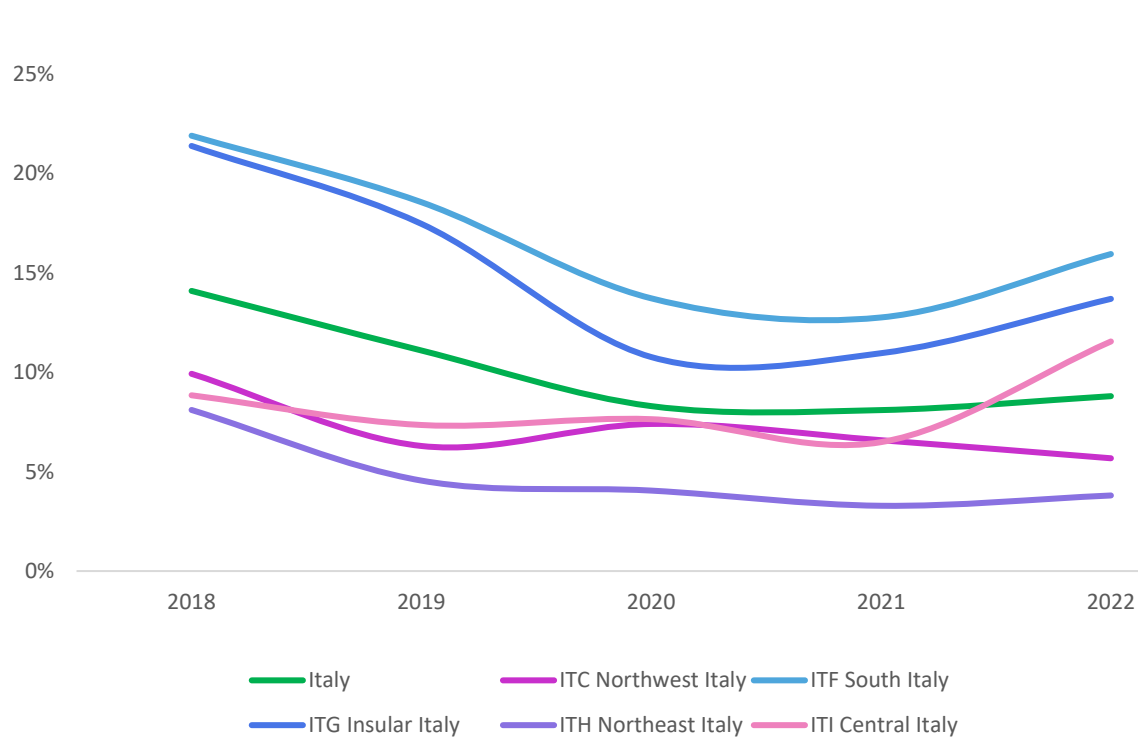


For budgetary reasons, the proposed measures are aimed exclusively at households with:

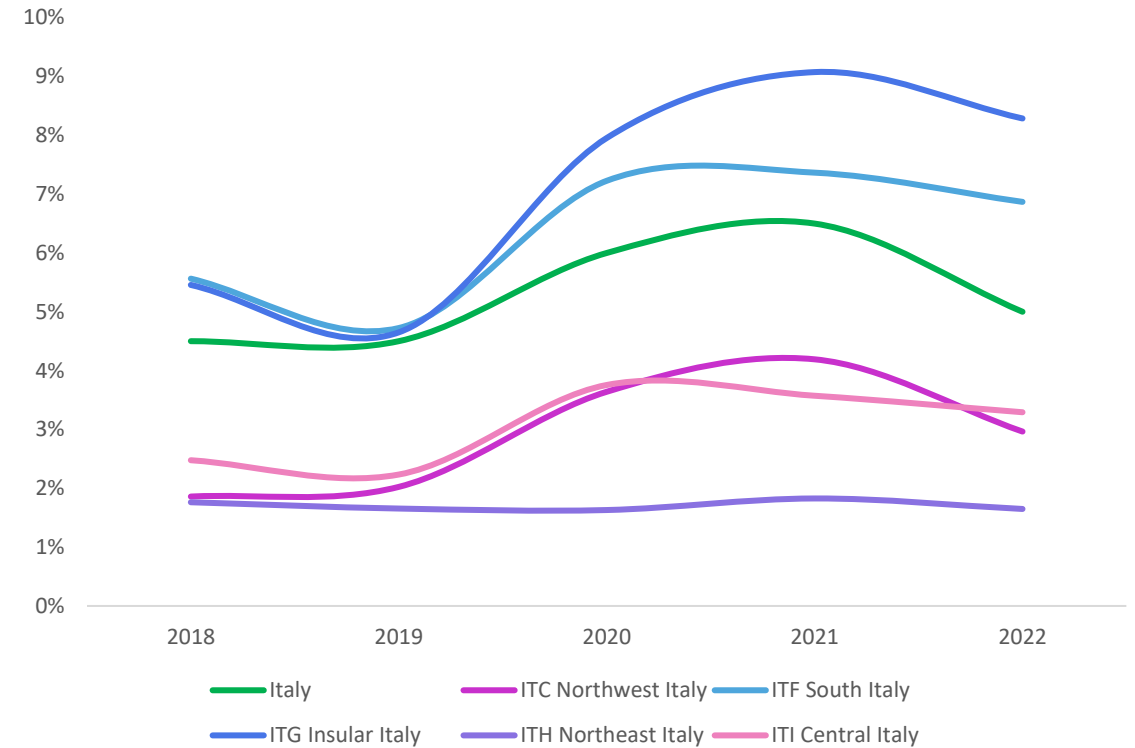
- OWNED PROPERTY (**53.5% of households**) and
- AT LEAST ONE DEPENDENT CHILD (**34% of households**)



