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Public Preferences for Energy Investments and Nuclear Fusion Funding in Europe:
The Role of Economic Concern and Institutional Trust

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Abstract

This thesis examines how European citizens form preferences over future public investment in energy technologies and over the funding structure of nuclear fusion research, in a context still shaped by the post-2022 energy crisis. The analysis is structured around two related research questions. The first asks how perceived concern over rising energy prices is associated with individuals' preferences across four investment strategies: fossil fuels and nuclear fission, renewables, a mixed strategy combining renewables and fusion, and fusion only. The second asks how institutional trust, considered both as an aggregate measure and through its national and European Union components, is associated with preferences over public, private, joint, or no funding arrangements for nuclear fusion research. The empirical analysis relies on individual-level survey data collected by Ipsos in spring 2025 across six European countries (Germany, France, Italy, Spain, Poland, and the United Kingdom) and uses multinomial logit models with Fusion only and Joint funding as reference categories. The results show that economic concern is systematically associated with energy investment preferences. Respondents who report stronger concern about rising prices are relatively less likely to favor a fusion-only strategy and more likely to support alternative investment options, especially renewables. Preferences over fusion funding follow a different pattern. Higher institutional trust is not associated with a clear shift toward public-only funding, but it is linked to lower opposition to funding and to lower support for private-only arrangements, thereby reinforcing the relative position of joint public-private governance. Altogether, the findings suggest that European citizens evaluate future energy choices through both material and institutional considerations: affordability concerns shape the perceived appeal of different investment options, while institutional trust affects the legitimacy of long-term funding arrangements. The thesis therefore contributes empirical evidence on how public preferences over energy investment and technology governance are structured in a post-crisis cross-national context.

1. Introduction

Energy policy in Europe is no longer being made under stable conditions. The shock that followed Russia's invasion of Ukraine in 2022 made energy choices more immediate and politically visible. Households faced higher electricity and gas bills, while governments had to respond to a more uncertain supply environment. Although the most acute phase of the crisis has passed, its effects continue to influence the way energy policy is discussed. Choices over energy technologies now appear less distant than before, because they are connected not only to future transition pathways but also to citizens' experience of cost pressure and policy uncertainty.

This context makes public opinion especially relevant. Energy transitions do not depend only on technological feasibility or institutional planning. They also depend on whether citizens consider different energy options acceptable and worth supporting. When concern about rising prices is salient, public preferences may become more sensitive to the perceived timing and practical feasibility of different investment options. The question is therefore not only which technologies are available, but also how citizens evaluate them under conditions of economic pressure.

This issue is particularly relevant in Europe, where national energy systems differ considerably and where the role of nuclear energy remains contested. Some countries continue to rely on nuclear power or have renewed interest in it, while others have moved away from it or remain without nuclear generation. At the same time, renewable energy has become central to transition strategies, while fossil fuels and conventional nuclear fission still form part of the broader debate on reliability and energy security. Public preferences over future energy investment therefore develop within a complex policy environment, where different technologies carry different time horizons and levels of perceived credibility.

Nuclear fusion adds a specific dimension to this debate, but it is not the sole focus of the thesis. Unlike nuclear fission, fusion is not yet a commercial source of electricity. It is associated with long-term potential, but also with uncertainty over cost and implementation. For this reason, it matters both as one possible future investment option and as a technology that raises specific questions of funding and governance. Citizens may evaluate fusion differently from renewables, fossil fuels, or conventional nuclear fission, precisely because it combines high expectations with a longer and less certain path to deployment.

The aim of this thesis is to examine how citizens form preferences over future energy choices in this post-crisis context. The first part of the analysis focuses on whether concern about rising prices is associated with preferences for different forms of public energy investment. The second part examines whether institutional trust is associated with preferences over the funding structure of nuclear fusion research. In this way, the thesis connects two related dimensions of public opinion: preferences over what should be prioritized in future energy investment, and preferences over how a specific long-horizon technology should be funded.

The empirical analysis relies on the fourth wave of the European Strategic Choices project, a multi-country survey conducted by Ipsos in spring 2025 across Germany, France, Italy, Spain, Poland, and the United Kingdom. These countries provide a useful comparative setting because they were all exposed to the post-2022 energy shock while differing substantially in their energy systems and nuclear trajectories. The analysis is conducted at the individual level and uses multinomial logit models to examine how economic concern and institutional trust are associated with different preference outcomes.

The remainder of the thesis is structured as follows. Chapter 2 presents the European energy context after the 2022 crisis, introduces the six-country setting, and clarifies the distinction between nuclear fission and nuclear fusion. Chapter 3 develops the theoretical framework. Chapter 4 presents the research questions, hypotheses, and research design. Chapter 5 describes the data, variables, and econometric approach. Chapter 6 presents the empirical results. Chapter 7 discusses the findings, assesses their implications, and acknowledges the main limitations of the study. The Appendices report the demographic characteristics of the respondents and the diagnostic tests and robustness checks supporting the empirical analysis.

2. Context

This chapter situates the thesis within the European energy landscape that emerged after the 2022 energy crisis. Russia's invasion of Ukraine did not produce only a temporary shock in energy markets. It also exposed structural weaknesses in the European energy system, above all its vulnerability to external supply disruptions and sharp price increases. As a result, energy policy in Europe has come to be shaped by a more difficult balance between short-term security concerns and longer-term transition objectives. The crisis therefore changed not only the practical conditions under which energy policy is made, but also the political weight of energy choices themselves. In response, the European Union reinforced its effort to reduce dependence on Russian energy imports through the REPowerEU framework, while maintaining its broader commitment to decarbonization (European Commission, 2025c). Official survey evidence likewise indicates that energy affordability remains a major concern for European citizens, while support for a stronger European role in energy coordination also remains high (European Commission, 2024).

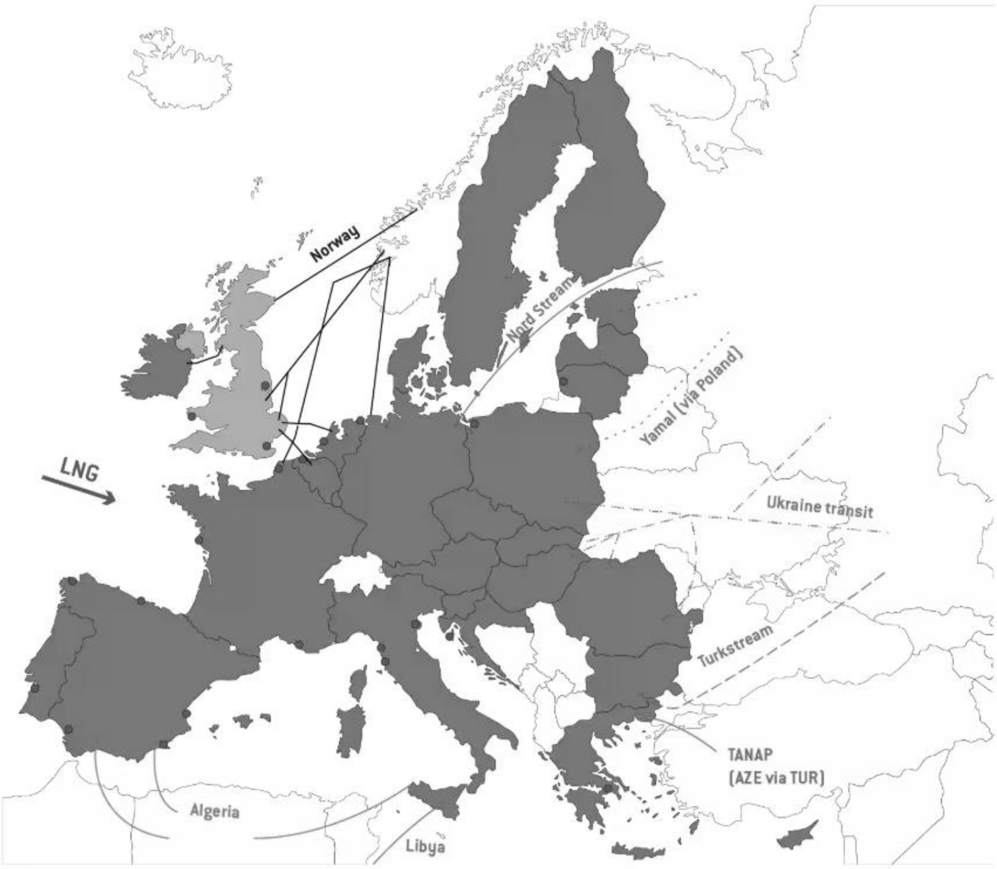
Against this background, the chapter first reconstructs the broader European setting after the 2022 crisis and shows how the relationship between energy security and decarbonization has been reshaped. It then narrows the focus to the six-country comparative setting adopted in this study (Germany, France, Italy, Spain, Poland, and the United Kingdom) and explains why these cases are especially relevant for examining variation in energy preferences and governance attitudes. The chapter then turns to the role of nuclear energy in the contemporary European debate, clarifies the distinction between nuclear fission and nuclear fusion, and reviews the current state of fusion development. The aim is not to anticipate the theoretical arguments or empirical findings presented later, but to establish the broader context in which the two research questions take shape.

2.1 The European energy landscape after the 2022 crisis

The post-2022 energy crisis reshaped the conditions under which European energy policy is debated and made. Rather than being a temporary disturbance in fuel markets, the shock revealed how strongly the European energy system was still exposed to imported fossil fuels, and especially to Russian gas. In 2021, Russia supplied 43.5% of EU natural gas imports, and the European Commission used 155 bcm as the reference volume for that year (European Commission, 2022c). In the same year, energy accounted for 62% of total EU imports from Russia, with an estimated value of €99 billion (European Commission, 2022c). Before the crisis, the EU-Russia energy relationship was therefore not only strategically important, but also economically substantial.

This dependence was embedded in a material supply structure organized around a limited number of major routes and import facilities. As Bruegel notes, the largest share of gas formerly reached the EU through four main Russian corridors (Nord Stream, Yamal, Ukraine transit, and TurkStream) while LNG imports entered through a wider network of terminals (Bruegel, n.d.). This infrastructural dimension matters because it shows that European dependence on Russian gas was not simply a question of trade volumes. It was tied to the physical organization of the continental energy system. Once Russian gas became a geopolitical vulnerability, the issue could no longer be addressed through market adjustment alone. It required a broader reconfiguration of supply routes and import partners. Figure 2.1 illustrates this pre-crisis infrastructure of dependence.

Figure 2.1 - Major natural gas import routes and LNG entry points in Europe before the post-2022 supply reconfiguration



Source: Adapted from Bruegel, European natural gas imports dataset

The immediate EU response took shape through REPowerEU, presented by the European Commission in 2022 to reduce dependence on Russian fossil fuels while preserving security of supply and accelerating the clean energy transition (European Commission, 2022c). Two years later, the Commission stated that it had mobilized close to €300 billion for the plan, with the Recovery and Resilience Facility at the center of this effort (European Commission, 2024). This direction was reinforced in May 2025, when the Commission presented a roadmap to fully end EU dependency on Russian energy while ensuring stable supplies and prices across the Union (European Commission, 2025c). The crisis therefore did not suspend decarbonization. It changed the political conditions under which decarbonization had to be pursued, linking it more closely to energy security and strategic resilience.

Recent work on the EU frames the post-2022 shock as a structural test of energy vulnerability, showing how import dependence and diversification became central to the policy response (Guarascio, Reljic and Zezza, 2025).

The scale of this reconfiguration has been considerable. According to the Council of the European Union, imports of Russian gas declined from over 150 bcm in 2021 to 36 bcm in 2025 (Council of the European Union, 2026). Over the same period, Russia's share of EU pipeline gas imports fell from around 40% to around 6% (Council of the European Union, 2026). When pipeline gas and LNG are considered together, Russia still accounted for 12.5% of total EU gas imports in 2025, equivalent to 36.0 bcm (Council of the European Union, 2026).

Table 2.1 - EU dependence on Russian natural gas before and after the 2022 crisis

Indicator	**2021**	**2025**
Russian gas imported by the EU (bcm)	155*[1]	36.0
Russia's share of EU natural gas imports	43.5%	12.5%**
Russia's share of EU pipeline gas imports	around 40%	around 6%

Source: *Author's elaboration based on European Commission (2022) and Council of the European Union (2026)*

[1] **Notes**: * The European Commission refers to 155 bcm of Russian gas imports in 2021, while the Council of the European Union refers to over 150 bcm for the same year. The two figures are consistent and reflect different levels of approximation.

** The 12.5% figure refers to Russia's share of total EU gas imports in 2025, as reported in the Council's infographic.

This shows that the post-2022 adjustment was substantial, but not complete. Russian gas had not disappeared from the European energy system by 2025. The Council also noted that the remaining trade still represented a source of vulnerability for the Union, with a value of over €15 billion annually in 2025.

The price dimension is equally central to the post-crisis landscape. Eurostat reports that in December 2024 the domestic producer price for energy in the EU was 1.4% lower than in December 2023, but still 80.3% higher than in January 2021 (Eurostat, 2025b). Public opinion points in the same direction. Special Eurobarometer 555 shows that 77% of respondents support a stronger coordinating role for the European Union on energy matters (European Commission, 2024). The same survey indicates that energy affordability remains the most salient association with EU energy policy, mentioned by 40% of respondents, while 33% point to investment in innovative energy technologies (European Commission, 2024). Although the United Kingdom was not directly exposed to Russian gas dependence in the same way as many EU member states, it was still affected by the wider price shock generated by the crisis. The UK government emphasized that Russian imports accounted for only a small share of domestic gas supply but also framed the post-2022 context as requiring a renewed energy security strategy focused on domestic supply and clean energy deployment. The UK case is therefore relevant not because it followed the EU's REPowerEU framework, but because it experienced the same broader affordability and security pressures through a distinct national policy setting. (UK Government, 2022)

Seen in this light, the European energy landscape after 2022 cannot be understood only through climate targets. It must also be read through the legacy of strategic reorganization of supply, and the political pressure created by persistently high energy costs. Energy choices are therefore no longer perceived only as long-term technical decisions, but also through the more immediate lens of affordability and geopolitical vulnerability. Considering this background the next section turns to the six-country comparative setting used in this thesis.

2.2 The six-country comparative setting

The comparative setting adopted in this thesis combines five EU member states (Germany, France, Italy, Spain and Poland) with the United Kingdom as a non-EU comparator. All six countries were exposed to the common shock produced by the post-2022 energy crisis, but they entered it from markedly different starting points. Their energy systems differ both in composition and in the role assigned to nuclear power within national debates and policy choices. The United Kingdom remains closely connected to wider European energy dynamics, yet it now operates under a distinct institutional and regulatory framework outside the EU policy architecture (DESNZ, 2025; Ofgem, 2025).

This comparative design is useful not because the thesis aims to explain national energy systems in themselves, but because it helps situate individual preferences within differentiated policy environments. Similar survey responses may therefore carry different implications depending on the national context in which they are expressed.

2.2.1 Different national energy backgrounds and recent trajectories

Germany represents the clearest post-nuclear case in the sample. The last three nuclear power plants were shut down on 15 April 2023, and in 2024 renewable sources accounted for 62.7% of net public electricity generation (BASE, 2023; Fraunhofer ISE, 2025). The German case is therefore relevant not simply because nuclear power has been phased out, but because it illustrates a large-scale transition now being managed without domestic nuclear generation.

France stands at the opposite end of the spectrum. In 2024, nuclear generation recovered to 361.7 TWh, while low-carbon electricity reached 95% of total generation; in RTE's presentation, this low-carbon total combines nuclear and renewable output (RTE, 2025). France is therefore best understood as a nuclear-centered low-carbon system rather than simply as a country with a large reactor fleet.

Italy occupies a different position. The IEA notes that natural gas remains a major source for both electricity and heating, while the Ministry for the Environment and Energy Security states that the national gas system is supplied predominantly by imported gas delivered through international pipelines and LNG terminals (IEA, 2025a; MASE, 2025). At the same time, Terna reports that renewable sources covered 41.2% of Italian electricity demand in 2024, the highest share recorded so far (Terna, 2025). Italy is therefore relevant as a case in which gas exposure remains structurally important even though the renewable share has increased.

Spain is better described as a renewable-heavy but still mixed system. Red Eléctrica estimates that renewables generated 56% of the electricity mix in 2024, while nuclear still accounted for 19% (Red Eléctrica, 2025). Spain should therefore not be treated as a purely renewable case, even though its transition trajectory is clearly more advanced on the renewable side. The updated PNIEC 2023-2030 likewise places the energy transition at the center of Spain's medium-term strategy (MITECO, 2024). The specific nuclear trajectory is discussed more directly in Section 2.3.

Poland differs from the other countries because the transition remains closely tied to the legacy of coal. The IEA states that coal still dominates the Polish power sector, even though renewable deployment has expanded strongly in recent years (IEA, 2025a). Poland therefore matters above all as the clearest case in the sample where the politics of transition remain strongly shaped by fossil-fuel legacy and security considerations.

The United Kingdom again occupies a distinct position. The Clean Power 2030 Action Plan sets out a pathway towards a clean power system by 2030, while Ofgem's retail market framework continues to place strong emphasis on fair prices, supplier resilience and the low-cost transition (DESNZ, 2025; Ofgem, 2025). The UK is therefore useful not only as a non-EU comparator, but also as a case with a separate regulatory logic and market governance structure.

These differences matter not only in technological terms, but also in relation to household energy costs. Eurostat reports that, in the first half of 2025, household electricity prices in the EU remained above pre-crisis levels even though the acute phase of the shock had passed (Eurostat, 2025c). This point is especially relevant here because respondents across the sample entered the survey period after a prolonged phase of elevated energy costs, but they did so from different starting levels and under different domestic energy structures. What varies across cases is therefore not only the level of prices, but also the way affordability pressures are filtered through national energy systems.

As Table 2.2 shows, the increase in household electricity prices between the first half of 2021 and the first half of 2025 was substantial across the six-country sample, although its magnitude differed considerably. The comparison is analytically useful not because it identifies a single common pattern, but because it shows that the post-crisis experience was shared across the cases while remaining uneven in intensity. For the EU countries, the table relies on Eurostat's bi-annual household electricity price series; for the United Kingdom, the comparable observation is drawn from official DESNZ price statistics.

Table 2.2 - Household electricity prices in the six-country sample, H1 2021 and H1 2025.

