Operationalizing Climate Boundaries

Operationalization in a comparative sampling strategy

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The Force of Political Emotions

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Executive Summary

The report presents the core methodology for Work Package 4 (WP4) within CIDAPE. It outlines a research strategy aimed at understanding how interpretations of climate change influence people's self-perceptions and climate boundaries across four different European countries: Slovakia, Spain, Austria, and Norway. Our research employs a comparative framework that encompasses the diverse compositions of North, South, East, and West Europe, promising a robust analysis of varied socio-economic impacts on climate orientations.

Further, this report details the sampling strategy that will be used in all four cases to recruit individuals for interviews and, subsequently, for focus group discussions. We justify our sampling approach, grounded in relevant sociological literature, by adopting a scheme based on class differences that will allow us to systematically reflect how climate boundaries are articulated against the background of diverse socio-economic landscapes in each of our four cases. This approach is designed to probe the interaction between national contexts and individual climate change perceptions, which will allow us to explore how these differences shape public and private attitudes and orientations towards how society copes with the climate crisis.

1 Comparing Slovakia, Spain, and Austria

The basic idea behind the comparison is to reflect the diverse compositions of North, South, East, and West European cases. We are also interested in understanding how national (or regional) interpretations of climate transformation influence people's self-understanding and their perceptions of boundaries. This question can be most effectively addressed within a comparative framework.

1.1 Country Characteristics

Figure 1 THE FOUR COUNTRY CASES SPAIN, AUSTRIA, SLOVAKIA, AND NORWAY

Slovakia

Slovakia is an East Central European country with a population of 5.4 million and GDP of approx. 140 billion US dollars (2023) and 25,930 GDP per capita (2023). Since 2004, Slovakia has been a member state of both the European Union and NATO. According to World Bank data, Slovakia's Gini coefficient was 24.1 in 2021, indicating that it has one of the most equally distributed incomes among individuals in the EU. However, according to IMF data, Slovakia also ranks among the countries with the highest regional income disparities. Income equality in the country is influenced not only by policies but primarily by a significant portion of the population working in low-paid sectors, primarily in services and industry. Slovakia's skilled yet inexpensive labor force is attracting a variety of industrial investments, with the automotive sector having the most substantial impact.

Climate change affects Slovakia through increased temperatures, heatwaves, increased precipitation, windier conditions, storms, floods, as well as landslides. According to a 2023 Eurobarometer survey on climate change, Slovakia belongs into the broad family of Eastern European societies where the impact of climate change is felt less acutely than in Western Europe or Scandinavia. Compared to Spain, Norway, and Austria, there is a greater percentage of the population that considers climate change to be a process resulting equally from natural processes and human activity (ISSP 2020). Although ISSP survey shows that less than 10% of Slovaks see climate change as a crucial problem, more recent surveys show that Slovakia is far from being climate-skeptic – in 2023, only 8% thought climate change was not a serious problem, whereas 64% of the population considered it a very serious problem. Moreover, according to the regular *How are you, Slovakia* poll (March 2024), 47.8% of Slovak population perceives finding solutions to climate change as important, while only 20.6% as unimportant. 51.2% of Slovaks consider a wide-ranging discussion about climate change important and only 19% unimportant. According to the same survey, 62.6% of Slovaks associate "worries" as an emotion with the climate crisis. Nature generally plays an important role in the Slovak discourse, as according to a recent Institute2050 poll, 72% of Slovaks identify as "nature protectors" (compared with 59% who see themselves as "patriots"). The vast majority of the Slovak population perceives climate change as real (only 7% denies it). Yet, Slovaks feel significantly underinformed, with 34% claiming they can't judge the EU Green Deal policies, many fearing the impacts on living standards and the situation of the poor. Similarly, almost half of the population sample thinks that we worry too much about the environment and not enough about prices and jobs (ISSP 2020).

Spain

Spain is a Southern European country with a population of 48,7 million people. With a Gini coefficient of 32,0, Spain has moderate levels of income inequality (the highest in our comparison). The Spanish case within our sample is particular for two reasons: 1) it is the largest country of our sample, both in terms of geographical size and inhabitants, and 2) it is the only country of the four where interviews will be conducted outside its capital city. This implies that our sample will be necessarily regional, reflecting the strong regional differences in terms of main economic sectors, demographic situations, and political ideologies in Spain. Valladolid, located 250 kms northwest from Madrid, with a population of 300.000, it is the largest city and primary seat of government of the autonomous community of Castile and León.