Inability to keep home adequately warm – NUTS1



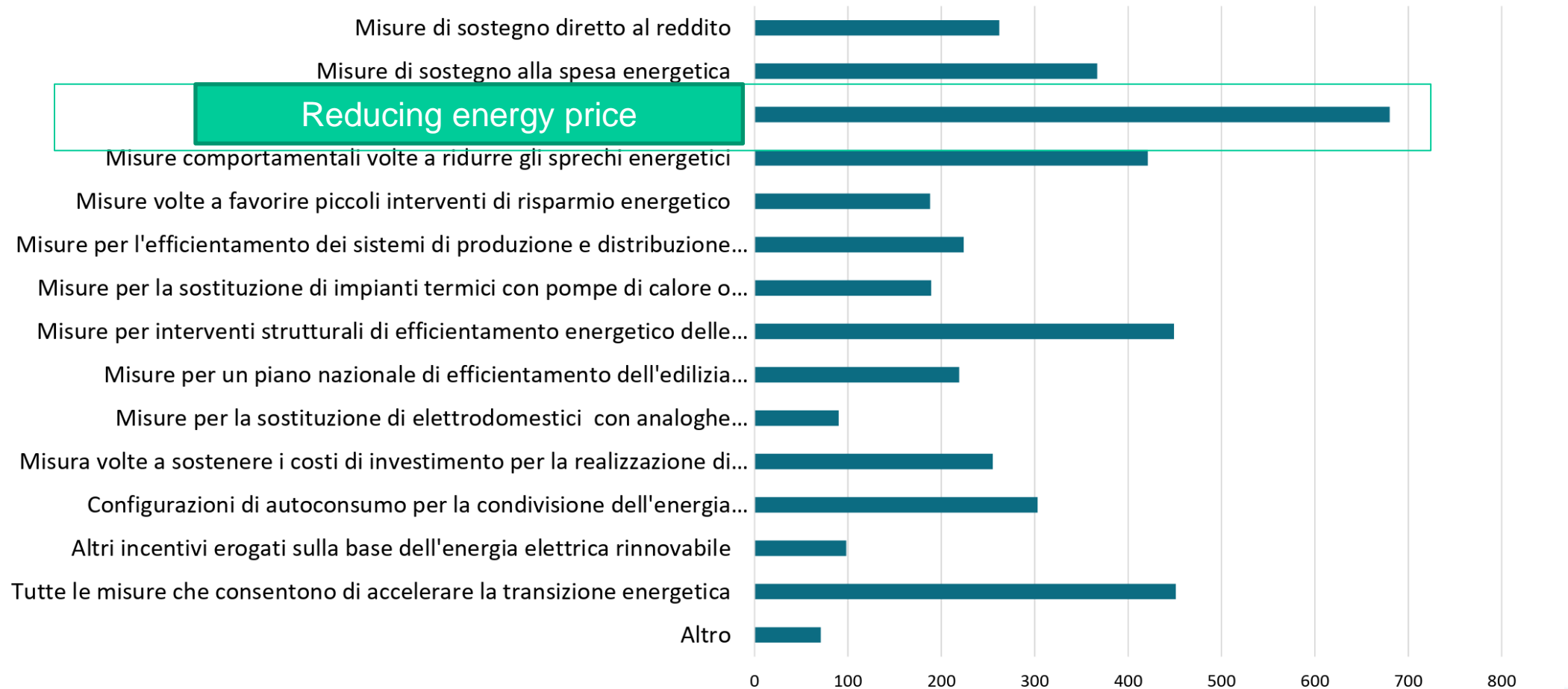
Spending on utility bills – NUTS1



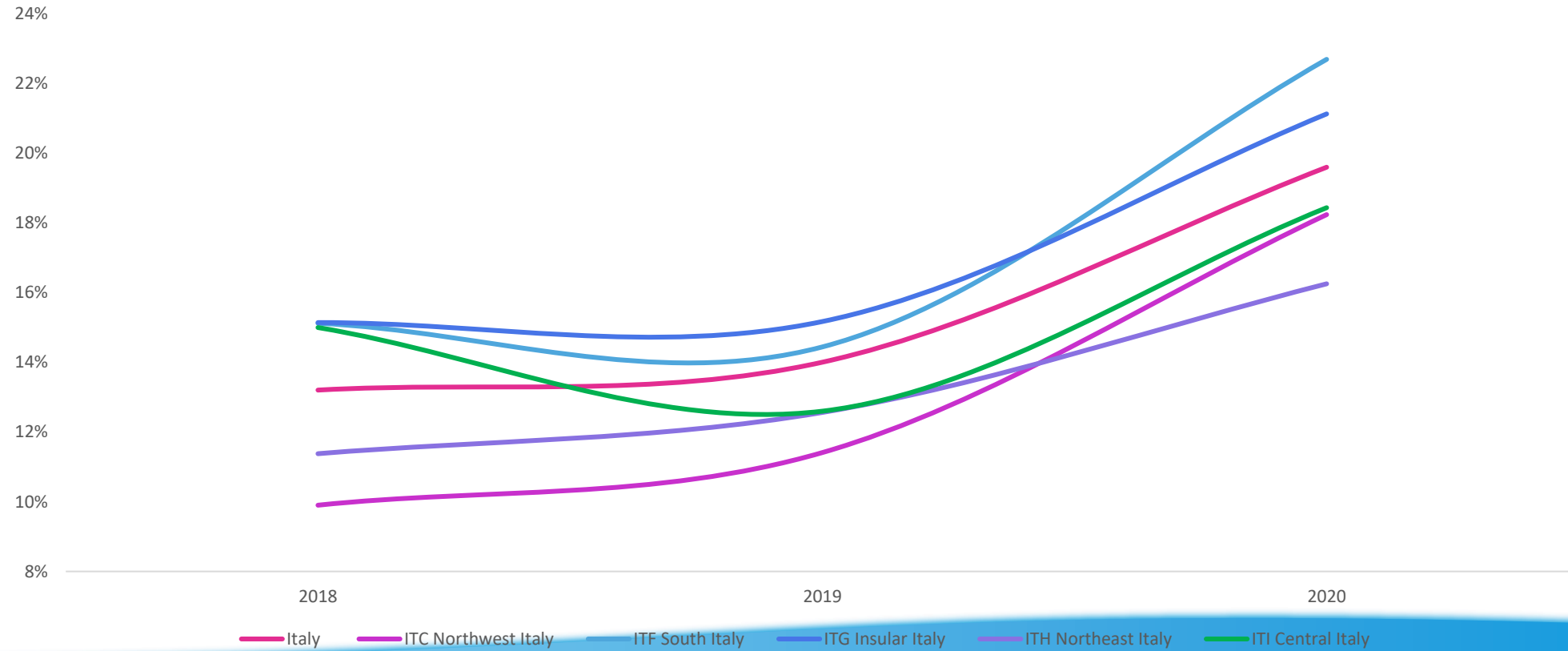
Trends in energy expenditure over time for a typical family
(ARERA electricity and gas consumption).



What are the priority measures to reduce household vulnerability to rising energy costs?