Country	H1 2021 (€/kWh)	H1 2025 (€/kWh)	Change (%)[2]
Germany	0.328	0.384	+17.1
France	0.181	0.266	+47.0
Italy	0.231	0.329	+42.4
Spain	0.175	0.261	+49.1
Poland	0.138	0.227	+64.5
United Kingdom	0.230	0.287	+24.8

Source: *Author's elaboration based on Eurostat (2025a) Electricity prices for household consumers (bi-annual data from 2007 onwards (nrg_pc_204), October 2025 extraction, for Germany, France, Italy, Spain and Poland); and on DESNZ, Domestic energy price statistics / International domestic energy prices, for the United Kingdom.*

2.3 Nuclear energy in Europe: a contested but persistent option

Nuclear energy has long occupied an ambiguous position in the European energy debate. It has been associated with industrial modernization and strategic autonomy, but it has also remained politically contentious because of long-standing concerns over safety and cost. For that reason, the European nuclear landscape has never followed a single trajectory. The energy crisis that followed Russia's invasion of Ukraine did not erase these tensions, but it brought nuclear power back into sharper focus in debates over energy security and decarbonization (IEA, 2022; IEA, 2025b).

2.3.1 The historical development of nuclear power in Europe

The European history of civilian nuclear power began in the post-war period, when nuclear technology was linked not only to electricity generation but also to broader ambitions of industrial development and political autonomy. The United Kingdom opened Calder Hall in 1956, and the Euratom Treaty entered into force in 1958, giving nuclear development a stable

[2] **Note:** Prices refer to medium household consumers (2,500 - 5,000 kWh/year) and include all taxes, levies and VAT. Percentage changes are computed as the percentage difference between H1 2021 and H1 2025 prices. H1 2021 is used as the pre-crisis baseline. UK values were converted from GBP to euro using the Eurostat semi-annual average exchange rate.

supranational framework for research, investment, fuel supply and safeguards (NDA, 2018; Euratom, 1957/1958).

Nuclear power gained further strategic importance after the 1973 oil shock, especially in France, where the 1974 Messmer Plan accelerated a large-scale nuclear build-out. From the 1980s onward, however, nuclear energy became more contested. Chernobyl made the cross-border nature of nuclear risk impossible to ignore, while Fukushima later triggered EU-wide stress tests and a renewed emphasis on nuclear safety. Nuclear power therefore remained part of the European policy landscape, but under conditions increasingly shaped by regulation, risk management and public legitimacy (vie-publique.fr, 2026; European Commission, 2022a; ENSREG, 2012).

2.3.2 Nuclear power after the energy crisis: between revival and retreat

The crisis that followed Russia's invasion of Ukraine reopened the nuclear question in a new policy environment. As Russian gas deliveries collapsed, security of supply became more politically salient again, and nuclear power re-entered the debate as a low-carbon option that some governments presented as compatible with greater energy autonomy. In 2022, the IEA argued that nuclear energy can help make clean energy transitions faster and more secure, while the EU's Complementary Climate Delegated Act included specific nuclear activities under strict conditions in the taxonomy framework from 2023 onward (IEA, 2022; European Commission, 2022b).

Yet the European response remained highly differentiated. Germany completed the nuclear phase-out on 15 April 2023, bringing to an end the path consolidated after the post-Fukushima decision of 2011 (BASE, 2023; BASE, 2024). Spain did not turn the energy crisis into a nuclear revival either: seven reactors remain in operation, but the official framework still points to an orderly closure between 2027 and 2035 (IAEA CNPP, n.d.; MITECO, 2023; MITECO, 2024). Italy continues to operate no power reactors and has no reactors under construction, but in 2025 the government reopened the regulatory discussion through a draft delegation law on "sustainable nuclear," signaling renewed interest without implying an immediate return to nuclear generation (IAEA PRIS, n.d.; IAEA CNPP, n.d; MASE, 2025).

France, Poland and the United Kingdom illustrate three different forms of persistence or expansion. In France, the government has used the post-crisis context to relaunch nuclear policy more explicitly: the 2023 acceleration law simplified procedures for new construction, and the

2025 Conseil de politique nucléaire examined the financing and regulatory framework for the programme of six EPR2 reactors (Legifrance, 2023; Élysée, 2025). Poland remains the clearest phase-in case in the sample. It has no operating nuclear power reactors, but the Polish Nuclear Power Programme confirms the objective of building 6-9 GWe, and the first project is centered on Lubiatowo-Kopalino with three AP1000 units (PAA/Gov.pl, 2020-2026). The United Kingdom, finally, remains the clearest case of planned expansion outside the EU framework: the government's civil nuclear roadmap sets an ambition of up to 24 GW by 2050, PRIS lists two reactors under construction at Hinkley Point C, and the final investment decision on Sizewell C was confirmed on 22 July 2025 (UK Government / DESNZ, 2024; UK Government, 2025; IAEA PRIS, n.d.)

These developments suggest that nuclear energy in Europe is best understood neither as a uniform comeback nor as a technology in steady decline. It remains a persistent option, but one whose political meaning differs sharply across countries. In some cases, it is linked to continuity and industrial renewal; in others, it remains associated with withdrawal or with a still tentative regulatory reopening. This variation matters for the present thesis because respondents in the six-country sample encounter nuclear energy through very different national reference points. Public attitudes towards fusion are therefore also likely to be shaped, at least in part, by the broader position of nuclear power within each country's energy system and policy debate.

These divergent pathways are summarized in Table 2.3.

Table 2.3 - Nuclear trajectories in the six-country sample

Country	Operating power reactors	Current trajectory[3]	Key policy / official basis
Germany	0	Completed phase-out	Atomic Energy Act; final shutdown of last three reactors on 15 April 2023
France	57	Renewal / expansion of an existing nuclear model	2023 acceleration law; 2025 Nuclear Policy Council; current EDF fleet
Italy	0	No current generation, but policy reopening	2025 draft framework law on “sustainable nuclear”
Spain	7	Scheduled phase-out	PNIEC 2023-2030; 7th General Radioactive Waste Plan
Poland	0	Phase-in / first-entry strategy	Polish Nuclear Power Programme; first AP1000 project at Lubiatowo-Kopalino
United Kingdom	9	Expansion / replacement of an ageing fleet	Civil Nuclear Roadmap to 2050; 2025 Sizewell C final investment decision

Source: *Author's elaboration based on the Euratom Treaty; BASE; EDF and RTE; MASE; MITECO; the Polish Nuclear Power Programme and PAA materials; IAEA PRIS/CNPP country profiles; and UK government materials*

2.4 Nuclear fission, nuclear fusion, and the current state of fusion development

In contemporary energy debates, the term nuclear often refers to two very different technological and political objects. Nuclear fission is an established commercial source of electricity, already embedded in electricity systems and in long-standing regulatory and political debate. Nuclear fusion, by contrast, remains a research and development field whose long-term promise is widely discussed but whose commercial deployment has not yet been achieved. Distinguishing between the two is therefore essential for this thesis, especially because the survey questions analyzed here concern both present-day energy choices and

[3] **Note:** “Current trajectory” refers to the officially stated policy direction as of the most recent available documents, not to public opinion or expected future outcomes.

future-oriented investment preferences. At the end of 2024, the World Nuclear Association, drawing on IAEA reactor data, reported 440 operable power reactors worldwide and a record 2,667 TWh of nuclear electricity generation, while the European Commission and the U.S. NRC continued to describe fusion as a technology under development rather than a commercial electricity source (World Nuclear Association, 2025; IAEA, 2025; European Commission, 2025b; NRC, 2025a)

2.4.1 What nuclear fission is

Nuclear fission is the process through which a heavy atomic nucleus is split into lighter nuclei, releasing energy and additional neutrons. In power reactors, that heat is used to produce steam, drive turbines and generate electricity. Unlike fusion, fission is therefore not a speculative future technology but a mature industrial system that already operates at scale and is governed by dense legal, regulatory and safety frameworks (U.S. Department of Energy, 2020; World Nuclear Association, 2025).

For the purposes of public opinion, what matters is that fission is inseparable from concrete institutional legacies: operating plants, reactor shutdowns, accident memory, decommissioning, and the management of spent fuel and radioactive waste. Public attitudes toward "nuclear energy" in Europe are often shaped less by abstract physics than by country-specific experience with existing reactor fleets and their consequences. In this sense, fission is the historically grounded and politically existing form of nuclear energy in Europe (IAEA PRIS, n.d.; World Nuclear Association, 2025).

A further reason to keep fission analytically separate is waste. Fission power produces spent fuel and other radioactive waste that require long-term management and disposal. Finland's Onkalo project is the most advanced deep geological repository project for spent nuclear fuel, but the latest official oversight material still describes commissioning work and license review rather than a fully routine disposal phase. It is therefore more accurate to present Onkalo as the leading repository project internationally than as an already settled solution that has removed the politics of high-level waste once and for all (STUK, 2025; Posiva, 2024)

2.4.2 What nuclear fusion is

Nuclear fusion is the process in which two light nuclei combine to form a heavier nucleus and release energy. For energy applications, the best-known and most intensively pursued reaction is the deuterium-tritium (D-T) reaction, which releases 17.6 MeV of energy per reaction. This reaction remains central to the leading fusion concepts currently under development, including ITER, the large international fusion experiment under construction in southern France, because it offers the most favorable conditions among the main candidate fuels (ITER Organization, 2022; European Commission, 2025b).

Fusion can be pursued through different confinement approaches. In magnetic confinement, as in tokamaks and stellarators, magnetic fields hold a very hot plasma long enough for fusion reactions to occur. In inertial confinement, as in the National Ignition Facility, powerful lasers compress a tiny fuel capsule to fusion conditions. These approaches differ technologically, but they share the same central challenge: reproducing on Earth the extreme temperatures and pressures under which fusion occurs naturally in stars. The U.S. NRC accordingly describes fusion technologies as still under development and emphasizes that they do not rely on a self-sustaining chain reaction in the way fission reactors do (NRC, 2025b).

Fusion is often discussed as safer and politically easier than fission, and there is some technical basis for that view. Fusion does not involve a runaway chain reaction of the fission type and is not expected to generate the same category of long-lived waste associated with spent fuel from current fission systems. At the same time, fusion should not be described as completely waste-free: real fusion facilities would still have to manage neutron activation of structural materials and tritium-related issues. The most defensible wording is therefore that fusion is expected to create less long-lived and less burdensome radioactive waste than fission, not that it eliminates radioactive materials altogether (NRC, 2025b; ITER Organization, 2024; ENEA, 2024).

2.4.3 Why the distinction matters for public opinion

The distinction between fission and fusion matters for public opinion because the two technologies occupy very different positions in time, risk and governance. Fission refers to a present and historically sedimented energy system. Fusion refers to a future-oriented technological project whose public meaning is shaped more by expectations of innovation, scientific progress, industrial leadership and clean baseload potential than by direct everyday experience. Conflating them would therefore risk treating a respondent's answer about fusion funding as if it were simply another answer about current reactor fleets and existing waste repositories. That would flatten important differences in meaning. This is analytically significant in a thesis that asks how citizens think about future energy investments. The same respondent may oppose new fission plants while still supporting fusion research, or vice versa, because the technologies signal different time horizons, different perceived risks and different policy purposes (NRC, 2025b; European Commission, 2025b).

This distinction is especially relevant in the six-country comparison developed in this thesis. Respondents encounter "nuclear" under markedly different national trajectories, ranging from phase-out and long-standing absence to continuity, expansion or first entry. Public attitudes toward fusion should therefore not be read as a simple subset of attitudes toward fission, but as a related yet distinct field of expectations about the future energy mix. That is why the thesis treats the two technologies separately (European Commission, 2025b; NRC, 2025b).

2.4.4 The current state of fusion development

Recent years have brought important scientific advances in fusion, but their significance has to be stated carefully. In the magnetic-confinement pathway, the Joint European Torus (JET) produced 59 MJ of fusion energy in its 2021 deuterium-tritium campaign, announced in 2022, and later 69.26 MJ in its final deuterium-tritium campaign. These were historic results because they demonstrated sustained, reproducible high-performance fusion plasmas using the same fuel family planned for ITER. At the same time, JET did not achieve a positive plant-level energy balance, and the machine closed at the end of 2023 (EUROfusion, 2022; EUROfusion, 2024; Max Planck Institute for Plasma Physics, 2024).

In the inertial-confinement pathway, the National Ignition Facility crossed an equally important threshold. In December 2022, the facility produced 3.15 MJ of fusion energy from 2.05 MJ of laser energy delivered to the target, marking the first experimental demonstration of ignition in this sense. Subsequent shots improved on that result, including an official 5.2 MJ result from 2.2 MJ of laser energy in February 2024. However, these achievements should be described carefully: they demonstrate target-level scientific gain, not a commercial electricity cycle, and they do not imply that fusion plants are already ready for the grid (U.S. Department of Energy, 2022; Lawrence Livermore National Laboratory, 2024).

ITER remains the central public fusion project globally, but it too should be characterized precisely. The ITER Organization presented an updated baseline to the ITER Council in June 2024, which set out deuterium-deuterium operation in 2035 and deuterium-tritium operation in 2039 (ITER Organization, 2024). ITER is intended to demonstrate the scientific and technological feasibility of fusion, not to sell electricity to the grid, and the European Commission explicitly states that ITER itself will not produce electricity but will instead serve as a precursor to DEMO and later fusion power plants (European Commission, 2025b). This is the single most important corrective against overstatement: fusion today is more credible than before, but it is still not a near-term commercial substitute for either fission or renewables.

One of the most important changes in the field is the rise of private firms alongside public laboratories and state-backed programmes. Helion signed what it described as the first fusion power purchase agreement with Microsoft, targeting at least 50 MW from its first plant, and in 2025 announced that site work had begun for the Orion plant in Washington State. Commonwealth Fusion Systems signed a 200 MW power purchase agreement with Google for electricity from its first ARC plant and announced an $863 million Series B2 round in 2025. TAE Technologies announced a further funding round of more than $150 million in 2025. The European dimension of this trend is also visible in Proxima Fusion, a Munich-based company spun out of the Max Planck Institute for Plasma Physics, which announced a €130 million Series A round in 2025 and published its Stellaris stellarator power plant concept the same year. These developments indicate growing industrial momentum, but they should still be described as pre-commercial company milestones rather than as evidence that commercial fusion has already arrived (Helion, 2023; Helion, 2025; CFS, 2025a; CFS, 2025b; TAE Technologies, 2025; Proxima Fusion, 2025a; Proxima Fusion, 2025b). As fusion technologies move closer to demonstration and commercial deployment, understanding public perspectives on future fusion facilities becomes critical for achieving social license (Kawamoto et al., 2025).

It is therefore useful to distinguish between announced targets and demonstrated achievements. Company timelines for first electricity remain prospective. By contrast, fundraising, prototype construction, power purchase agreements and specific plasma milestones are documented developments. This distinction matters because private fusion narratives are increasingly visible, yet the technology remains technically and commercially unproven at plant level, and no fusion facility currently sells electricity as a routine commercial generating station (NRC, 2025a; European Commission, 2025b).

Europe nevertheless retains a uniquely strong position in fusion because it combines long-standing public research infrastructure, a major industrial base and the hosting of ITER in France. The European Commission describes Euratom as the historical framework for European fusion cooperation and identifies Fusion for Energy and EUROfusion as the core institutions coordinating European contributions. The EU provides 45% of ITER's funding, with €5.61 billion allocated to ITER in the 2021-2027 budget period. In 2025, the Commission also launched a call for evidence for a first EU-wide Fusion Strategy aimed at accelerating development and commercialization and considering new public-private forms of support (European Commission, 2025a; European Commission, 2025b; EUROfusion, 2025).

Overall, these developments suggest a balanced conclusion. Fusion is no longer only a distant scientific aspiration: it has become a strategic field that now includes major public programmes, industrial supply chains and increasingly assertive private firms. Yet it also remains far from routine electricity production, and none of the recent breakthroughs removes the need for continued materials research, tritium-cycle development, regulatory design and very large capital investment. For this reason, fusion should be treated in this thesis as a future-oriented policy object: one that can influence public preferences today, even though its commercial energy contribution still lies ahead (European Commission, 2025b; NRC, 2025a).

2.5 Why public opinion matters in future energy choices

The preceding sections have shown that contemporary energy choices in Europe are shaped by long-term transition goals, by persistent affordability pressures, and by national contexts that remain sharply differentiated. In this setting, energy policy cannot be treated as a purely technical matter. Decisions about energy technologies and their financing require political legitimacy because they affect households directly and involve difficult trade-offs over cost, time horizon and institutional responsibility. Official survey evidence confirms that these issues remain highly salient to European citizens: energy affordability remains the most prominent association with EU energy policy, investment in innovative energy technologies is also identified as an important priority, and support for a stronger coordinating role for the European Union on energy matters remains high (European Commission, 2024). Recent review work also shows that energy poverty has become a pressing challenge in the EU, worsened by recent geopolitical and economic vulnerabilities (Campagna et al., 2024).

Public opinion matters especially in relation to future energy choices because many of the technologies now under discussion require social and political acceptance before they become routine features of energy systems. This is particularly clear in the case of fusion. Fusion is increasingly visible as a field of scientific progress and industrial strategy, yet it remains an emerging rather than commercially available technology (European Commission, 2025b; NRC, 2025a). At the same time, the European Commission has moved towards the preparation of a first EU-wide Fusion Strategy, explicitly linking fusion to industrial development and to a greater role for private actors within a broader public framework (European Commission, 2025a). Citizens are therefore not being asked to judge a distant abstraction, but a policy object that already appears in public debate through questions of funding, trust and long-term commitment.

This makes public preferences analytically important for the present thesis. Citizens in the six-country sample entered the survey period after a sustained phase of elevated energy costs, and they did so under sharply different national energy conditions. Eurostat reports that household electricity prices in the first half of 2025 remained above pre-crisis levels across the EU, even after the most acute phase of the shock had passed (Eurostat, 2025c). At the same time, the role of nuclear energy differed markedly across the national contexts considered here, ranging from completed phase-out to expansion or first-entry strategies. Public opinion therefore matters not only because it affects the political feasibility of future energy choices, but also because those choices are interpreted through different national experiences of cost pressure and energy vulnerability. Against this background, the next chapter turns to the theoretical framework that links economic concern to energy investment preferences and institutional trust to preferences over fusion funding.

3. Theoretical Framework

This chapter develops the theoretical framework guiding the empirical analysis of public preferences over future energy investments and the funding structure of nuclear fusion research. Building on the contextual discussion presented in Chapter 2, it identifies the main mechanisms through which citizens evaluate these issues and form their preferences. The chapter is organized around two related analytical dimensions. The first concerns energy investment preferences and is centered primarily on economic concern, while also considering the role of climate concern and knowledge of nuclear technologies. The second concerns preferences over the funding structure of fusion research and focuses on institutional trust. National nuclear context is treated as a relevant background condition that may shape how these preferences are formed across countries. Socio-demographic characteristics are also considered in order to account for potential systematic differences across respondents. The aim of the chapter is not to anticipate the empirical results, but to clarify the theoretical assumptions underlying the analysis, and to explain why different factors are expected to shape preferences over energy investments and fusion funding.