While being the 4th most populated country in the EU, its population is strongly unevenly distributed: the eight most populated provinces concentrate almost 50% of the Spanish population, while only 7% of the total lives in the least populated. Several areas in Spain represent a demographic challenge, while others are directly considered "demographic deserts", as regions with less than 10 inhabitants per square kilometer are defined by human geography (53% of the national territory has less than 11.5 inhabitants per square kilometer, the limit set by the EU to designate unpopulated areas).

Castille and León is the second largest autonomous community in geographical size but one of the least populated, with large, depopulated, underfunded rural areas. Together with other sparsely populated autonomous communities it is known as "emptied Spain": Representatives of the "España Vaciada movement" insist on the concept of "vaciada" rather than "vacía," or "emptied" instead of simply "empty." They mean to underscore that these parts of Spain once had a lot more people in them, and they want to recover what has been lost. In the last decades, 30 Spanish provinces lost population, with Zamora, León (both in Castile and León) and Cáceres leading the way in recent years (INE 2019, 2022). It is the province of Soria that has the highest active aging index and lowest birth rate in the European Union according to data from the "Active Aging Index of Castilla y León".

This Castellano-León territory is not only the most unpopulated province in Spain, but it is also part of the region with the fewest inhabitants per square kilometer in all of Europe (8.7).

Spain, and this region more specifically, is experiencing impacts from climate change, such as increasing temperatures and a greater frequency of extreme weather events like heat waves. It faces intensified droughts, which affect water availability and threaten, in particular, the agricultural sector.

According to the Eurobarometer 2023 survey, Spanish citizens are generally strongly concerned with climate change: 86% of the population consider it a “serious problem”. Only 5% think that it is “not a serious problem” (Eurobarometer 2023: 24). In this survey, respondents were also asked about specific everyday practices they had changed as part of a personal effort to tackle climate change. For Spanish citizens, as with most Europeans, the most important practice is to reduce household waste and separate it for recycling. Compared to many Western and Northern European countries, an interesting finding is that the idea of "eating less" meat is considered less of a priority among Spanish people (ibid. 38) – a difference that, according to this survey, reflects a broader gap between the north/west and south/east of Europe in this regard. The ISSP 2020 survey reveals that Spanish citizens are also concerned about water shortage as an important environmental issue next to climate change. According to the same survey, a clear majority of surveyed citizens in Spain are concerned with environmental issues, see it as a serious global problem and recognize that modern life harms the environment. At the same time, they are aware that these problems have a direct impact on their everyday lives (e.g. intense heat, extreme flooding). Besides, while most indicate in surveys that they make the conscious effort of separating waste for recycling, this is a contentious issue often generating strong debates and clashes during focus groups in Spain (Alonso et al. 2014).

A noteworthy curiosity relevant to our research topic is that Valladolid, governed by the PP (Popular Party, traditional right-wing Party) in coalition with the newer far-right party VOX (voice in Latin), was recently “officially” named car-friendly city. This reflects the markedly and historically oppositional, obstructional discourse on climate action of these two parties.

Austria

With its 9 million inhabitants, Austria is one of the smaller EU countries. In 2023, a GDP of 477 billion euros (2023) was recorded. The country has comparably low levels of income inequality, with a Gini coefficient of 27,5. The Austrian economy is dominated by the tertiary (service) sector, which employs a significant share of the workforce, particularly women. Other sectors, such as the industrial and commercial sector, employ a lower proportion of the workforce with a notable gender disparity favoring men. The primary sector of forestry and agriculture employs a minimal percentage without a significant gender gap.

In terms of climate, Austria is in a special situation alongside other countries in the Alpine region. Since 1980, the average annual temperature in Austria has risen by around 2°C, twice as much as the global average. In particular, the melting of glaciers, reduced snow cover and other extreme weather conditions not only have harmful consequences for the climate and people, such as rockfalls, drought, forest fires, landslides and mudflows, but also place the tourism industry in particular under strong pressure to act and react accordingly (Ausserladscheider 2024; Umweltbundesamt 2022). At the same time, increased energy prices and poor social policy in the climate crisis are putting pressure on low-income people and households in particular to cope with energy poverty individually (see Eisfeld & Seebauer 2022). According to the 2023 Eurobarometer poll, 62% of Austrians believe that climate change is a “very serious problem”. However, the share of those who think that it is “not a serious problem” is comparably large in this country - 17% hold this view (which is only surpassed by Czechia and Estonia in this Europe-wide poll, with 7% as the EU average) (Eurobarometer 2023: 24).