Dwelling with leak, damp, or rot – NUTS1



The Italian case study - Econometric analysis

Model 1 - Inability to keep home warm	2018	2020	2022
Ln(income)	-0.016***	-0.008***	-0.011***
Education	-0.014**	-0.018***	-0.001
Age	-0.002***	0.0001	0.0007
Age2	2.36e-05***	-5.05E-07	-1.35e-05*
Unemployed	0.035***	0.024***	0.009
Persons-per-rooms	-0.004	-0.007*	-0.012**
Health	-0.004*	n/a	0.023***
Gender	-0.004	-0.002	0.008**
Ability to make ends meet	0.070***	0.042***	0.054***
Observations	20,614	12,915	14,063

Model 2 – Arrears on utility bills	2018	2020	2022
Ln(income)	-0.002***	-0.002***	-0.0007
Education	0.0004	-0.005*	0.004*
Age	0.001***	0.001***	0.002***
Age2	-1.19e-05***	-1.20e-05***	-2.21e-05***
Unemployed	0.006***	0.012***	0.004*
Persons-per-rooms	0.00453***	0.008***	0.009***
Health	0.003***	n/a	0.006***
Gender	-0.0003	0.0008	0.002
Ability to make ends meet	0.012***	0.016***	0.016***
Observations	20,614	12,915	14,063

Model 3 - Dwelling with a leaking roof, damp walls/floors/foundation, or rot	2018	2020	2023
Ln(income)	-0.004	-0.008*	n/a
Education	0.019***	0.00372	n/a
Age	0.002**	0.002	n/a
Age2	-2.15e-05**	-1.20E-06	n/a
Unemployed	0.012	0.026	n/a
Persons-per-rooms	0.012**	0.019**	n/a
Health	0.041***	n/a	n/a
Gender	-0.003	-0.007	n/a
Ability to make ends meet	0.048***	0.044***	n/a
Observations	20,614	12,915	

Model 4 - AROE	2018					2020					2022				
	Coefficient	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Coefficient	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Coefficient	Outcome 1	Outcome 2	Outcome 3	Outcome 4
Ln(income)	-2.109***	0.213***	-0.170***	-0.037***	-0.007***	-2.245***	0.227***	-0.177***	-0.041***	-0.008***	-2.294***	0.232***	-0.171***	-0.048***	-0.012***
Education	-0.190**	.019**	-0.015**	-0.003**	-.0006**	-0.325***	0.032***	-0.025***	-0.006***	-0.001***	-0.391***	0.039***	-0.029***	-0.008***	-0.002***
Age	0.049***	-0.005***	0.004***	0.0008***	0.0002***	0.047***	-0.004***	0.003***	0.0008***	0.0001***	0.084***	-0.008***	0.006***	0.002***	0.0004***
Age2	-0.0005***	0.00005 ***	-0.00004	-9.09e-06***	-1.76e-06***	-0.0005***	0.00004***	-0.00003***	-0.00001***	-0.000001***	-0.0001***	0.0001***	-0.0001***	-0.00002***	-0.000004***
Unemploye d	1.631***	-0.165***	0.131***	0.028***	0.005***	1.128***	-0.114***	0.089***	0.021***	0.004***	1.905***	-0.193***	0.142***	0.040***	0.010***
Persons- per-rooms	0.886***	-0.090***	0.071***	0.015***	0.003***	1.069***	-0.108***	0.084***	0.019***	0.004***	1.005***	-0.102***	0.075***	0.021***	0.005***
Health	0.142***	-0.014***	0.011***	0.002***	0.0004***	n/a	n/a	n/a	n/a	n/a	0.122***	-0.012***	0.009***	0.002***	0.0006***
Gender	0.105**	0.008**	0.002**	0.001**	0.0004**	0.126**	-0.012**	0.009**	0.002**	0.0004**	0.269***	-0.027***	0.020***	0.005***	0.001***
Ability to make ends meet	0.638***	-0.064***	0.051***	0.011***	0.002***	0.575***	-0.058***	0.045***	0.010***	0.002***	0.681***	-0.069***	0.051***	0.014***	0.003***
Observation s	20,614					12,915					14,063				

Model 1 - Inability to keep home adequately warm, for NUTS1 regions of Italy (2018, 2020, 2022)

	2018	2020	2022
ITF South Italy	0.0529*** (0.006)	0.005 (0.005)	0.031*** (0.005)
ITG Insular Italy	0.044*** (0.008)	-0.004 (0.006)	0.024*** (0.006)
ITH Northeast Italy	-0.001 (0.005)	-0.019*** (0.005)	-0.009** (0.005)
ITI Central Italy	-0.0005 (0.004)	-0.004 (0.005)	0.037*** (0.005)
<i>Observations</i>	20,614	12,915	14,063

Model 2 - Arrears on utility bills, for NUTS1 regions of Italy (2018, 2020, 2022)