3.1 Economic concern and energy investment preferences

The first key mechanism concerns the role of economic concern. When rising prices become salient, individuals are more likely to prioritize energy options that appear capable of delivering affordability and reliability in the short to medium term. In this sense, economic concern does not simply increase sensitivity to costs; it also changes the criteria through which alternative energy technologies are evaluated. This interpretation is consistent with Nicita et al. (2025), who show that perceptions of energy affordability are linked to wider social and political attitudes. Economic concern should therefore be understood not only as a material pressure, but also as a factor shaping how energy policies are perceived and assessed.

This logic is especially relevant for nuclear fusion. Fusion is often associated with the promise of clean and abundant future energy, but it is also perceived as a technologically uncertain and still unproven option. This expectation finds support in studies on public attitudes toward fusion in Europe. Jones et al. (2024) show that support for fusion is often favorable but cautious, and that respondents express reservations about prioritizing it under conditions of climate urgency because its benefits are perceived as distant and uncertain. More broadly, Oltra et al. (2026) show that public attitudes toward fusion in Europe are predominantly favorable, but also that support is shaped by pre-existing attitudes toward conventional nuclear power, affective responses, and perceived environmental benefits.

The theoretical implication for this thesis is therefore specific. Stronger economic concern is expected to reduce the relative appeal of fusion-only strategies and to shift preferences toward alternatives perceived as more immediately available and more credible in the short term. This does not imply a mechanical move toward any single technology. Rather, it suggests that, under conditions of economic pressure, respondents may become less willing to prioritize an option whose expected benefits are associated with a more distant and uncertain time horizon. This expectation is consistent with the broader affordability-centered argument developed by Nicita et al. (2025) and with the more fusion-specific evidence provided by Jones et al. (2024) and Oltra et al. (2026).

3.2 Additional factors shaping energy investment preferences

Alongside economic concern, climate concern and technological knowledge provide two additional mechanisms that may shape energy investment preferences. Recent evidence suggests that climate concern does not translate into generic support for all low-carbon technologies. Rather, it appears to be associated more clearly with support for renewable energy. A study of Western Europeans shows that respondents who are more worried about climate change tend to prefer solar and wind energy over nuclear and fossil sources, while a recent meta-analysis finds that climate concerns and worries correlate more strongly with renewable support than with fossil-fuel opposition and are not clearly associated with support for nuclear energy as such (Arndt, 2023; Lorteau et al., 2024). This suggests that climate concern may favor those options perceived as both environmentally beneficial and more immediately deployable, rather than all low-carbon technologies indiscriminately.

This distinction is especially relevant for nuclear fusion. Fusion benefits from its association with a potentially clean and abundant future energy source, but it also remains a technologically uncertain and commercially unproven option. Jones et al. (2024) show that support for fusion in Europe is often favorable but cautious. Furthermore, Jones et al. (2024) find that awareness of fusion was low across the countries examined and that support remained tentative because the technology was still perceived as unproven, raising doubts about the value of investing in it under conditions of climate urgency. In this sense, fusion occupies a more ambiguous position than renewables: it may be seen as environmentally promising, but its longer time horizon can reduce its attractiveness for respondents who view climate change as requiring more immediate responses.

A related mechanism concerns knowledge, and especially the ability to distinguish nuclear fusion from nuclear fission. When that distinction is weak, fusion may be evaluated through the broader symbolic frame of nuclear power, allowing concerns associated with fission to spill over into attitudes toward fusion. Recent evidence is consistent with this interpretation. Jones et al. (2024) report low awareness of fusion in all countries studied, while Oltra et al. (2026) show that public attitudes toward fusion are shaped in part by prior attitudes toward conventional nuclear power and that more detailed information about fusion produces significantly higher support than more general information. Taken together, these findings suggest that greater familiarity with fusion as a distinct technological option may enable respondents to assess it less through inherited associations with conventional nuclear power and more through its perceived future potential.

The theoretical implication for this thesis is therefore twofold. First, stronger climate concern is expected to be associated more clearly with support for renewable and, potentially, mixed low-carbon strategies than with support for fusion-only options. Second, greater knowledge of the distinction between fission and fusion is expected to increase the relative appeal of fusion-centered investment preferences. In both cases, the key point is that citizens do not evaluate energy technologies only in terms of abstract decarbonization potential, but also in relation to perceived immediacy, familiarity, and technological credibility. This final implication is partly an inference from the studies above rather than a direct test reported by any single one of them.

3.3 Institutional trust and fusion funding preferences

The second research question concerns how institutional trust is associated with citizens' preferences over the funding structure of nuclear fusion research. In this context, institutional trust becomes theoretically central because fusion is not only a future-oriented energy technology, but also a long-horizon and institutionally mediated field of development. Citizens are therefore unlikely to evaluate its funding structure solely in terms of technical efficiency or ideological preference. They are also likely to consider whether the actors involved are perceived as credible and capable of managing such an undertaking responsibly. This interpretation is consistent with Faure et al. (2022) and Nicita et al. (2025), who show, in different ways, that trust in public institutions matters for the acceptability and perceived credibility of energy policies.

This logic applies directly to nuclear fusion. Giacometti et al. (2025) show that citizens do not approach fusion governance as a simple choice between state and market. Their evidence indicates that European respondents prefer collaborative governance arrangements, with joint public-private leadership receiving more support than either purely governmental or purely private control. This suggests that support for fusion does not automatically translate into support for privatized governance. Rather, it points to the importance of institutionally credible and coordinated arrangements. In this sense, institutional trust is plausibly linked not to a generic preference for more government or more market, but to a greater willingness to delegate long-term technological development to actors and governance structures regarded as trustworthy.

Applied to the present thesis, this literature suggests a differentiated role for institutional trust. Trust in national governments is likely to be associated with greater support for public involvement in fusion funding and with lower opposition to funding. Trust in European Union institutions, by contrast, may be associated more strongly with support for coordinated or joint arrangements, given the supranational and collaborative character of fusion research in Europe. More broadly, institutional trust can be understood as reducing perceived governance risk: when respondents view institutions as credible and fair, they may be more willing to accept long-term funding commitments for a technology whose commercial benefits remain uncertain and distant.

3.4 National nuclear context as a contextual dimension

Energy preferences and attitudes toward nuclear fusion are not formed in a vacuum. They develop within national settings that differ in their relationship with nuclear energy and in the policy trajectories that shape public debate. This contextual dimension is especially relevant in Europe, where some countries have long-established nuclear sectors, others are moving away from nuclear power, and others are still approaching it through first-entry strategies. Recent cross-national evidence supports this interpretation. Oltra et al. (2026), using a survey across 21 European countries, show that support for fusion is shaped in part by pre-existing attitudes toward conventional nuclear power, suggesting that fusion is often interpreted through broader national understandings of nuclear energy. Jones et al. (2024) similarly show, through qualitative evidence from five European countries, that public views on fusion remain broadly favorable but cautious, and that the specific concerns raised vary across national settings.

This broader argument is reinforced by recent work on nuclear attitudes after the energy crisis. Bohdanowicz, Łopaciuk-Gonczaryk and Kowalski (2025) show that support for nuclear energy increased across six European countries after 2022, but also that its drivers are not identical across national contexts. Likewise, Bohdanowicz et al. (2023) find substantially higher support for nuclear power in Poland than in Germany, consistent with the idea that national energy systems and nuclear legacies continue to shape how citizens evaluate nuclear options. For the purposes of this thesis, national nuclear context is therefore treated not as a primary explanatory mechanism, but as a relevant contextual dimension within which individual preferences over energy investments and fusion funding are formed.

3.5 Socio-demographic conditioning factors

Socio-demographic variables are not the conceptual core of the framework, but they remain relevant conditioning factors. Characteristics such as gender, age, and education may shape how respondents evaluate energy technologies and the way they respond to long-term policy choices. In this sense, they may influence both preferences over energy investment strategies and attitudes toward the funding structure of nuclear fusion research.

Existing research on energy and nuclear attitudes suggests that preferences often vary systematically across socio-demographic groups, although these patterns are not always uniform across technologies and national settings (Bohdanowicz, Łopaciuk-Gonczaryk and Kowalski, 2025; Oltra et al., 2026). For the purposes of this thesis, these variables are therefore treated as background influences rather than as primary explanatory mechanisms. Their role is not to provide the main theoretical account of either energy investment preferences or fusion funding preferences, but to capture systematic variation in how those preferences are formed and expressed. In this sense, socio-demographic characteristics help qualify the main relationships of interest while leaving the central theoretical weight to economic concern and institutional trust.

3.6 Synthesis of the framework

This chapter has developed the theoretical framework around two related analytical dimensions. The first concerns preferences over energy investment strategies and is centered on economic concern as the main explanatory mechanism. Under conditions of stronger price pressure, respondents are expected to become relatively less supportive of fusion-only strategies and more oriented toward options perceived as more immediately available and more credible in the short term. This relationship is further qualified by additional factors. Climate concern is expected to be associated more clearly with support for renewable and, potentially, mixed low-carbon strategies than with support for fusion-only options. Knowledge of the distinction between fission and fusion may also matter, insofar as greater familiarity with fusion as a distinct technology can reduce the tendency to evaluate it through the broader symbolic frame of nuclear power.

The second dimension concerns preferences over the funding structure of fusion research and is centered on institutional trust. Because fusion is a long-horizon and institutionally mediated field of development, citizens are unlikely to evaluate its governance only in terms of efficiency or ideology. Institutional trust is instead expected to shape whether different funding arrangements are perceived as acceptable and whether long-term commitments to fusion development are regarded as credible.

National nuclear context is treated in the framework as a relevant background condition rather than as a primary explanatory mechanism. This matters because respondents evaluate both energy investment choices and fusion funding within countries marked by different nuclear trajectories and different policy environments.

Socio-demographic characteristics are also treated as conditioning factors within the framework, rather than as the main theoretical drivers of preferences.

Taken as a whole, the framework suggests that these preferences are shaped not only by the characteristics of the technologies themselves, but also by how respondents assess their feasibility and by the context in which they are considered. The next chapter develops the empirical structure of the study by presenting the research questions, hypotheses, and research design.

4. Research Design

This chapter translates the theoretical framework developed in Chapter 3 into an empirical research design. It introduces the two research questions guiding the analysis and explains how they are examined using individual-level survey data collected by Ipsos across six European countries: Germany, France, Italy, Spain, Poland, and the United Kingdom.

4.1 Research Questions and Analytical Strategy

The empirical analysis is guided by two distinct research questions:

RQ1: How does perceived concern over rising energy prices influence individuals' preferences for public investment in different energy sources?

RQ2: How does institutional trust affect citizens' preferences for the funding structure of nuclear fusion research?

The first research question examines whether concern about rising prices is associated with different preferences across four categories of future energy investment: fossil fuels and nuclear fission, renewable energy sources, a mixed strategy combining renewables and fusion, and nuclear fusion alone. The analytical expectation is that, under conditions of stronger economic pressure, respondents may become relatively more likely to favor options perceived as more immediate, reliable, and feasible, while long-term and technologically uncertain strategies may become less attractive. At the same time, energy preferences are not expected to depend on economic concern alone. Climate perceptions, knowledge of nuclear technologies, socio-demographic characteristics, and national nuclear context may also shape how respondents evaluate alternative energy pathways. In addition, the analysis considers a contextual indicator of nuclear exposure in order to capture whether respondents living in countries characterized by active or phase-in nuclear trajectories display systematically different preferences from those living in no-nuclear or phase-out contexts.

Building on the theoretical framework developed in Chapter 3, the following hypotheses are formulated for the first research question:

H1a. Higher concern about rising energy prices increases support for energy investment options perceived as more immediate and reliable relative to fusion-only strategies.

H1b. Higher concern about rising energy prices decreases support for fusion-only investment preferences.

H2. Higher climate concern is associated with stronger support for renewable or mixed low-carbon investment strategies, and with lower support for fossil fuel and nuclear fission options.
H3. Greater knowledge of the difference between nuclear fission and nuclear fusion increases support for fusion-centered investment preferences.
H4. Socio-demographic characteristics are associated with systematic variation in energy investment preferences.

The second research question examines whether institutional trust is associated with citizens' preferences regarding the funding structure of nuclear fusion research. More specifically, it investigates whether trust in public institutions affects support for public, private, joint, or no funding arrangements. Since fusion is a long-horizon and institutionally mediated technological field, preferences over its funding structure are expected to depend not only on attitudes toward innovation, but also on the extent to which respondents regard public institutions as credible and capable actors. The analysis also considers whether living in countries characterized by active or phase-in nuclear trajectories is associated with greater openness to funding fusion research than living in no-nuclear or phase-out contexts.

The following hypotheses are formulated for the second research question:

H5. Higher aggregate institutional trust is associated with stronger support for institutionally coordinated funding arrangements, especially joint funding, and with lower support for private-only funding or opposition to funding.
H6. Higher trust in national governments increases support for public sector involvement in the funding of nuclear fusion research and decreases opposition to funding.
H7. Higher trust in European Union institutions increases support for joint public-private funding arrangements and reduces preferences for purely private funding or opposition to funding.
H8. Respondents living in countries with active or phase-in nuclear trajectories are expected to display lower opposition to funding for nuclear fusion research than respondents living in no-nuclear or phase-out contexts.

Overall, these hypotheses translate the theoretical arguments of Chapter 3 into an empirical framework organized around two distinct but related dimensions of public opinion. The first concerns preferences over future energy investment strategies, with economic concern as the central explanatory factor and climate perceptions, knowledge, socio-demographic characteristics, and national nuclear context as relevant additional influences. The second concerns preferences over the governance and funding of a future-oriented technology whose development relies on credible institutions and sustained public coordination.

4.2 Units of Analysis and Level of Observation

The unit of analysis is the individual respondent, and the empirical analysis is conducted at the micro level, focusing on individual perceptions and preferences. Although the Ipsos survey covers six countries, these are not treated as the primary unit of explanation. Instead, they are understood as distinct structural and institutional contexts within which individual preferences are formed.

Accordingly, the purpose of the analysis is not to estimate macro-level or country-level policy effects, but to examine how individual-level factors are associated with preferences over future energy investments and the funding structure of nuclear fusion research. Cross-country differences are taken into account through contextual variables included in the empirical models, while the main focus remains on variation across respondents rather than across countries.

4.3 Comparative Dimension and Country Context

A key comparative dimension used in the empirical analysis concerns the distinction between countries characterized by active or phase-in nuclear trajectories and countries characterized by no current nuclear generation or phase-out trajectories. In this framework, France, Poland, and the United Kingdom are grouped in the first category, while Germany, Italy, and Spain are grouped in the second, based on their current energy strategies and broader policy direction.

This distinction is not intended to identify a direct causal effect of national policy on individual preferences. Rather, it provides a parsimonious way to capture one relevant dimension of cross-country variation within the empirical models.

The classification also reflects the fact that the six countries differ not only in the current role of nuclear energy, but also in the historical and political meanings attached to it. Germany represents the clearest completed phase-out case, Italy a long-standing non-nuclear case, and Spain a scheduled phase-out case. By contrast, France and the United Kingdom maintain long-established nuclear sectors, while Poland represents a phase-in trajectory centered on first entry into nuclear power. The broader substantive significance of these different national contexts has already been discussed in Chapter 2; here, they are retained only as a comparative background for the empirical analysis.

5. Methodology

This chapter presents the methodological approach adopted to address the two research questions. It first introduces the survey source and the construction of the analytical samples, then defines the main variables used in the analysis, and finally outlines the model specification and the main robustness procedures.

5.1 Data Sources and Sample Construction

This study relies on survey data collected within the framework of the European Strategic Choices project, a multi-country survey designed to examine European citizens' attitudes toward strategic policy choices across different policy domains, including energy-related issues relevant to this thesis. The data were collected by Ipsos between April and May 2025 in six European countries: Germany, France, Italy, Spain, Poland, and the United Kingdom. The survey corresponds to the fourth wave of a multi-year study and provides individual-level information on political attitudes, economic perceptions, institutional trust, technological views, and energy preferences. This broader survey setting is important because it makes it possible to analyze energy-related preferences within a wider attitudinal framework rather than as isolated responses.

The sampling strategy aimed to ensure broad national representativeness in each country. Quotas were applied on key demographic characteristics, including region, age, gender, and education. Approximately 1,500 respondents were interviewed in each country, for a total of 9,026 observations across the full six-country sample. This structure is consistent with the survey design described in related work based on the same wave, which also presents the study as a cross-national Ipsos survey fielded in spring 2025 with quota-based national samples.

For the empirical analysis, the full survey sample is reduced to the observations with complete information on the variables used in the models. For the Research Question 1, which examines preferences over energy investment strategies, the analytical sample consists of 6,359 observations after listwise deletion on the baseline specification. For the Research Question 2, which examines preferences over the funding structure of nuclear fusion research, the analysis is restricted to EU countries (therefore excluding the United Kingdom) because the specification includes trust in European Union institutions; after this restriction and the same complete-case procedure, the baseline analytical sample consists of 5,376 observations. This distinction between the two estimation samples is important because it ensures internal consistency across specifications while preserving comparability within each research question.

Given the use of multinomial logit models, complete information on all included explanatory variables is required for estimation.

5.2 Variable Definition and Coding

The empirical analysis is structured around the two research questions of the study. The first examines respondents' preferences over alternative energy investment strategies as a function of their concern about rising energy prices. The second examines preferences over the funding structure of nuclear fusion research in relation to institutional trust, with particular attention to trust in national governments and in European Union institutions. Accordingly, the analysis includes two dependent variables, each capturing preferences expressed through discrete and mutually exclusive categories. The following sections describe in detail the operationalization and coding of the dependent and independent variables used in the analysis.

5.2.1 Dependent Variables

For the first analysis, a dependent variable is created from a survey question capturing the preferences regarding future public investments in energy technologies. Respondents were asked to indicate which type of energy investment they consider most appropriate for the future, by choosing one of these four different categories:

1. Fossil fuels and nuclear fission
2. Renewable energy sources
3. A mixed strategy combining renewables and nuclear fusion
4. Nuclear fusion only

These categories, rather than different intensity levels of energy, represent four distinct qualitative energy strategies that do not follow a natural ordinal ranking. The dependent variable, therefore, is treated as nominal. Consequently, linear or ordered response models are inappropriate, and a multinomial logit model is adopted. The reference outcome selected is the fourth answer, nuclear fusion only, a choice motivated by the distinctive nature of fusion technology, which represents the most future-oriented and technologically uncertain option among the four categories. Furthermore, using fusion as reference technology allows the analysis to highlight how economic concern and the other explanatory factors are associated with a relative shift toward more established or more immediate alternatives.