Norway

Norway is a Northern European country with a population of approximately 5.4 million and a GDP of around 547 billion US dollars (2023) and a GDP per capita of 92,646 US dollars (2023). Since 1949, Norway has been a founding member of NATO, but it is not a member of the European Union (it is instead affiliated with the European Economic Area). Norway's Gini coefficient was 25,9 in 2021, demonstrating its relatively low income inequality compared to global standards. Norway is a wealthy society, it benefits from a mix of a well-developed welfare system and a robust, mixed economy heavily influenced by abundant natural resources, particularly oil and hydroelectric power. The oil sector dominates, contributing significantly to GDP, though there is a strong push towards sustainability and green energy. Norway's high standard of living is also supported by sectors such as seafood, shipping, and tourism.

Climate change affects temperature levels across the country, bringing warmer and wetter conditions across all regions and seasons. Norway also faces challenges like the retreat of its largest glaciers and ocean acidification. According to the ISSP 2020 survey, Norwegians are concerned about environmental issues in general and about climate change in particular. About a quarter of respondents in this country are "strongly concerned" about environmental issues, and more than 45% single out climate change as the most important environmental issue. Yet at the same time, there is evidence that climate skepticism is relatively widespread in Norway. Surprisingly, the belief that climate change is not caused by humans but is instead a natural cycle of change – an important dimension of climate skepticism – has the highest support among Norwegian respondents compared to citizens from other European countries (Poortinga et al. 2019: 27).

1.2 A first approach to comparison

The ISSP 2020 Environment IV survey (ISSP 2020) as well as the 2023 Eurobarometer special survey on climate change (Eurobarometer 2023) provide some interesting insights for our comparison.[1] ISSP 2020 data reveals that Spanish citizens are more strongly concerned about environmental issues (a much broader category than "climate change") than citizens from the other three countries. More than half of Spanish respondents feel "very concerned" about environmental issues, whereas this is only the case for a quarter of Norwegian respondents, and a little more than 18% in Slovakia and Austria.

The Eurobarometer survey focuses on climate change. It introduces interesting perspectives by asking about specific policies and by incorporating an economic angle, such as subsidies and costs, into climate policy discussions. It for example integrates the issues of energy, energy supply, and prices into the climate conversation. The survey questions ask about various personal actions related to environmental sustainability, such as choosing vehicles with low fuel consumption, using eco-friendly transportation alternatives, selecting appliances based on energy efficiency, and switching to renewable energy suppliers. It also asks if respondents consider the carbon footprint of their food and travel, manage household energy through smart technologies, engage in recycling, and reduce the use of disposable items.

The survey reveals differences in environmental behaviors and preferences among Austrians, Slovaks, and Spanish respondents. Austrians demonstrate notable support for reducing meat consumption and choosing less carbon-intensive mobility options, whereas Spanish citizens appear less concerned with the issue of meat consumption, which possibly indicates a weaker association between eating habits and a "green lifestyle" in Spain compared to Austria. Slovaks show strong support for insulating homes, which could reflect the country's significant need for building renovations. Interestingly, while Austrians are comparatively more in favor of electric cars, Slovak support for

[1] Norway is not part of the Eurobarometer 2023 survey.

them is limited. This may be due to perceived high costs or ties to the local car industry. The disparity between Austria and Slovakia in this regard is striking. It may reflect a larger, historically shaped East/West divide in attitudes, considering that Vienna and Bratislava, the two closest European capitals, are only 70km apart.

Economic perspectives also vary significantly across these countries. Slovaks tend to be more skeptical about the economic benefits of green technologies for Europe and are less critical of carbon subsidies for industries, which might reflect the influence of the automotive sector in this country.

In our approach to the interview study, we will draw on findings about patterns of public opinion on climate change as important contextual knowledge. However, our own approach is much more open-ended: rather than asking individuals to respond to a set of standardized climate-specific questions, we focus on exploring their everyday experiences and practices related to climate.

2 Sampling: Who do We Plan to Talk to?

2.1 Overall framework for sampling

Our comparative framework of four societies, Slovakia, Spain, Austria, and Norway, provides a rich framework for comparison, which allows us to trace key processes around climate change, climate policies, economic and inequality issues, across the European landscape. In the following, we describe our ideas and methodological considerations for the interview sampling. While WP4 will also conduct focus group discussions, we will not address the sampling strategy for them at this stage. The strategy for the focus groups will be elaborated in a subsequent step, once the interview sampling is finalized.