	2018	2020	2022
ITF South Italy	0.007*** (0.002)	0.002 (0.002)	0.002 (0.002)
ITG Insular Italy	0.005*** (0.002)	0.004 (0.003)	0.013*** (0.004)
ITH Northeast Italy	0.0003 (0.001)	-0.007*** (0.002)	-0.007*** (0.002)
ITI Central Italy	0.003** (0.001)	-0.0008 (0.002)	-0.002 (0.002)
<i>Observations</i>	20,614	12,915	14,063

Econometric analysis – pseudo panels

Inability to keep home adequately warm									
Models	LPM			Fraction Logit			Group binomial GLM		
Income	-0.141***	-0.135***	-0.089**	-1.079***	-1.445***	-0.768**	-1.187***	-1.189***	-0.573*
Household size	0.085***	0.041***	0.044**	0.473***	0.226	0.073	0.549***	0.25	0.067
Urbanization	-0.087*	0.214**	0.091	-1.031**	1.123	-0.571	-1.103**	1.480**	-0.025
Detached house	-0.016*	-0.007	0.112*	-0.174**	-0.201**	-0.414	-0.321***	-0.228***	-0.368
Employment	-0.025***	-0.030***	-0.013	-0.246***	-0.311***	-0.002	-0.233***	-0.347***	-0.016
Tertiary ratio	-0.252***	-0.244***	-0.05	-2.214***	-1.015	-0.828	-2.220***	-1.971**	-1.331*
HDD/CDD	-0.182***	0.126***	0.123**	-1.839***	2.202***	0.179	-1.535***	1.963***	1.395*
Constant	1.226***	0.609**	0.329	7.436***	2.05	2.829	7.665***	0.942	-0.411
Cohort effects (NUTS 1)	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Time effects	No	No	Yes	No	No	Yes	No	No	Yes
Observations	480	420	420	480	480	480	480	480	480

Arrears on utility bills									
Models	LPM			Fraction Logit			Group binomial GLM		
Income	-0.045***	-0.041**	-0.026	-0.881***	-1.112*	-1.080*	-0.859***	-0.759*	-0.698
Household size	0.074***	0.011*	0.01	1.325***	0.276	0.169	1.543***	0.382**	0.256
Urbanization	-0.065**	-0.023	-0.023	-0.758	0.211	0.184	-1.398**	-0.364	-0.322
Detached house	-0.001	0.012***	0.024	0.438***	0.445***	0.054	0.027	0.305***	0.173
Employment	-0.009**	0.014***	-0.011**	-0.191	0.628***	-0.08	-0.237*	0.587***	-0.151
Tertiary ratio	-0.043*	-0.077	-0.049	-0.482	0.118	0.306	-0.905*	-1.262	-1.109
HDD/CDD	-0.061***	0.130***	-0.03	-1.542***	3.590***	1.135	-1.241**	3.609***	1.245*
Constant	0.382***	0.111	0.245*	3.433***	-3.129	1.253	3.469***	-4.579**	-0.716
Cohort effects (NUTS 1)	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Time effects	No	No	Yes	No	No	Yes	No	No	Yes
Observations	480	420	420	480	480	480	480	480	480

Leaking roof, damp walls/floors/foundation, or rot in window frames or floor									
Models	LPM			Fraction Logit			Group binomial GLM		
Income	-0.023*	0.024	0.002	-0.066	0.472	0.279	-0.161	0.356	0.029
Household size	0.035***	0.005	-0.016	0.215**	0.025	-0.172	0.356***	0.087	-0.085
Urbanization	0.005	0.024	0.023	-0.138	0.362	0.193	-0.012	-0.07	0.103
Detached house	0.065***	0.033***	-0.027	0.465***	0.272***	-0.443	0.436***	0.337***	-0.214
Employment	0.044***	0.056***	-0.009	0.340***	0.470***	-0.065	0.351***	0.470***	-0.142*
Tertiary ratio	-0.046	-0.037	0.031	-0.362	0.26	0.346	-0.445	-0.278	0.102
HDD/CDD	-0.099***	0.473***	0.11	-0.630***	3.637***	1.573**	-0.624***	3.449***	1.384*
Constant	0.370***	-0.674**	0.011	-0.719	-10.634***	-5.433**	-0.341	-9.531***	-3.978*
Cohort effects (NUTS 1)	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Time effects	No	No	Yes	No	No	Yes	No	No	Yes
Observations	360	300	300	360	360	360	360	360	360

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Determinants of energy poverty in Italy – overall insights

Income



Urbanization

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Determinants of energy poverty in Italy – overall insights

Large households



Deteriorating ability to make ends
meet

Thank you