For the second analysis, a dependent variable is constructed from a survey item measuring the respondents' preferences regarding the funding structure for the development of nuclear fusion technology. The options were presented in this manner:

1. Public sector funding
2. Private sector funding
3. Joint funding
4. Opposition to any form of funding

As in the first analysis, these options are conceptually distinct and cannot be meaningfully ordered along a single dimension. Accordingly, this is also treated as a nominal dependent variable and analyzed using a multinomial logit framework. In this model, joint funding is selected as the reference outcome. This option represents a balanced governance arrangement between public and private involvement and serves as a useful benchmark for assessing preferences for stronger public intervention, greater reliance on private solutions or complete opposition to funding.

5.2.2 Independent Variables

The independent variables included in the analysis are organized around a set of core explanatory variables, complemented by additional factors, contextual variables, and socio-demographic controls.

Economic concern, which is central to the first research question, is measured through a survey question that captures respondents' level of concern about rising prices on a scale from 0 (not concerned at all) to 10 (extremely concerned). It reflects perceived short-term economic pressure and sensitivity to cost-related issues in the energy domain. Responses are treated as a continuous variable, with higher values indicating stronger concern. Observations corresponding to the "Don't know" category are excluded to ensure consistency with the numerical coding of the variable.

For the second research question, institutional trust is operationalized through both a composite index and its individual components. The composite measure is constructed by combining trust in national government and trust in the European Union. Higher values correspond to higher levels of overall institutional trust. Because this measure includes trust in EU institutions, the United Kingdom is excluded from analyses involving this variable.

To further distinguish the role of different governance levels, trust in national government and trust in the European Union are also examined separately. These variables are based on survey question which asks respondents how much confidence they place in different actors to manage advanced technological developments, including nuclear fusion. Responses are collected on a five-point Likert scale ranging from strong trust to strong distrust. For the purposes of the analysis, responses are first converted into numerical values and then reversed so that higher values indicate higher levels of trust. The composite index is then constructed by combining these two measures.

Environmental concern is expressed through respondents' perception of how much time remains before climate change becomes uncontrollable. Responses are recorded on a six-category scale ranging from high perceived urgency (climate change becoming uncontrollable within 0-10 years) to low perceived urgency (climate change not becoming uncontrollable), with an additional "Don't know" category. In a first step, responses are coded numerically following the original ordering of the categories. A cleaned version of the variable is then constructed by excluding non-substantive responses. Lower values indicate a higher sense of urgency, while higher values correspond to lower perceived urgency.

To account for cross-country differences in energy systems, a contextual dummy variable is included. Countries are classified according to their nuclear trajectory, distinguishing between those with active or phase-in nuclear strategies and those with no nuclear generation or phase-out trajectories. The variable is coded as 1 for countries with active or pro-nuclear trajectories and 0 for countries without nuclear power or undergoing phase-out.

Knowledge of nuclear technologies is measured using survey question that asks respondents to select the statement that best describes their understanding of the difference between nuclear fission and nuclear fusion. The original response categories range from high self-assessed knowledge (being able to explain the difference) to low knowledge (not knowing that the two technologies are different). For interpretability, the variable is recoded into an ordinal measure in which higher values correspond to higher levels of knowledge. The final categories are low, medium-low, medium-high, and high knowledge.

Finally, socio-demographic controls are included to capture systematic variation in preferences. Gender is recoded into a binary variable coded as 1 = male and 2 = female, consistent with the original survey categories. Educational attainment is included as a categorical variable constructed using a three-level classification: low (less than primary, primary, and lower secondary education), medium (upper secondary and post-secondary non-tertiary education), and high (tertiary education).

5.3 Econometric Specification and Robustness Checks

The empirical analysis employs multinomial logit models, which are appropriate given the nominal nature of the dependent variables and the presence of multiple, mutually exclusive outcome categories. Separate specifications are estimated for each of the two research questions.

In multinomial logit models, estimated coefficients represent the effect of each explanatory variable on the relative log-odds of choosing a given outcome with respect to the reference category. Because these coefficients are not directly interpretable in probability terms, the analysis reports predicted probabilities and marginal effects to facilitate interpretation.

All models are estimated using maximum likelihood, with standard errors computed under the assumption of independent observations. Given the survey-based nature of the data, statistical significance is evaluated at the 10 per cent level, reflecting the inherent variability of opinion data. Consistently with this choice, all confidence intervals reported in the graphical analysis are computed at the 90 per cent level.

To assess robustness, several checks are conducted. Multicollinearity is evaluated using variance inflation factors (VIF) computed from auxiliary OLS regressions including the same set of covariates, with results reported in the Appendix. Alternative specifications are estimated to examine the role of institutional trust and its components. Sensitivity to the choice of the reference category is assessed by comparing marginal effects and predicted probabilities across specifications. In addition, selected models are estimated on identical samples to ensure comparability and to verify that differences in sample size due to missing values do not affect the results.

The empirical findings are presented in Chapter 6 using regression tables and graphical representations based on predicted probabilities.

6. Data Analysis

This chapter presents the empirical results based on the Ipsos survey data. The analysis is organized around the two research questions introduced in Chapter 4. The first part examines whether concern about rising prices is associated with different preferences over future energy investment strategies. The second part inspects whether institutional trust is associated with preferences regarding the funding structure of nuclear fusion research. For RQ1, the empirical analysis is conducted on a final estimation sample of 6,359 respondents. For RQ2, which excludes the United Kingdom because the model includes trust in European Union institutions, the baseline analytical sample consists of 5,376 respondents. Regression coefficients are complemented by predicted probabilities to provide a more intuitive interpretation of the results. The chapter focuses on the substantive interpretation of the estimated relationships, while methodological choices and model specification have already been discussed in Chapter 5.

6.1 Economic concern and energy investment preferences

This section addresses Research Question 1 by examining whether concern about rising prices is associated with different preferences over public investment in energy technologies. The dependent variable distinguishes between four alternative strategies: fossil fuels and nuclear fission, renewables, a mixed strategy combining renewables and fusion, and fusion only. Given the nominal nature of the outcome, the analysis relies on a multinomial logit specification with fusion only as the reference category. The baseline model includes economic concern as the main explanatory variable, together with climate perceptions, knowledge of nuclear fusion, socio-demographic controls, and a contextual indicator related to nuclear exposure. The section begins with a brief descriptive overview and then turns to the multivariate results.

Before turning to the regression analysis, it is useful to examine the distribution of energy investment preferences in the analytical sample. Figure 6.1 reports the percentage of respondents choosing each of the four investment strategies.

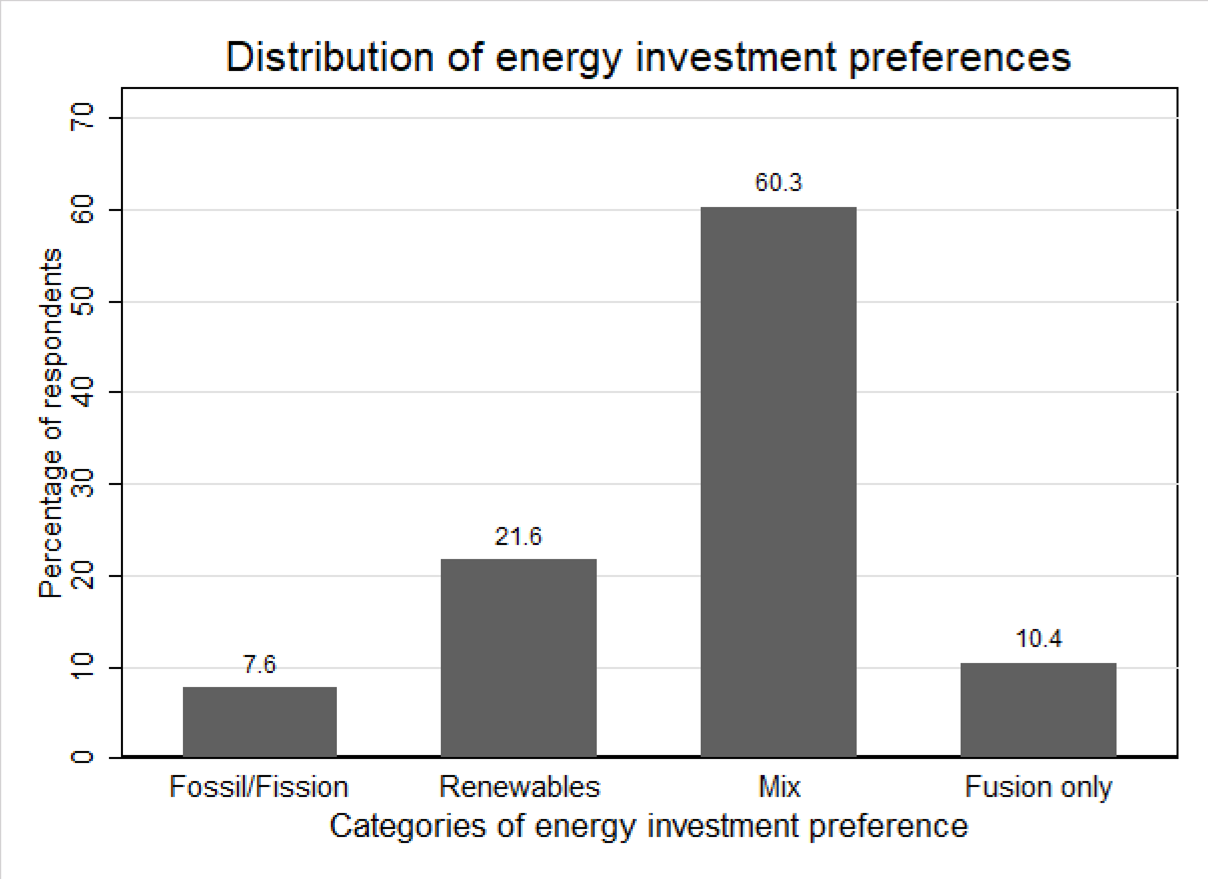


Figure 6.1 - Distribution of energy investment preferences

The figure shows a clearly uneven distribution across categories. The mixed strategy combining renewables and fusion is the most common choice, accounting for about 60 per cent of responses. Renewables are the second most selected option, at just over 20 per cent. By contrast, fusion only and fossil fuels or nuclear fission attract much lower levels of support, each representing around one tenth of the sample. This descriptive evidence provides an initial overview of respondents' preferences, but it does not indicate whether these differences are systematically associated with economic concern or with other explanatory factors. These issues are examined in the multivariate analysis below.

Alongside the distribution of energy preferences, it is useful to consider the distribution of the main explanatory variable. Since RQ1 focuses on economic concern, Figure 6.2 reports the distribution of respondents' concern about rising prices in the analytical sample.

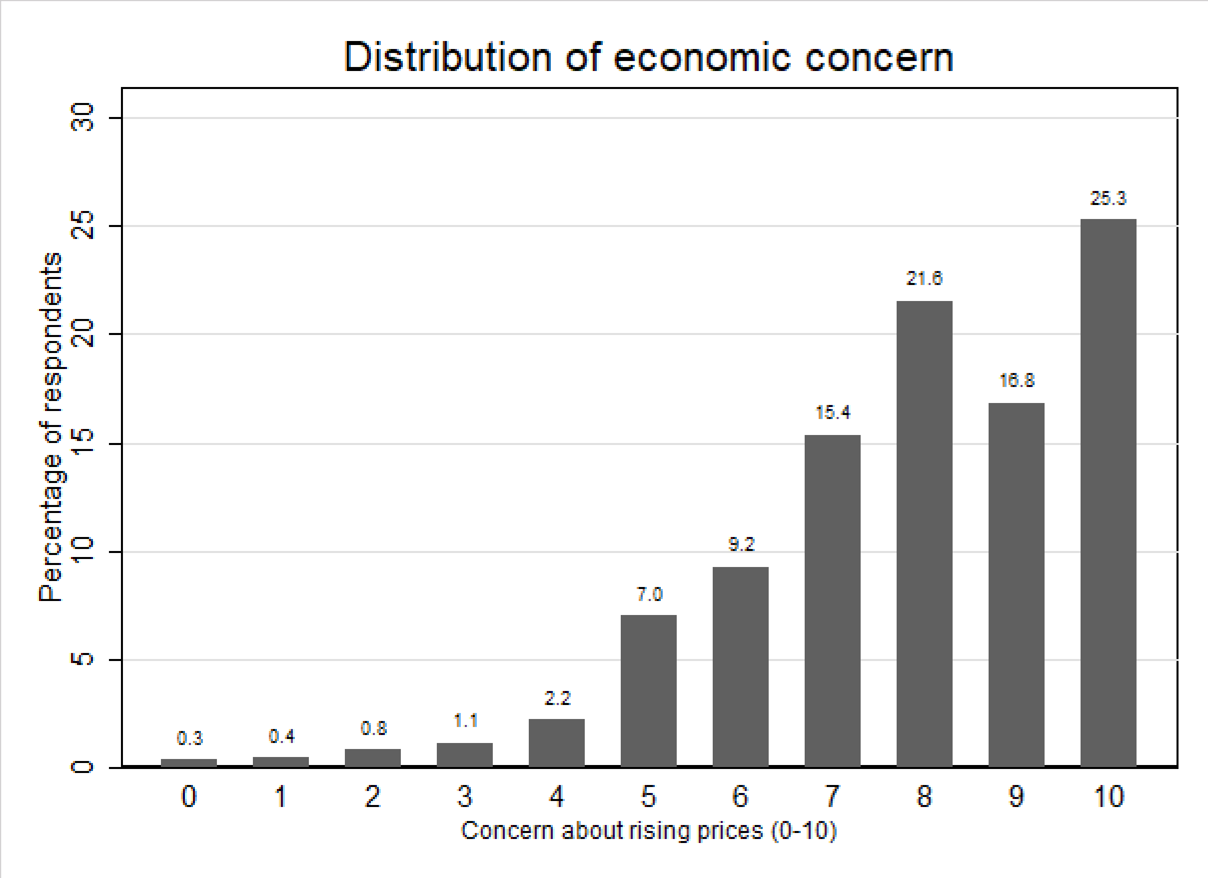


Figure 6.2 - Distribution of economic concern about rising prices

Figure 6.2 shows that concern about rising prices is concentrated toward the upper end of the 0 to 10 scale. Very low values are relatively uncommon, while a large share of respondents report high levels of concern, especially between 7 and 10. The most frequent response is 10, followed by other high values on the scale. At the same time, the distribution spans the full range of the variable, indicating that the sample still displays variation in perceived economic pressure. This descriptive evidence provides useful context for the multivariate analysis, which examines whether higher levels of economic concern are systematically associated with different energy investment preferences.

Table 6.1 reports the baseline multinomial logit estimates for RQ1. The dependent variable is energy investment preference, and Fusion only is used as the reference outcome. Coefficients therefore indicate how each explanatory variable is associated with the log-odds of choosing

Fossil/Fission, Renewables, or Mix rather than Fusion only. Robust standard errors are reported in parentheses. Estimates are based on the final estimation sample (N = 6,359).[4]

Table 6.1 Baseline multinomial logit estimates of energy investment preferences

VARIABLES	Fossils/Fission	Renewables	Mix
Economic Concern (0 - 10)	0.072**	0.096***	0.053**
	(0.032)	(0.026)	(0.021)
Age	0.010**	0.013***	0.012***
	(0.004)	(0.003)	(0.003)
Woman	0.471***	0.251**	-0.044
	(0.126)	(0.103)	(0.090)
Education: medium	0.067	0.197	0.269**
	(0.163)	(0.133)	(0.117)
Education: high	0.277	0.462***	0.573***
	(0.173)	(0.139)	(0.123)
Climate change uncontrollable in 10-20 years	-0.501**	-0.887***	-0.431***
	(0.215)	(0.156)	(0.145)
Climate change uncontrollable in 20-30 years	-0.586***	-1.250***	-0.498***
	(0.217)	(0.158)	(0.144)
Climate change uncontrollable in > 30 years	0.088	-1.112***	-0.346**
	(0.218)	(0.172)	(0.157)
Climate change is not uncontrollable	0.694***	-1.790***	-0.891***
	(0.208)	(0.190)	(0.163)
Fusion knowledge: medium-low	-0.110	-0.260*	-0.031

[4] **Notes**: Robust standard errors in parentheses. Reference outcome: Fusion only. Reference categories: man; low education; climate change uncontrollable in 0–10 years; low fusion knowledge; no nuclear / phase-out country. Legend: (*** p<0.01, ** p<0.05, * p<0.1)

	(0.180)	(0.149)	(0.139)
Fusion knowledge: medium-high	-0.753***	-1.399***	-0.784***
	(0.197)	(0.165)	(0.145)
Fusion knowledge: high	-1.412***	-1.406***	-1.332***
	(0.230)	(0.177)	(0.154)
Nuclear Exposure	-0.102	-0.650***	-0.241***
	(0.127)	(0.102)	(0.089)
Constant	-1.130**	0.909***	1.485***
	(0.446)	(0.336)	(0.292)
Observations	6359	6359	6359
Pseudo R2	0.0590	0.0590	0.0590

The baseline estimates indicate that concern about rising prices is positively associated with all three alternatives relative to Fusion only. The coefficient on economic concern is positive and statistically significant in the Fossil/Fission equation (0.072, $p = 0.026$), in the Renewables equation (0.096, $p < 0.001$), and in the Mix equation (0.053, $p = 0.012$). Holding the other covariates constant, this means that respondents reporting higher levels of economic concern are relatively more likely to choose Fossil/Fission, Renewables, or Mix rather than exclusive support for fusion. Among the three comparisons, the association is strongest in the Renewables versus Fusion equation.

Since multinomial logit coefficients are expressed in log-odds, it is useful to exponentiate them in order to obtain relative risk ratios. For the economic concern variable, $\exp(0.072) = 1.075$ in the Fossil/Fission equation, $\exp(0.096) = 1.101$ in the Renewables equation, and $\exp(0.053) = 1.055$ in the Mix equation. This means that a one-point increase in concern about rising prices is associated with an increase of about 7.5 per cent in the relative likelihood of choosing Fossil/Fission rather than Fusion only, about 10.1 per cent for Renewables rather than Fusion only, and about 5.5 per cent for Mix rather than Fusion only.

Two further points are worth noting. First, the association is directionally consistent across all three equations, indicating that higher economic concern is systematically associated with a higher relative likelihood of choosing each alternative strategy rather than Fusion only. Second, the magnitude of the coefficient is largest in the Renewables versus Fusion comparison, suggesting that rising price concern is most strongly associated with a relative shift toward renewable-only preferences.

Importantly, these coefficients describe relative differences with respect to Fusion only and do not directly indicate how absolute choice probabilities change across the scale of economic concern. For this reason, the next step of the analysis presents predicted probabilities.

Because the coefficient on economic concern is largest in the Renewables versus Fusion comparison, Figure 6.3 focuses on these two outcomes. The figure reports the predicted probabilities of choosing Renewables and Fusion only across the 0-10 range of economic concern, averaged over the observed distribution of the remaining covariates, together with 90 per cent confidence intervals.

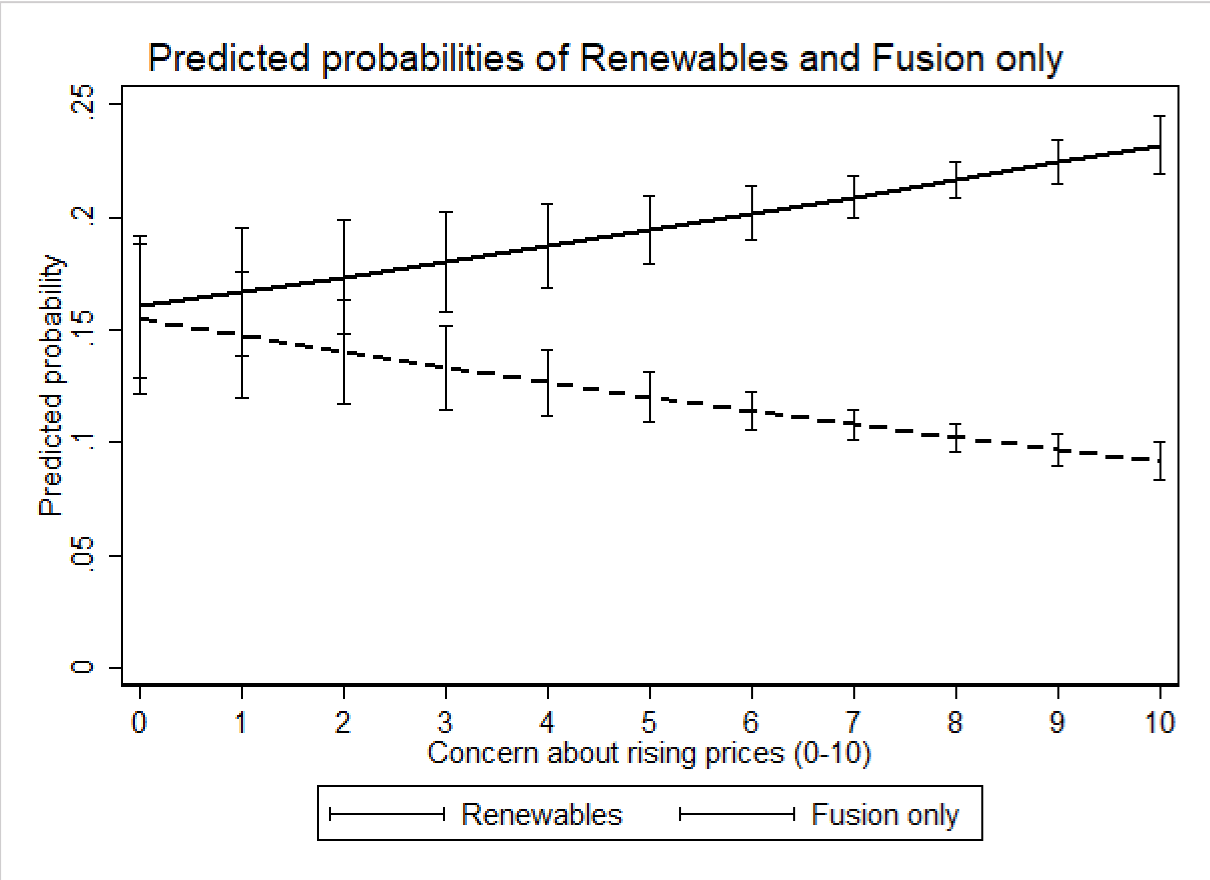


Figure 6.3 - Predicted probabilities of Renewables and Fusion-only preferences by economic concern

Figure 6.3 shows a clear divergence between the two outcomes. As concern about rising prices increases, the predicted probability of choosing Renewables rises steadily, whereas the predicted probability of choosing Fusion only declines. This indicates that higher economic concern is associated with a higher predicted probability of choosing Renewables and a lower predicted probability of choosing Fusion only.

The confidence intervals indicate the degree of uncertainty around the estimated probabilities. While their width is not constant across the scale, the overall pattern remains stable. Since the distribution of economic concern is concentrated at relatively high values, it is reassuring that the estimates in the upper part of the scale also appear comparatively precise.

Overall, the figure is consistent with the baseline multinomial logit results, and especially with the finding that the coefficient on economic concern is largest in the Renewables versus Fusion comparison. The predicted probabilities therefore help clarify the substantive meaning of the regression estimates: the main probability shift associated with rising price concern is concentrated in the comparison between Renewables and Fusion only.

Climate perceptions also play an important role in shaping energy investment preferences. In the baseline model, the reference category corresponds to respondents who believe that climate change will become uncontrollable within the next 10 years, that is, those expressing the highest level of perceived urgency. The remaining categories are therefore interpreted relative to this group. To facilitate interpretation, Figure 6.4 reports the predicted probabilities associated with different levels of perceived climate urgency.

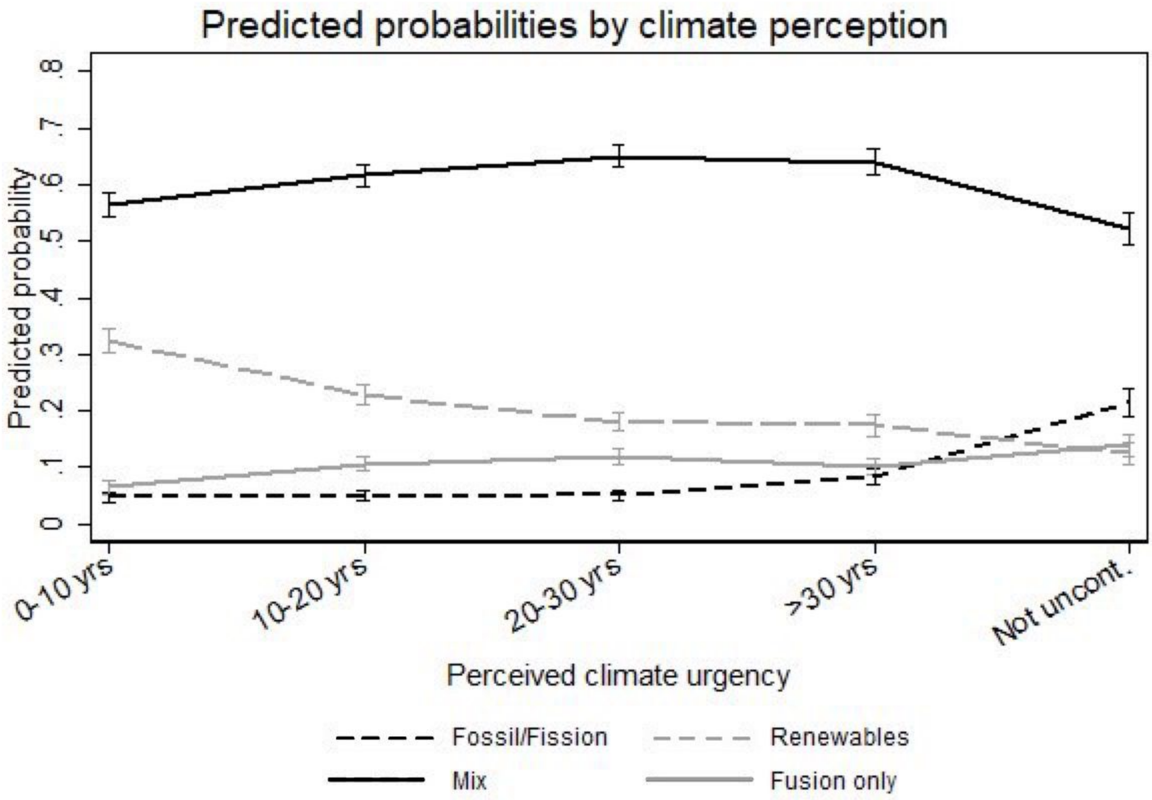


Figure 6.4. - Predicted probabilities of energy investment preferences by climate perception

Figure 6.4 shows that climate perception is associated with a more differentiated pattern of energy preferences than economic concern. The clearest result concerns Renewables: as perceived climate urgency declines, the predicted probability of choosing a renewables-only strategy falls markedly. Conversely, the predicted probability of choosing Fusion increases as respondents perceive climate change as less imminent. Although the confidence intervals vary somewhat across categories, the overall pattern remains clear. Overall, these results indicate that high perceived climate urgency is associated with stronger support for Renewables, whereas lower urgency is associated with a higher probability of choosing Fusion only.

The mixed strategy remains the most preferred option across all categories of climate perception, although its probability is not constant. It increases from the highest-urgency category to the intermediate categories, remains high for respondents who view climate change as becoming uncontrollable in more than 30 years, and then declines in the final category. This suggests that the mixed option retains broad appeal across different levels of perceived urgency, even if support weakens when climate concern becomes very low.

A distinct pattern emerges for Fossil/Fission. Predicted support for this option remains limited across the first four categories but rises sharply among respondents who believe that climate change is not uncontrollable. This result is consistent with the regression estimates and suggests that conventional energy options regain relative support mainly at the lowest end of perceived climate urgency.

A related contextual dimension concerns national nuclear exposure. To make this comparison easier to read, Figure 6.5 reports predicted probabilities by energy investment strategy and contrasts respondents living in non-nuclear or phase-out countries (Italy, Germany, and Spain) with those living in active or phase-in countries (France, the United Kingdom, and Poland).

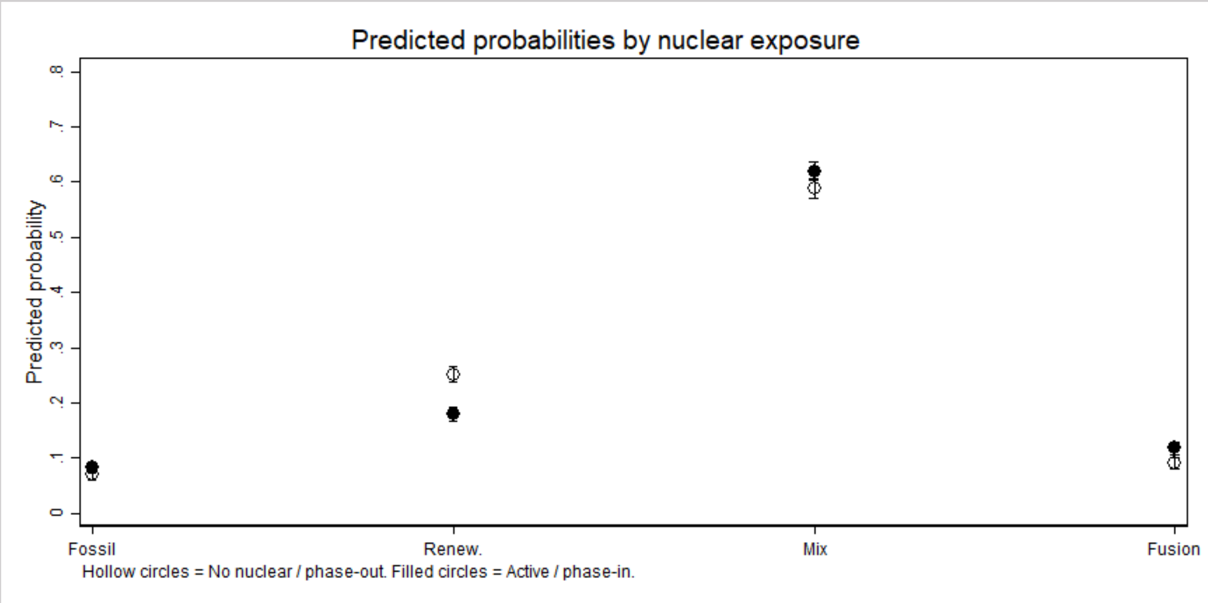


Figure 6.5 - Predicted probabilities of energy investment preferences by nuclear exposure

Figure 6.5 indicates that differences by nuclear exposure are present, but uneven across outcomes. The clearest gap concerns Renewables: the predicted probability of choosing a renewables-only strategy is 25.2 per cent in non-nuclear or phase-out countries, compared with 18.0 per cent in active or phase-in countries, a difference of 7.2 percentage points ($p < 0.001$). By contrast, the predicted probability of choosing Fusion only is higher in countries with nuclear exposure, increasing from 9.0 per cent to 11.8 per cent, corresponding to a difference of 2.8 percentage points ($p < 0.001$).

The mixed strategy remains the most preferred option in both groups, but its predicted probability is also somewhat higher in active or phase-in countries (61.9 per cent versus 58.8 per cent; difference = 3.1 percentage points, p = 0.012). By contrast, the difference for Fossil/Fission is much smaller in absolute terms, increasing from 7.0 per cent to 8.3 per cent, and is only marginally significant at the 10 per cent level (p = 0.051).

Altogether, the figure suggests a limited rebalancing away from Renewables and toward Fusion only in nuclear-exposed settings, accompanied by a slightly higher probability of choosing the mixed strategy. This should not be interpreted causally. Rather, the result indicates that respondents living in countries with greater nuclear exposure display somewhat lower support for Renewables and somewhat greater openness to Fusion only and Mix, while differences in Fossil/Fission remain comparatively modest.

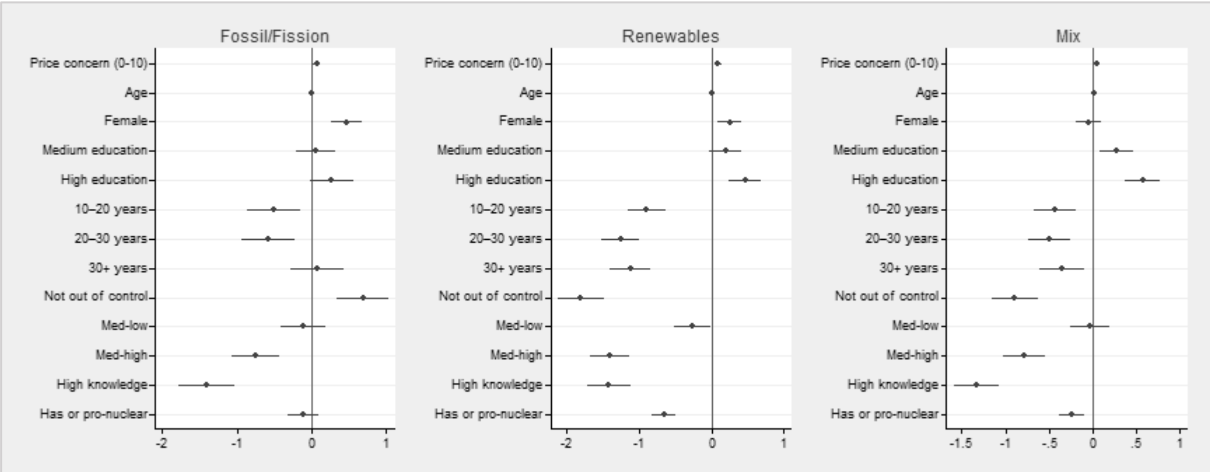


Figure 6.6 - Coefficient plot from the baseline multinomial logit model

Figure 6.6 provides a compact visual summary of the baseline model by displaying coefficients and confidence intervals for each non-reference outcome relative to Fusion only. The figure is mainly useful as a synthesis of the results already discussed. It shows that the coefficient on economic concern is positive in all three equations and largest for Renewables. It also confirms that climate perception is most strongly associated with the Renewables equation in relative terms, indicating that lower perceived climate urgency is linked to a reduced likelihood of choosing Renewables rather than Fusion only. This does not imply that Renewables is the most preferred option in absolute terms, as the mixed strategy remains dominant across all levels of climate perception. Nuclear exposure, by contrast, is more clearly related to Renewables and Mix than to Fossil/Fission.

The coefficient plot also helps summarize the role of the control variables shown in Table 6.1. Age is positive and statistically significant in all three equations, with coefficients of 0.010 for Fossil/Fission, 0.013 for Renewables, and 0.012 for Mix. This indicates that older respondents are relatively more likely to choose any of these alternatives rather than Fusion only, suggesting that exclusive support for fusion is comparatively more common among younger individuals. Gender differences are less uniform. Women are more likely than men to choose Fossil/Fission rather than Fusion only (0.471, $p < 0.01$) and Renewables rather than Fusion only (0.251, $p < 0.05$), while the coefficient for Mix is small and not statistically significant (-0.044, $p = 0.624$).

Education displays a more differentiated pattern. Medium education is positively associated only with the mixed strategy (0.269, $p < 0.05$), whereas high education is positively and significantly associated with Renewables (0.462, $p < 0.01$) and Mix (0.573, $p < 0.01$), but not with Fossil/Fission at conventional significance levels (0.277, $p = 0.109$). This suggests that higher educational attainment is more strongly linked to renewable-oriented or mixed energy preferences than to Fossil/Fission preferences, relative to Fusion only.

Knowledge of the difference between fission and fusion shows the strongest and most consistent pattern among the controls. Relative to the low-knowledge group, respondents with medium-high knowledge are significantly less likely to choose Fossil/Fission (-0.753, $p < 0.01$), Renewables (-1.399, $p < 0.01$), or Mix (-0.784, $p < 0.01$) rather than Fusion only. The same pattern is even stronger among respondents with high knowledge, with coefficients of -1.412, -1.406, and -1.332, respectively, all significant at the 1 per cent level. By contrast, the medium-low knowledge category is not statistically significant in the Fossil/Fission and Mix equations and is only weakly associated with Renewables (-0.260, $p = 0.082$). Overall, these results indicate that greater familiarity with the distinction between fission and fusion is associated with a comparatively stronger relative preference for Fusion only.

Taken together, the baseline analysis provides a clear answer to RQ1. Concern about rising prices is associated with lower relative support for Fusion only and with a higher relative likelihood of choosing alternative investment strategies, especially Renewables. This relationship remains visible after accounting for climate perceptions, nuclear exposure, and individual characteristics. At the same time, energy preferences are not shaped by economic concern alone. Climate urgency also plays an important role, particularly in the relative positioning of Renewables and Fusion only, while national nuclear exposure is associated with more limited but still noticeable differences in support for Renewables, Mix, and Fusion only.

In conclusion, the results suggest that economic concern is a consistent predictor of energy investment preferences, while perceived climate urgency and, to a lesser extent, the national nuclear context also contribute to shaping these choices.

6.2 Institutional trust and preferences over nuclear fusion funding structures

This section addresses Research Question 2 by examining whether institutional trust is associated with different preferences regarding the funding structure of nuclear fusion research. The dependent variable distinguishes between four alternative funding arrangements: public sector funding, private sector funding, joint funding, and opposition to any funding. Given the nominal nature of the outcome, the analysis relies on a multinomial logit specification using Joint funding as the reference category. The baseline model uses the composite institutional trust index as the main explanatory variable, while additional specifications consider trust in national government and trust in the European Union separately. To maintain consistency with the previous analysis, the model includes the same set of controls used in RQ1, namely age, gender, education, climate perceptions, knowledge of nuclear fusion, and a contextual indicator of nuclear exposure. Since the trust measures include confidence in European Union institutions, the analysis is restricted to the EU countries in the sample and excludes the United Kingdom. The section begins with a brief descriptive overview and then turns to the multivariate results.

Before turning to the regression analysis, it is useful to examine the distribution of funding preferences in the analytical sample. Figure 6.7 reports the percentage of respondents choosing each of the four funding arrangements for nuclear fusion research.

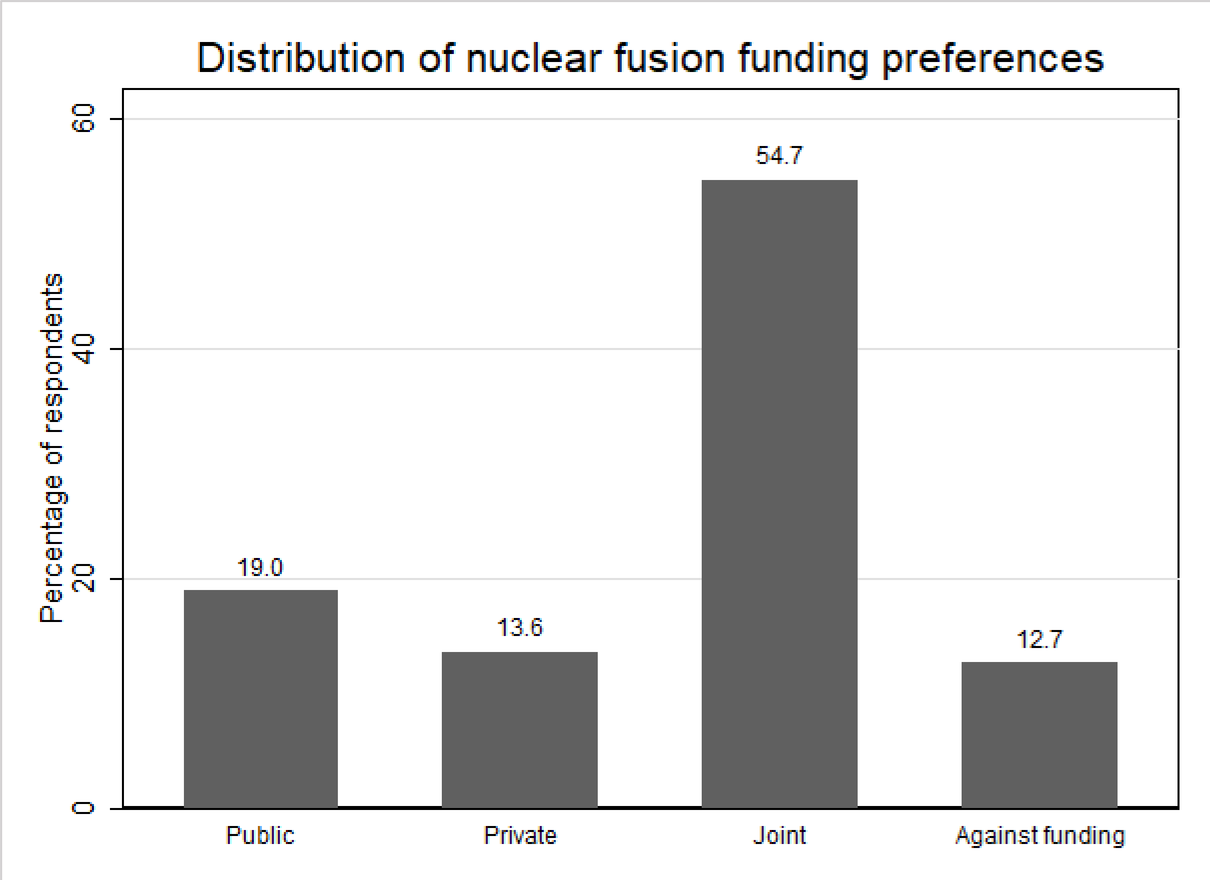


Figure 6.7 - Distribution of nuclear fusion funding preferences

Figure 6.7 shows a clearly uneven distribution across categories. Joint funding is by far the most preferred option, accounting for 54.7 per cent of responses. Public funding is the second most selected arrangement, with 19.0 per cent of respondents, while support for private funding is lower at 13.6 per cent. Opposition to any funding is also relatively limited, amounting to 12.7 per cent of the sample. This descriptive pattern suggests that respondents are generally more favorable to a shared governance model than to arrangements relying exclusively on either public or private actors. At the same time, the distribution also indicates that support for nuclear fusion funding is not uniform, since a non-negligible minority either prefers single-actor funding models or rejects funding altogether. As in the previous section, this descriptive evidence provides a useful overview of the dependent variable. However, it does not by itself indicate whether these preferences are systematically associated with institutional trust or with the other explanatory variables included in the analysis. To provide further context before turning to the multivariate results, it is also useful to examine the distribution of the main explanatory variable. Since RQ2 focuses on institutional trust, Figure 6.8 reports the distribution of the composite trust index in the analytical sample.

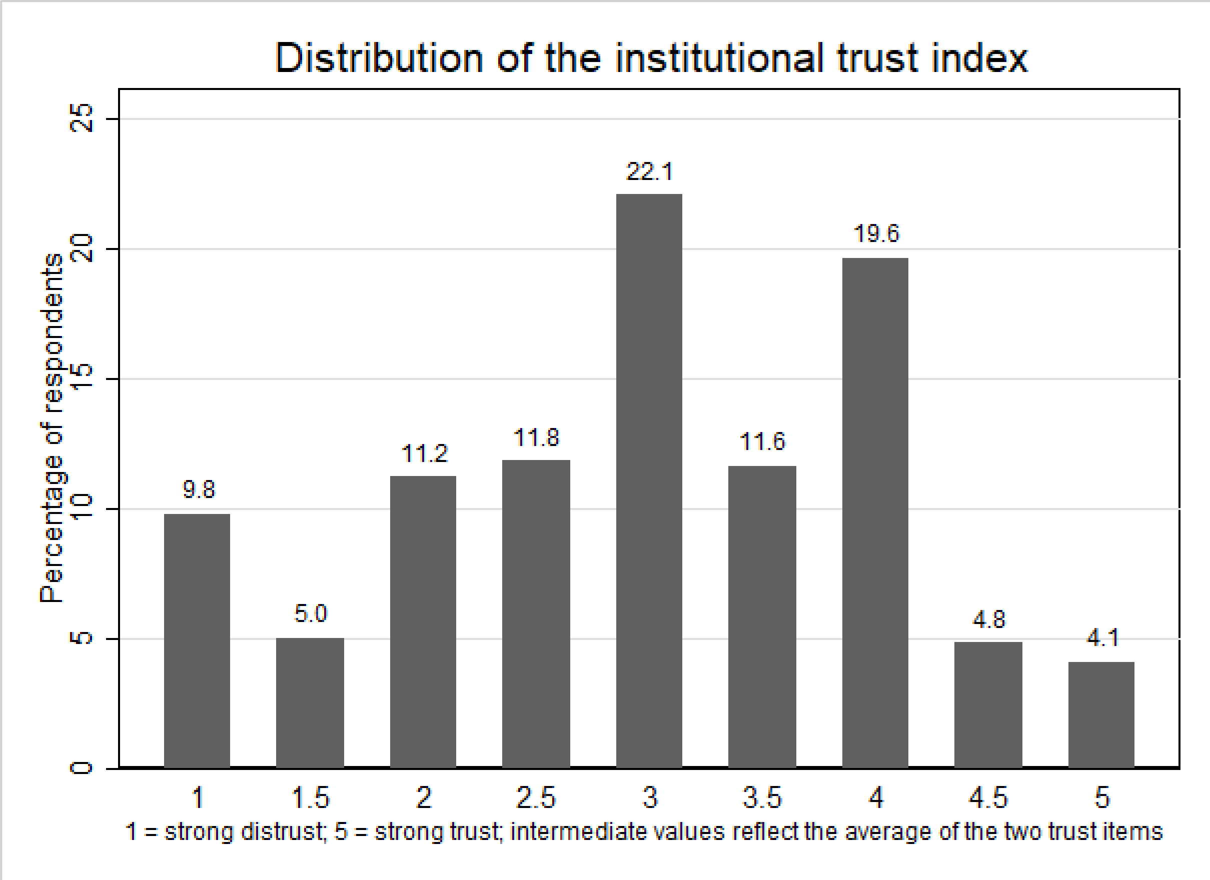


Figure 6.8 - Distribution of the institutional trust index

Figure 6.8 shows that the distribution of the institutional trust index is concentrated around the middle and moderately higher values of the scale, rather than at its extremes. The most frequent category is 3, which accounts for 22.1 per cent of respondents, followed by 4 at 19.6 per cent. Intermediate values such as 2.5 and 3.5 also represent non-negligible shares of the sample, while the lowest and highest values are comparatively less common. In particular, 9.8 per cent of respondents are located at 1, indicating strong distrust, whereas only 4.1 per cent are located at 5, corresponding to strong trust. Overall, this pattern suggests that the analytical sample is not polarized between extreme distrust and extreme trust. Instead, respondents are more often positioned in the middle of the distribution, with a slight concentration toward moderate trust. This is useful for the analysis because it indicates that the trust variable displays meaningful variation across the sample, while also showing that the largest share of respondents does not hold strongly polarized institutional attitudes. The next step is therefore to assess whether these differences in institutional trust are systematically associated with different preferences over the funding structure of nuclear fusion research.

Table 6.2[5] - Baseline multinomial logit estimates of nuclear fusion funding preferences

VARIABLES	Public Sector	Private Sector	Against Funding
Institutional trust index (government and EU)	0.052	-0.159***	-0.344***
	(0.038)	(0.040)	(0.043)
Age	-0.004***	-0.018***	0.001
	(0.002)	(0.003)	(0.003)
Woman	0.062	0.029	0.427***
	(0.075)	(0.086)	(0.092)
Education: medium	-0.244***	-0.474***	-0.149
	(0.097)	(0.111)	(0.111)
Education: high	-0.393***	-0.613***	-0.586***
	(0.102)	(0.117)	(0.125)
Climate change uncontrollable in 10-20 years	-0.085	0.147	-0.364***
	(0.106)	(0.127)	(0.129)
Climate change uncontrollable in 20-30 years	-0.341***	0.042	-0.248***
	(0.112)	(0.129)	(0.124)
Climate change uncontrollable in > 30 years	-0.200***	0.074	-0.308***
	(0.117)	(0.138)	(0.137)
Climate change is not uncontrollable	0.244***	0.154	0.054
	(0.126)	(0.154)	(0.147)
Fusion knowledge: medium-low	-0.227***	-0.226***	-0.398***
	(0.098)	(0.122)	(0.108)
Fusion knowledge: medium-high	-0.164	0.221	-0.550***

[5] **Notes**: Robust standard errors in parentheses. Reference outcome: Joint funding. Reference categories: man; low education; climate change uncontrollable in 0–10 years; low fusion knowledge; no nuclear / phase-out country. Sample: EU countries only, complete cases in the baseline model. Legend: (*** p<0.01, ** p<0.05, * p<0.1)

	(0.115)	(0.134)	(0.144)
Fusion knowledge: high	0.016	0.667***	-0.069
	(0.138)	(0.149)	(0.163)
Nuclear Exposure (EU countries)	0.178***	0.174***	-0.444***
	(0.076)	(0.087)	(0.095)
Constant	-0.631***	0.101	0.139
	(0.225)	(0.241)	(0.254)
Observations	5376	5376	5376
Pseudo R2	0.0321	0.0321	0.0321

Table 6.2 points to a distinct but not uniform association between institutional trust and funding preferences. Using Joint funding as the reference category, the institutional trust index does not appear to distinguish significantly between respondents who prefer Public funding and those who prefer a joint arrangement: the coefficient is small and statistically insignificant (0.052). The pattern is different, however, for the other two alternatives. Higher institutional trust is associated with a lower relative likelihood of choosing Private funding rather than Joint funding (-0.159) and, even more clearly, with a lower relative likelihood of choosing Against funding rather than Joint funding (-0.344). Substantively, this suggests that greater aggregate trust in institutions is linked less to support for single-actor solutions than to a stronger relative preference for a collaborative funding model. In fact, the strongest association in the baseline model concerns opposition to funding, which declines markedly relative to Joint funding as trust increases.

To further clarify the magnitude of the estimated relationships, it is useful to express the results in relative risk terms. A one-point increase in the institutional trust index is associated with a relative risk ratio of approximately 0.85 for Private funding and 0.71 for Against funding, both relative to Joint funding. This corresponds to a reduction of about 15 per cent in the relative likelihood of choosing Private funding and of about 29 per cent in the relative likelihood of opposing funding.

Two points follow from these estimates. First, the association is not uniform across outcomes, as no statistically meaningful effect is observed for Public funding. Second, the magnitude of the relationship is clearly stronger for Against funding than for Private funding. Substantively, this indicates that higher institutional trust is associated primarily with a reduction in opposition to funding and, to a lesser extent, with lower support for private-only arrangements, relative to Joint funding.

The control variables broadly reinforce this interpretation of Joint funding as the comparatively more institutionalized and balanced option. Age is negatively associated with both Public funding (-0.004) and Private funding (-0.018), while it is unrelated to Against funding, suggesting that older respondents are relatively less likely to prefer single-actor arrangements over the joint model. Education shows one of the most regular patterns in the table. Compared with the low-education group, respondents with medium education are less likely to choose Public funding (-0.244) and especially Private funding (-0.474) rather than Joint funding. Among highly educated respondents, the same pattern becomes stronger still: the coefficients are -0.393 for Public funding, -0.613 for Private funding, and -0.586 for Against funding. Taken together, these estimates indicate that higher education is associated with a more pronounced relative preference for Joint funding over all three alternatives, particularly over Private funding. Gender differences are more limited, although women are more likely than men to choose Against funding rather than Joint funding (0.427).

The remaining controls are somewhat more heterogeneous and should be interpreted more cautiously. Climate perception is included for consistency with the baseline specification, but it does not display a clean monotonic gradient across the three equations, so it is better treated here as a control than as a central substantive finding. By contrast, knowledge of fusion is more informative: respondents with high knowledge are significantly more likely to prefer Private funding rather than Joint funding (0.667), while no similarly strong pattern emerges for Public or Against funding. Finally, the nuclear exposure dummy is positively associated with both Public funding (0.178) and Private funding (0.174), and negatively associated with Against funding (-0.444), suggesting lower opposition to funding in more nuclear-exposed contexts.

Overall, the baseline model provides a first answer to RQ2. Aggregate institutional trust is not associated with a significant shift toward Public funding relative to Joint funding, but it is clearly associated with lower relative support for Private funding and, more strongly, for Against funding. Because this model relies on a composite index, however, it does not yet allow us to distinguish between the role of trust in national government and trust in the European Union. That distinction is addressed in the next set of specifications.

To clarify whether the baseline pattern masks different effects across institutional levels, the analysis next considers trust in national government separately. Figures 6.9 and 6.10 summarize the results of this alternative specification. Rather than relying on an additional regression table, Figure 6.9 reports the estimated coefficients for trust in national government across the three non-reference outcomes, while Figure 6.10 translates the same relationships into predicted probabilities over the full trust scale.

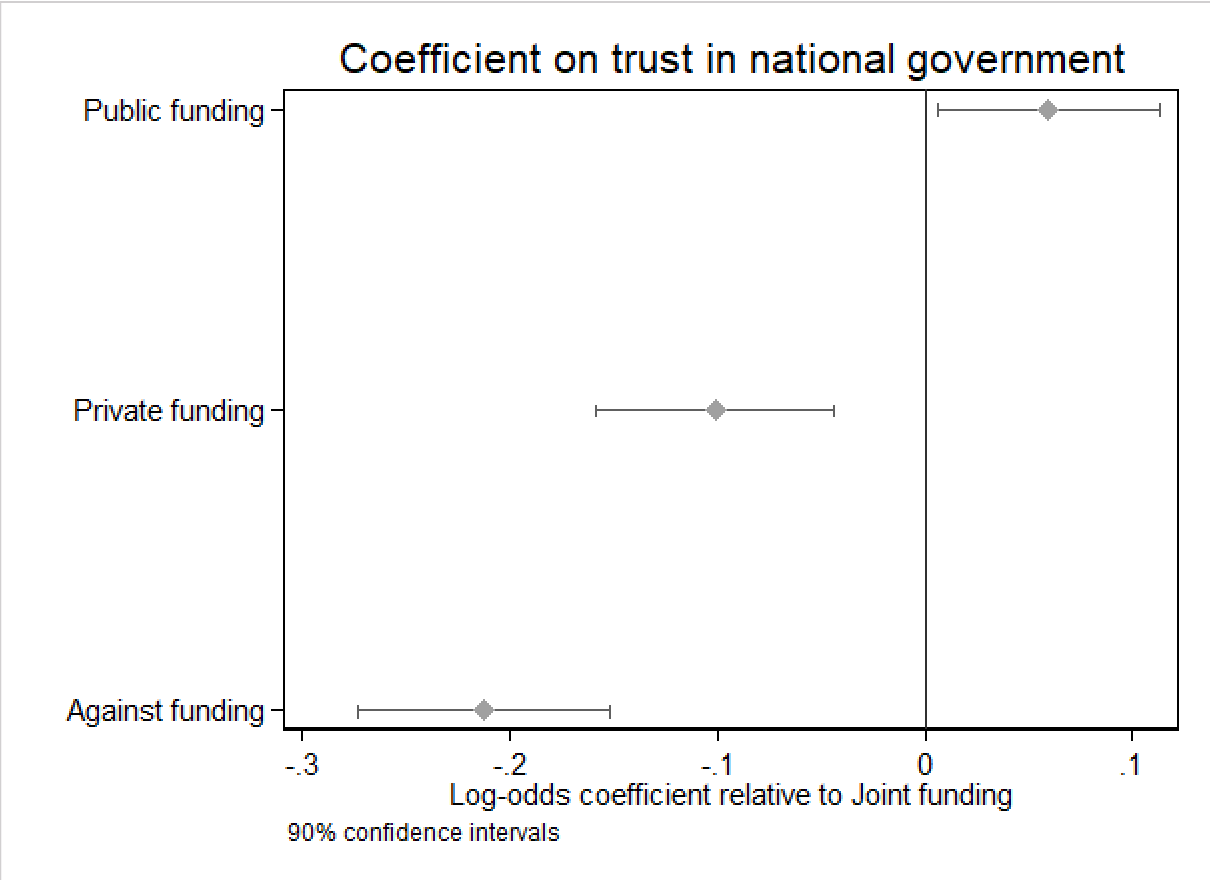


Figure 6.9 - Coefficient on trust in national government

Figure 6.9 shows a differentiated pattern across outcomes. The coefficient on trust in national government is positive in the Public funding equation (0.060), but negative in both the Private funding equation (-0.101) and the Against funding equation (-0.213), always relative to Joint funding. The positive coefficient for Public funding is comparatively small and only weakly significant, whereas the negative coefficients for Private funding and especially for Against funding are more clearly estimated. This indicates that higher trust in national government is associated only modestly with a higher relative likelihood of preferring public-only funding over a joint arrangement, but more clearly with a lower relative likelihood of preferring either private-only funding or opposition to funding.

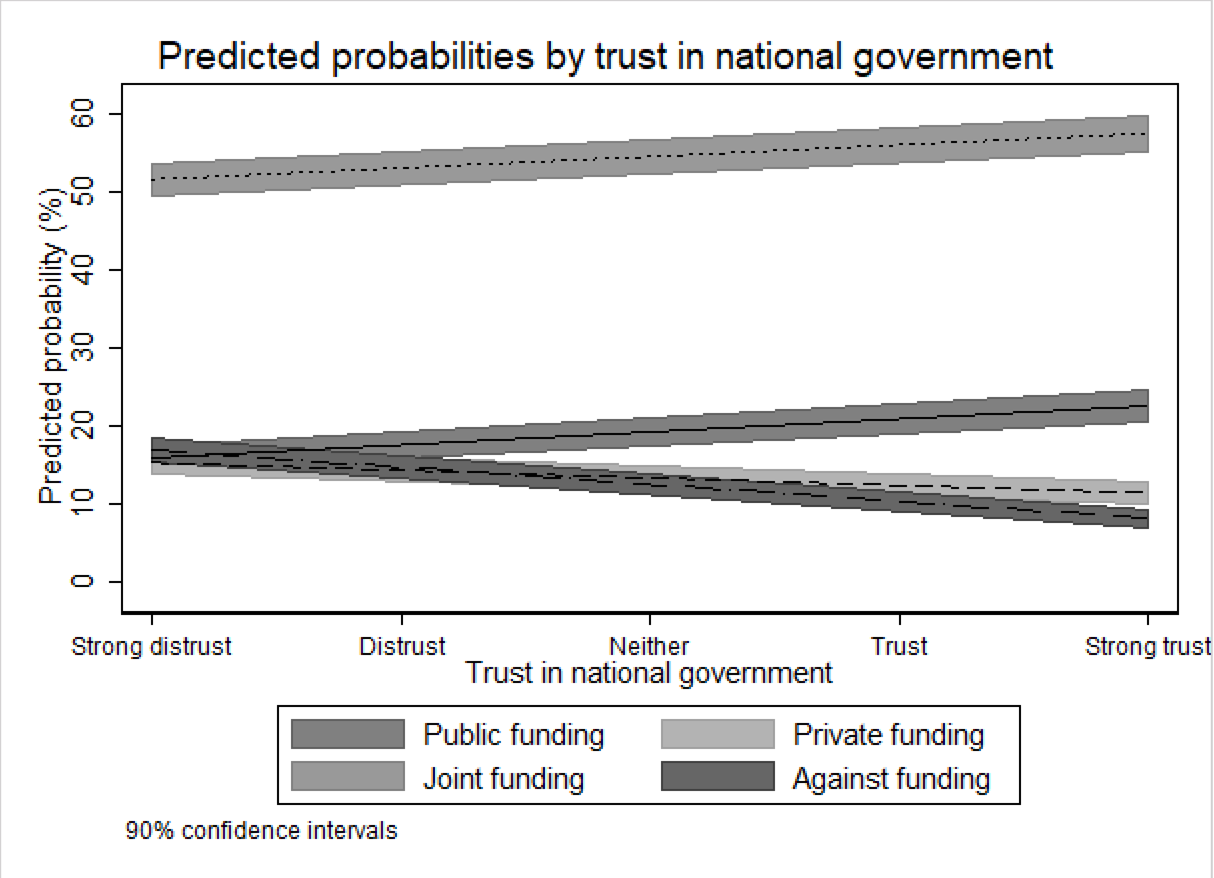


Figure 6.10 - Predicted probabilities by trust in national government

The predicted probabilities make the same pattern easier to interpret substantively. As trust in national government increases from the lowest to the highest point of the scale, the predicted probability of preferring Joint funding rises from 0.517 to 0.576. Over the same range, the predicted probability of choosing Against funding declines sharply, from 0.170 to 0.082. Private funding also becomes less likely as trust increases, falling from 0.154 to 0.115. Public funding moves in the opposite direction, but the increase is more limited, rising from 0.160 to 0.227. Taken together, the two figures suggest that higher trust in national government is associated primarily with lower relative support for Private funding and, even more clearly, for Against funding, while the increase in support for Public funding remains more limited.

The next step is therefore to assess whether trust in European Union institutions follows a similar pattern or instead points to a different funding logic. Figures 6.11 and 6.12 summarize the results of this alternative specification. Rather than adding a further regression table to the main text, Figure 6.11 reports the estimated coefficient on trust in European Union institutions across the three non-reference outcomes, while Figure 6.12 shows the corresponding predicted probabilities over the full trust scale.

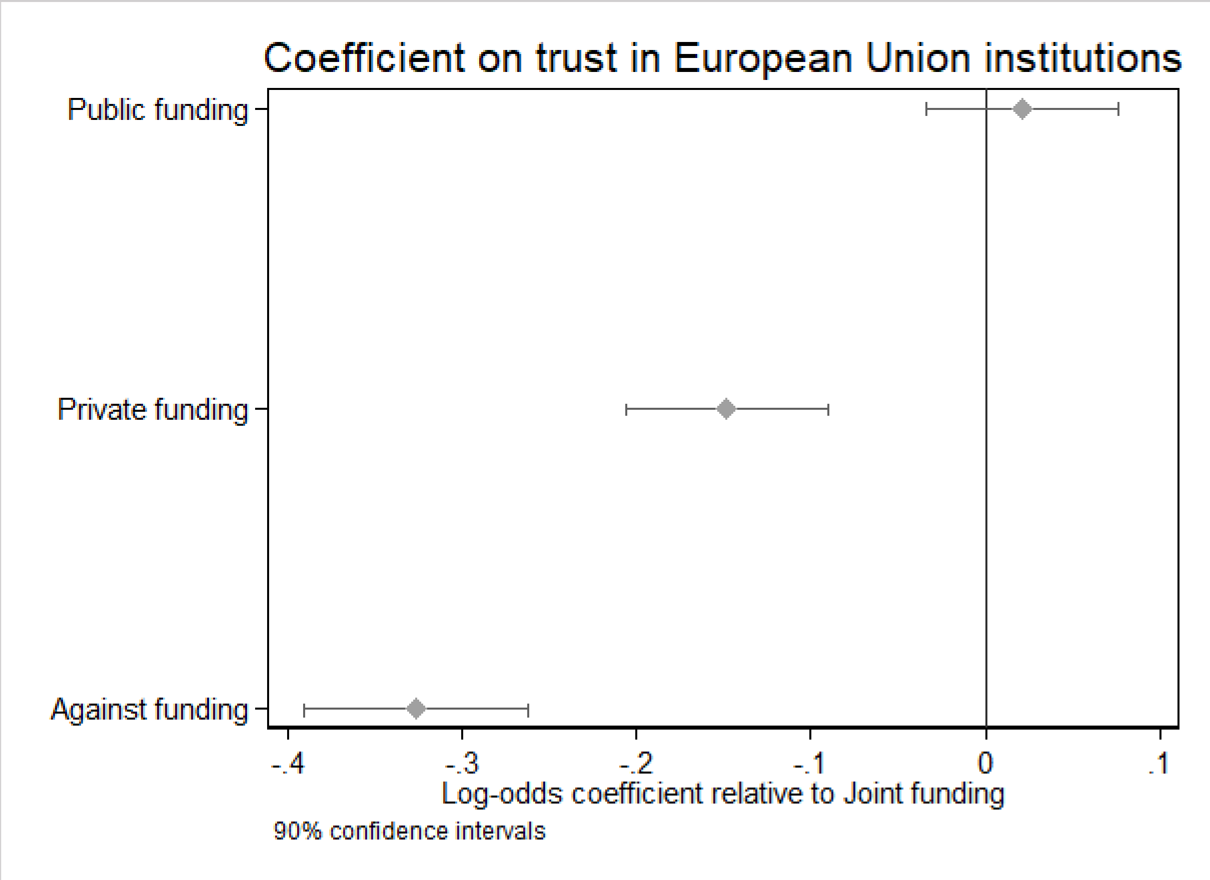


Figure 6.11 - Coefficient on trust in European Union institutions

Figure 6.11 highlights a clear difference across outcomes. The coefficient on trust in European Union institutions is close to zero in the Public funding equation (0.021), while it is negative in both the Private funding equation (-0.148) and the Against funding equation (-0.326), always relative to Joint funding. The estimate for Public funding is not statistically distinguishable from zero, whereas the coefficients for Private funding and especially for Against funding are both negative and statistically significant. Substantively, this indicates that higher trust in EU institutions is not associated with a shift toward public-only funding, but is instead linked to a lower relative likelihood of preferring private-only funding or opposing funding altogether.

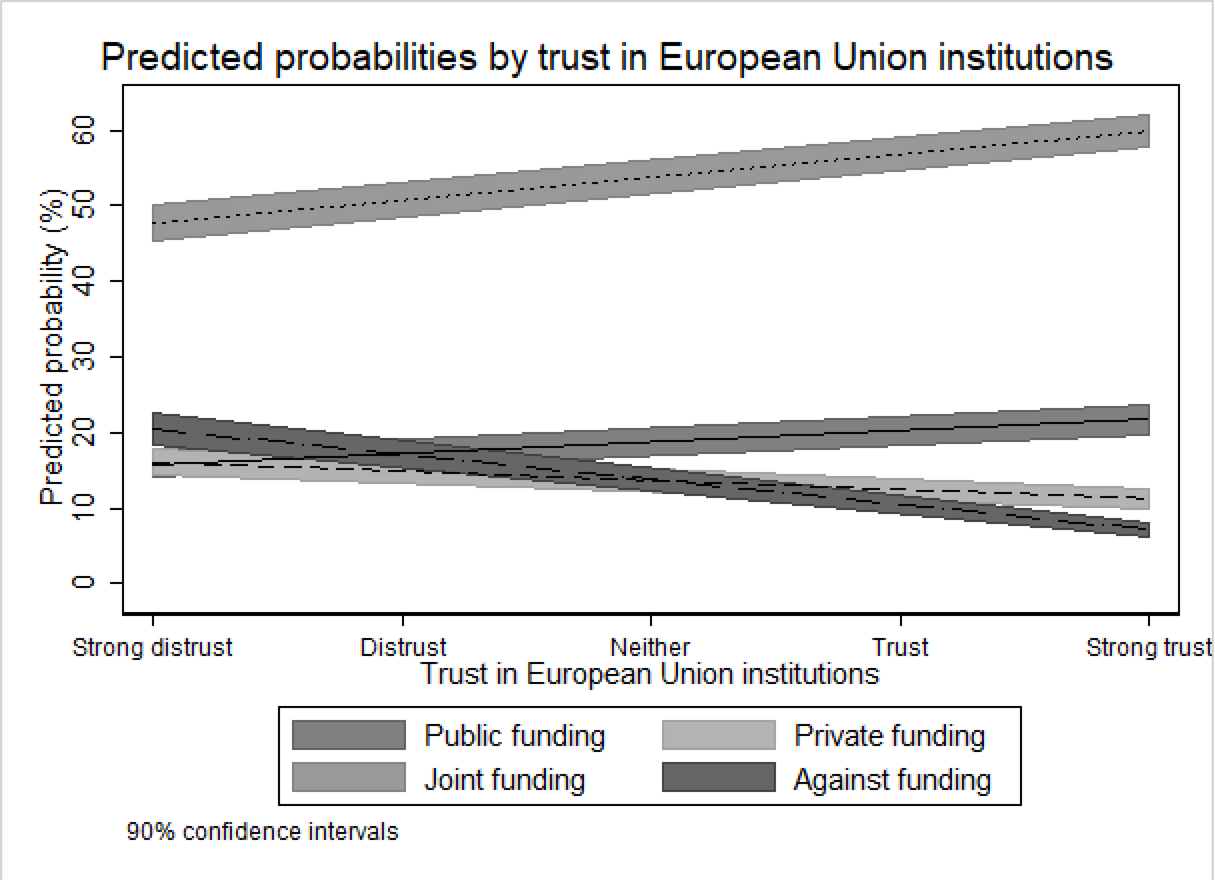


Figure 6.12 - Predicted probabilities by trust in European Union institutions

The predicted probabilities reinforce this interpretation. As trust in European Union institutions increases from the lowest to the highest point of the scale, the predicted probability of preferring Joint funding rises from 0.477 to 0.599. Over the same range, the predicted probability of choosing Against funding falls sharply, from 0.205 to 0.072. Private funding also becomes less likely, declining from 0.161 to 0.113. Public funding increases more moderately, from 0.158 to 0.217 but this pattern should be interpreted with caution, as it does not correspond to a statistically significant association in the regression estimates.

These patterns suggest that higher trust in EU institutions is associated primarily with a shift away from opposition to funding and, to a lesser extent, from private-only funding, alongside an increase in the predicted probability of Joint funding.

A final contextual dimension concerns national nuclear exposure. Figure 6.13 reports the predicted probabilities associated with the four funding preferences and compares respondents living in no-nuclear or phase-out countries with those living in countries characterized by nuclear presence or a more pro-nuclear orientation.

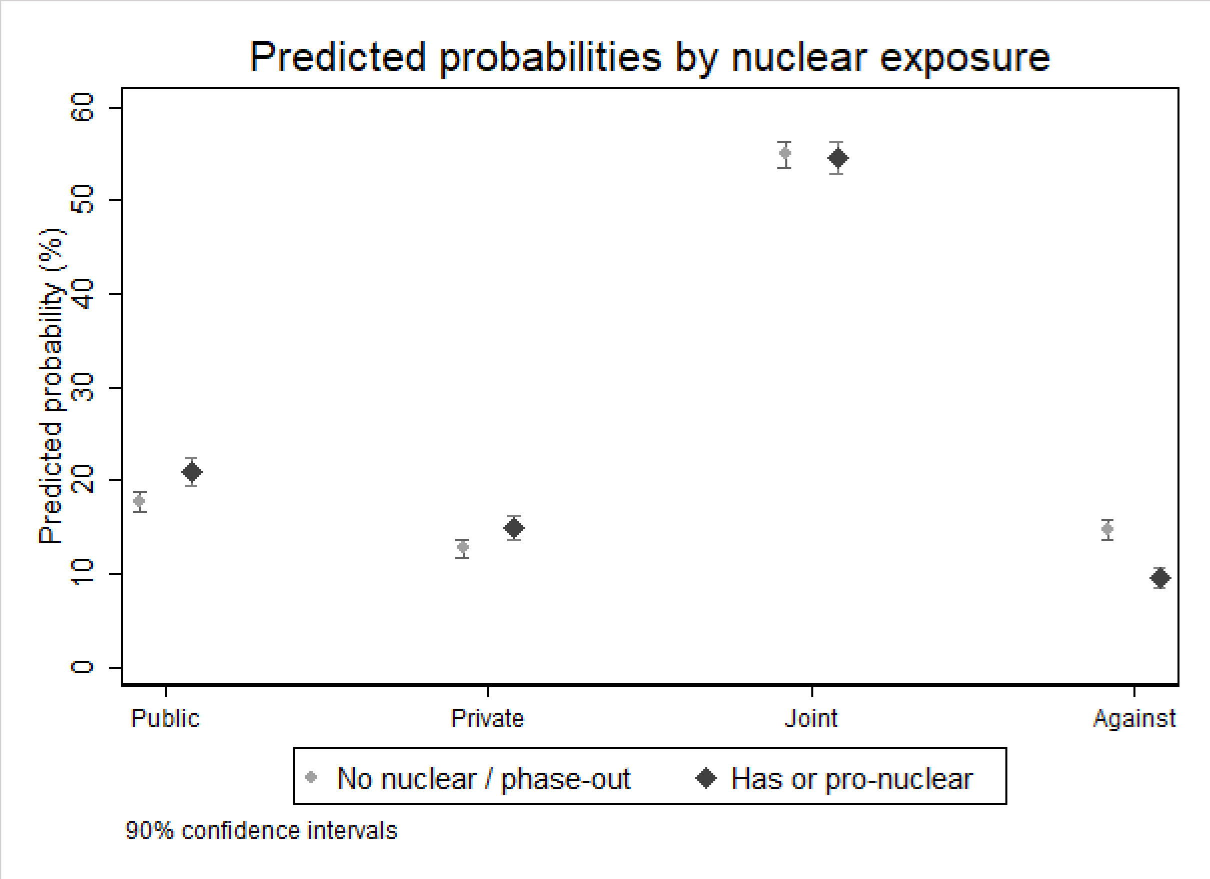


Figure 6.13 - Predicted probabilities of nuclear fusion funding preferences by nuclear exposure

Figure 6.13 indicates that nuclear exposure is associated with some differences in funding preferences, although these are not uniform across outcomes. The most notable contrast concerns opposition to funding. The predicted probability of choosing Against funding is 0.148 in no-nuclear or phase-out countries, compared with 0.096 in countries with nuclear exposure, a difference of roughly 5.2 percentage points. By contrast, Joint funding remains the most preferred option in both groups and changes very little, from 0.549 to 0.545. Public funding is somewhat more likely in nuclear-exposed contexts, increasing from 0.177 to 0.210, while Private funding also rises more modestly, from 0.127 to 0.149. These patterns suggest that respondents in nuclear-exposed contexts are relatively less likely to oppose funding for nuclear fusion research, while showing slightly higher support for both public-only and private-only funding arrangements. The dominant position of Joint funding, however, remains largely unchanged across the two contexts.

Taken as a whole, the results provide a consistent answer to RQ2. Institutional trust is associated with preferences over the funding structure of nuclear fusion research, but not in a uniform way across outcomes. In the baseline specification, higher aggregate institutional trust is associated with lower relative support for Private funding and, even more clearly, for Against funding, compared with Joint funding.

The alternative specifications refine this picture. Trust in national government is only weakly associated with a higher relative likelihood of preferring Public funding, while more clearly reducing support for Private funding and opposition to funding. Trust in European Union institutions shows a similar but more pronounced pattern: it does not produce a meaningful shift toward Public funding, but it is associated with lower relative support for Against funding and, to a lesser extent, for Private funding.

Finally, nuclear exposure does not substantially alter the dominant position of Joint funding, but it is associated with lower opposition to funding and somewhat higher support for both Public and Private funding. Taken together, these results indicate that institutional trust is primarily associated with a reduction in opposition to funding and, more generally, with lower relative support for single-actor arrangements, rather than with a consistent shift toward any specific funding model.

This concludes the empirical analysis of the two research questions. The next chapter draws together the main findings and discusses their broader implications for energy preferences, fusion funding, and the role of institutional trust.

7. Discussion and Conclusions

This chapter brings together the empirical findings of the thesis and discusses their broader meaning. The aim is not to restate the regression results presented in Chapter 6, but to interpret them in light of the theoretical framework set out in Chapter 3 and the contextual background developed in Chapter 2. The chapter first synthesizes the main findings for each research question, then assesses the hypotheses against the empirical evidence, derives a set of policy implications, acknowledges the scope and limitations of the analysis, and closes with a concluding reflection on the role of public opinion in European energy choices.

7.1 Summary of main findings

The empirical analysis addressed two distinct but complementary dimensions of public opinion. The first, addressed in RQ1, examined how concern about rising energy prices is associated with preferences over future public investment in energy technologies. The second, addressed in RQ2, examined how institutional trust is associated with preferences over the funding structure of nuclear fusion research.

For RQ1, the multinomial logit results show that concern about rising prices is consistently and positively associated with all three alternatives to Fusion only. The strongest association concerns the Renewables versus Fusion comparison, where a one-point increase in economic concern corresponds to an approximately 10 per cent increase in the relative likelihood of choosing Renewables rather than Fusion only. The same direction holds, with smaller magnitudes, for Fossil/Fission and for the Mix. In substantive terms, the predicted probabilities reported in Chapter 6 indicate that economic concern produces a clear divergence between Renewables and Fusion only, with the former rising and the latter declining over the scale of perceived price pressure. Climate urgency operates along a different axis: it differentiates primarily between Renewables and Fusion only, while support for Fossil/Fission becomes visibly stronger mainly among respondents who view climate change as not uncontrollable. Knowledge of the distinction between nuclear fission and nuclear fusion shows the most consistent gradient among individual-level controls, with respondents in the high-knowledge category much more likely to favor Fusion only than respondents with low knowledge. Finally, living in an active or phase-in nuclear context is associated with a lower predicted probability of choosing Renewables and with slightly higher predicted probabilities of choosing Fusion only and the Mix.

For RQ2, the analysis points to a more layered picture, in which institutional trust shapes preferences over fusion funding mainly through what it reduces rather than through what it adds. In the baseline specification, the composite trust index is not significantly associated with Public funding relative to Joint funding, but it is associated with lower relative support for Private funding (RRR ≈ 0.85) and, even more clearly, for Against funding (RRR ≈ 0.71). The two alternative specifications, which distinguish trust in national government from trust in European Union institutions, refine this finding rather than overturn it. Trust in national government is only weakly associated with a relative shift toward Public funding, and more clearly with a reduction in Private funding and in opposition to funding. Trust in EU institutions shows a similar but more pronounced pattern: it does not produce a meaningful increase in support for Public funding, but it is associated with lower opposition to funding and, to a lesser extent, with lower support for Private funding. Descriptively, Joint funding remains the dominant option, accounting for more than half of the analytical sample. In the model-based results, higher trust is primarily associated with lower relative support for Private funding and opposition to funding, implying a strengthening of the relative position of Joint funding.

Altogether, the two sets of results outline a coherent picture. Economic concern is associated with preferences over the direction of public energy investment, while institutional trust is associated with how they prefer a future-oriented technology to be governed. In both cases, fusion-related preferences are not formed in isolation but emerge from a combination of perceived feasibility, climate urgency, technological familiarity, and confidence in the institutions expected to coordinate long-term commitments.

7.2 Theoretical implications and hypothesis assessment

The findings can be read directly against the hypotheses set out in Chapter 4. The two hypotheses associated with RQ1 are clearly supported. H1a, which predicted that higher concern about rising prices would increase support for energy investment options perceived as more immediate and reliable relative to fusion-only, is supported by the estimated associations: the coefficient on economic concern is positive and statistically significant in all three non-reference equations. H1b, which predicted that the same concern would decrease support for fusion-only investment preferences, is the natural mirror of H1a within the multinomial logit framework and is equally supported by the predicted probabilities reported in Figure 6.3.

H2 receives partial support. The evidence is strongest for Renewables, whose predicted probability declines as perceived climate urgency weakens. The Mix remains the most preferred option across climate categories, but it does not follow a simple monotonic pattern. Relative support for Fossil/Fission remains limited across most categories and rises visibly only among respondents who believe that climate change is not uncontrollable. The pattern is consistent with the framework developed in Section 3.2, but the finding that fossil and fission preferences re-emerge only when respondents view climate change as not uncontrollable adds nuance: climate concern does not penalize conventional options uniformly across the urgency scale, but mainly at its extreme.

H3, on the role of knowledge, receives strong empirical support. The negative coefficients on the medium-high and high knowledge categories in all three non-reference equations show that respondents reporting higher knowledge of the fission and fusion distinction are substantially more likely to choose Fusion only than respondents in the low-knowledge group. This is consistent with the argument advanced in Section 3.2 that, when the conceptual distinction between fission and fusion is weak, fusion is evaluated through the broader symbolic frame of nuclear power, and aligns directly with the cross-national evidence reported by Jones et al. (2024) and Oltra et al. (2026).

H4 is supported in a differentiated way. Age, gender, and education are associated with energy preferences in some, but not all, outcome comparisons. Older respondents are relatively less likely to choose Fusion only, women are more likely than men to choose Fossil/Fission and Renewables, and higher education is associated with stronger preferences for Renewables and the Mix. These patterns confirm that socio-demographic conditioning is empirically present, while remaining secondary to the role of economic concern, climate perception, and knowledge.

The hypotheses associated with RQ2 are supported in a more partial and qualified way, but in a direction that is theoretically informative.

H5, which predicted that higher aggregate institutional trust would be associated with stronger support for institutionally coordinated funding arrangements, is supported only in part. Higher trust does not produce a clear shift toward Public funding, but it does reduce the relative likelihood of preferring Private funding and, more strongly, of opposing funding altogether. Since Joint funding is the reference category, its reinforcement is observed indirectly: higher trust is associated with lower relative support for Private funding and Against funding, while the Public funding coefficient is small and not statistically significant.

H6 is partially supported: trust in national government is associated with a small and only weakly significant increase in Public funding relative to Joint funding, but with a clearer reduction in Private funding and in opposition to funding.

H7 is partially supported in a way that is consistent with the supranational character of European fusion policy. Trust in EU institutions is not associated with a meaningful increase in Public funding, but it is consistently associated with lower opposition to funding and lower preference for Private funding, which is consistent with the expectation that EU-level trust strengthens the legitimacy of coordinated, multi-actor arrangements rather than of single-actor solutions.

H8 is supported within the EU-only RQ2 sample: respondents living in active or phase-in nuclear contexts are less likely to oppose funding for nuclear fusion research than respondents in no-nuclear or phase-out contexts.

The broader theoretical implication is that institutional trust shapes the perceived legitimacy of governance arrangements more than it shapes a preference for a particular sector. This is consistent with Giacometti et al. (2025), who argue that European citizens approach fusion governance through a cooperative rather than dichotomous logic, and with the more general argument advanced in Faure et al. (2022) and Nicita et al. (2025) that trust in public institutions contributes to the acceptability of energy policies. In the present analysis, this logic is broadly reflected in the empirical findings: the results do not suggest a simple movement toward the state or away from the market, but toward joint arrangements that bring together both, and away from outright rejection of fusion funding.

7.3 Policy implications

The empirical findings carry several implications for the design of European energy and innovation policy in the post-2022 environment. They are framed here as policy-oriented inferences, consistent with the associations identified in the analysis and with the contextual evidence reviewed in Chapter 2, rather than as causal recommendations. This reading is consistent with Biten Butorac, Nicoli and Lalli (2026), whose conjoint evidence shows that public support for nuclear fusion and next-generation fission is shaped less by unconditional technological approval than by specific policy-design features, including governance arrangements, economic effectiveness, local impact, and technological understanding.

The first implication concerns the framing of fusion within the broader energy policy debate. The dominance of the Mix option, which combines renewables and fusion and accounts for around 60 per cent of responses, indicates that respondents in the six-country sample appear reluctant to treat the energy transition as a single-technology choice. This message is relevant to the preparation of the first EU-wide Fusion Strategy announced by the European Commission in 2025. Communicating fusion as a complement to renewables, rather than as a substitute or competitor, appears more aligned with public preferences than framing fusion as a stand-alone technological bet. The same logic applies in reverse: presenting fusion in direct competition with renewables may therefore be less aligned with the preference structure observed in the data, especially given that the Renewables versus Fusion comparison is where the effect of economic concern is strongest.

A second implication relates to the salience of energy affordability. The persistent gap between household electricity prices in 2025 and pre-crisis levels documented in Table 2.2 means that the population entering this survey did so under sustained cost pressure. The empirical analysis indicates that, in this context, citizens become relatively more supportive of investment options perceived as more immediate and feasible. For long-horizon technologies such as fusion, this suggests that public-facing communication cannot rely on scientific progress alone. It also needs to explain how fusion fits into broader objectives of affordability and long-term system resilience, while remaining transparent about the technology's time horizon. A fusion narrative that ignores affordability risks losing ground to alternatives that appear more responsive to short-term pressures.

A third implication concerns the design of fusion governance. The most distinctive finding of the second part of the analysis is that institutional trust does not consistently translate into a preference for state-led financing. Rather, it is associated with lower relative support for private-only funding and opposition to funding, thereby indirectly strengthening the relative position of joint public-private arrangements. This pattern is consistent with the actual institutional structure of European fusion research, which combines public infrastructures such as ITER, EUROfusion, and Fusion for Energy with a growing role for private actors. From a policy perspective, the implication is that explicit and transparent joint governance arrangements are likely to enjoy broader public legitimacy than either purely public or purely private models, and that the case for fusion funding is more easily defended through institutional credibility than through technological enthusiasm alone.

A fourth implication concerns public knowledge and communication. The very strong association between knowledge of the fission and fusion distinction and support for Fusion only suggests that public understanding of the technology appears to be a relevant policy dimension. However, because knowledge is measured through self-reported survey responses and the analysis is cross-sectional, this result should not be read as proof that information campaigns would mechanically increase support for fusion. Citizens who can distinguish fusion from conventional nuclear power evaluate it differently, in line with the arguments developed by Jones et al. (2024) and Oltra et al. (2026). This has direct implications for the design of public information efforts: investments in clear, accessible communication on what fusion is, how it differs from fission, and what its current state of development implies are not peripheral to policy, but a structural part of building durable public legitimacy. Crucially, this is not a recommendation for one-way persuasion, but for the cultivation of an informed public capable of judging fusion on its own terms rather than through the inherited frame of conventional nuclear power.

A final implication concerns the differentiation of national contexts. The descriptive material in Chapter 2 and the contextual indicator used in the analysis make clear that the six countries enter the post-crisis period from very different starting points, ranging from completed phase-out (Germany), long-standing absence (Italy), and scheduled phase-out (Spain) to renewal or expansion (France, the United Kingdom) and first-entry (Poland). The lower opposition to fusion funding observed in active or phase-in contexts in the RQ2 analysis, together with the somewhat higher predicted probabilities of choosing Fusion only and the Mix in the RQ1 analysis, suggests that public receptiveness to fusion may vary across national settings. The results suggest that a common European fusion strategy may require nationally adapted communication and policy design, which take into account both the structural composition of national energy systems and the symbolic legacy of nuclear energy in each country.

7.4 Scope and Limitations of Research

This study adopts a quantitative research design based on cross-sectional survey data. While this design makes it possible to examine public preferences over energy investment and fusion funding across different national contexts, it also entails limitations that must be explicitly acknowledged. First, the Ipsos survey measures self-reported perceptions and preferences rather than observed behavior. The findings therefore capture stated attitudes and intended preferences, which may differ from actual choices in real-world political or policy settings. Nevertheless, survey data remains an appropriate and widely used tool for studying public opinion, especially in relation to long-term and technically complex policy domains such as the energy transition.

Second, because the research design is cross-sectional, all variables are observed at a single point in time. This limits the possibility of drawing causal conclusions. The estimated relationships should therefore be interpreted as associations rather than causal effects. This point is particularly important for the interpretation of economic concern and institutional trust: the models identify systematic relationships between these variables and preferences, but they cannot establish the direction of causality with certainty.

Third, the analysis necessarily simplifies complex policy choices into a limited number of survey categories. The energy investment variable distinguishes between Fossil/Fission, Renewables, Mix, and Fusion only, while the funding variable distinguishes between Public, Private, Joint, and Against funding. These categories make the analysis interpretable and allow clear comparisons between alternative strategies and governance models. At the same time, they cannot capture the full complexity of real energy portfolios, financing instruments, regulatory arrangements, or technology-specific policy packages.

Fourth, the comparative scope is limited to six countries for RQ1 and to the EU-country subsample for RQ2, where the United Kingdom is excluded because the model includes trust in European Union institutions. The countries are not treated as units of analysis, but as contextual environments within which individual preferences are formed. The nuclear exposure dummy provides a parsimonious way to capture one important dimension of national variation, but it cannot fully represent all country-specific institutional legacies, energy mixes, political debates, or historical experiences with nuclear power.

Finally, although the models include several socio-demographic controls, unobserved factors may still influence respondents' preferences. Political ideology, direct exposure to energy costs, regional location, and prior attitudes toward nuclear power could all matter, but they are not fully captured in the present specification. As in most survey-based observational studies, omitted-variable bias cannot be fully ruled out. Overall, these limitations do not invalidate the analysis, but they define the scope of the claims that can be made. The thesis provides evidence of systematic associations in a European energy context still shaped by the post-2022 crisis; it does not claim to estimate causal effects or to predict future policy behavior.

7.5 Concluding remarks

The findings of this thesis suggest that energy preferences in post-crisis Europe are not structured only by environmental goals or technological attitudes. Economic pressure and institutional trust both play an important role in shaping how citizens evaluate future energy pathways and the governance arrangements associated with them. Public support for future-oriented technologies such as nuclear fusion depends not only on perceptions of their technical potential, but also on whether they are viewed as economically credible, institutionally trustworthy, and compatible with existing energy priorities. Understanding these perceptions is therefore likely to remain important as European energy policy continues to navigate the tension between long-term technological ambition and short-term political and economic constraints.

Future research could extend this analysis by examining how these preferences evolve over time, especially as the technological and political landscape surrounding fusion continues to develop. Comparative and longitudinal approaches could also help clarify how economic pressure and institutional trust interact in shaping public attitudes toward future energy systems. More broadly, the findings suggest that the political viability of technologies such as nuclear fusion is likely to depend not only on scientific and industrial progress, but also on the capacity of institutions to sustain public legitimacy under conditions of economic pressure.

APPENDIX I

The full survey sample consists of 9,026 respondents distributed across six European countries: Italy (16.6%), Germany (16.7%), the United Kingdom (16.6%), France (16.9%), Poland (16.6%), and Spain (16.6%). The country distribution is therefore broadly balanced across the selected cases. The gender composition of the sample is relatively even, with women representing 51.7% of respondents and men 48.1%. A very small proportion of respondents identified as "Other" (0.2%) or preferred not to disclose their gender (0.1%). Respondents range in age from 18 to 105 years old, with a mean age of approximately 50 years (mean = 50.05; sd = 16.16). The age distribution is moderately skewed toward older groups: 31.9% of respondents are aged 60 or above, 30.0% fall within the 45-59 category, 25.6% are between 30 and 44 years old, and 12.5% are aged between 18 and 29. Educational attainment is relatively high overall. Approximately 35.7% of respondents report tertiary education, 39.6% fall within the medium education category, and 24.7% report lower levels of educational attainment. The empirical analysis presented in Chapter 6 relies on a cleaned analytical subsample constructed by excluding observations with missing values in the variables included in the baseline specifications.

APPENDIX II.

To assess the robustness of the empirical results, several diagnostic checks were conducted. First, multicollinearity among the explanatory variables was evaluated using variance inflation factors (VIF) computed from auxiliary OLS regressions including the same set of covariates as in the multinomial logit models. The results indicate no evidence of problematic multicollinearity. For the baseline specification of Research Question 1, the mean VIF is 1.47, with a maximum value of 1.92. For Research Question 2, the mean VIF is 1.48, with all values similarly well below conventional thresholds. These results suggest that multicollinearity does not affect the stability of the estimated coefficients. Second, robustness to alternative model specifications was assessed by varying the operationalization of institutional trust in the analysis of Research Question 2. In particular, the composite trust index was replaced with its individual components, capturing trust in national government and in European Union institutions. The results remain consistent across specifications: higher levels of institutional trust are associated with a lower relative likelihood of preferring private-only funding and, more strongly, with a lower likelihood of opposing funding altogether, while the association with public-only funding remains comparatively weaker. Third, the sensitivity of the results to the choice of the reference category was examined. As expected in multinomial logit models, coefficient estimates change mechanically when the base outcome is modified. However, the substantive conclusions remain unchanged when focusing on marginal effects and predicted probabilities. In particular, for Research Question 1, higher concern about rising energy prices is consistently associated with an increase in the predicted probability of choosing renewable energy and a decrease in the probability of selecting fusion-only strategies, regardless of the chosen reference category. Finally, to ensure comparability across specifications, selected models were re-estimated on identical samples. For both research questions, the estimation samples remain unchanged (N = 6,359 for Research Question 1 and N = 5,376 for Research Question 2), indicating that missing values do not affect the comparability of the results across models. Overall, these checks confirm that the main findings are robust to alternative specifications, model assumptions, and sample definitions.

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