2.2 Interview Sampling Strategy

We follow a qualitative approach, so we do not aim for a representative sample. Instead, we foreground context – national context, regional context, as well as the specific context of our interviewee's economic sector and workplace environment.
We choose particular criteria on which we sample individuals for the interviews. We study three distinct social groups, conceptualized according to Daniel Oesch's (2006) class scheme, which is mapped on Pierre Bourdieu's delineation of the social space. It foregrounds the nature of employment relations and job tasks, and hence attempts to capture key axes of work-related inequalities in post-industrial societies. The three groups are as follows:

- Skilled workers (manual and service work)
- Higher level managers
- Socio-cultural professionals

These three occupational groups express class distinctions. Importantly, within specific occupational fields, a wide range of professions exist, some of which map more clearly onto the distinction proposed by Oesch than others. Oesch's scheme further includes a differentiation of four different types of work logics, which can be matched with these different status categories: (Oesch 2006: 269) the independent, the organisational, technical, and interpersonal work logics. All of them are relevant for thinking about the role of emotions in people's work activities and how this might affect their relationship to work. The fourth type, the interpersonal work logic, is squarely concerned with relational/emotional labor: it involves relating to other people, including relating emotionally to others.

What is the advantage of this sample strategy? Working with occupational groups and work logic according to Oesch provides us with a solid foundation for the comparative analysis. It allows us, further, to think about how these groups relate to one another across the four cases. It therefore enables us to pursue a relational analysis, which aligns well with our overall focus on symbolic boundaries. Sampling by profession also has disadvantages. Most significantly, it means that we consciously exclude people who are not (currently) active in the workforce, such as the unemployed, pensioners, students, or people with disabilities. Given the overall constraints to the number of people we can sample, we realize that we cannot meaningfully incorporate another social group that includes a small number of individuals "outside" of the workforce – while this is an unfortunate omission, doing so would leave us with very thin methodological grounds to make meaningful comparisons to those who are "inside" the workforce and in the specific status positions. Moreover, we face another trade-off: Because we choose to focus on the three groups specified above, we cannot include the self-employed, meaning that we will not be able to reconstruct the independent work logic in our sample (leaving us with a focused analysis of the other three work logics).

Oesch's (2006) conceptualization of gender inequalities centers on labor market position. We go beyond this to introduce a feminist approach (Hochschild 1996, Fraser 2016) to the link between climate and inequality in CIDAPE and our research in WP4. We conceptualize care work as a fundamentally gendered form of labor, both in its market dimension (in the care sectors, such as health care and education) and in the reproductive, unpaid sphere of family and private care. As part of our sampling strategy, we reconstruct gendered work logics that are specific to sectors of the economy and branches within them. For example, we can think of the male-dominated steel industry in Austria as constituting a framework of a work reality that affects female or non-binary workers in the sector as a power structure, and consequently shapes everyday interactions and the meaning of work.[2]
In qualitative research, the principle of saturation is generally applied to determine the ideal sample size – a sample can be considered saturated if similar patterns begin to reappear in additional interviews, and no new variation (relevant to the research question) can be determined from the accounts provided by interviewees at some point (Gerson and Damaske 2021: 52). Next to saturation, another criterion for a good sample size is that it is sufficiently large to allow researchers to discern "variations, patterns, and relationships, to make strategic comparisons among participants, and to demonstrate the validity of these patterns" (ibid. 15). In this project, we are constrained by the available resources specified in CIDAPE's proposal: WP4 can conduct 30 interviews per country, thus 120 interviews in total. Given these constraints, our goal is therefore not to reach a level of saturation in a single country, but instead generate material that can be meaningfully and systematically interpreted and compared across our four cases – in the sense of the second criteria specified here. We want to make sure to include a wide range of people, with different backgrounds, and to be able to identify the kind of variation that is particularly relevant to our research question in a comparative fashion.

The class scheme proposed by Oesch (2006) provides an excellent point of departure, but we also need to specify further what groups we plan to talk to, because there is a vast number of different professions within each category and because our sample cannot be representative of the general population. Therefore, we need to introduce another framework that allows us to narrow down our choice and provide context for selection of the individuals sampled.

[2] Focusing on the three work logics also brings an advantage, as it also allows us to sample individuals with more distinct capital profiles (in the sense of Pierre Bourdieu). Socio-cultural professionals and higher managers both possess substantial amounts of capital, though the former mainly hold cultural capital, while the latter primarily possess economic capital. Workers generally have lower levels of capital, with healthcare workers notably lacking in economic capital and skilled manual workers distinctly low in cultural capital. Those with independent work logics may be described as having a less distinct capital "portfolio".

Such a framework, we believe, can be found when considering different sectors of the economy in each of our four cases. Each case has a distinct composition of their economy, varying in size and focuses, and various sectors and branches within these sectors are differently related to climate change and the green transformation. The basic premise that we start from here is that we are interested in large sectors, that is, part of the economy where a great number of people are employed in a specific county (in the case of Spain, given the size of its population – many times that of our other cases –, we focus on a specific region; in Norway, we will foreground the Oslo region and its immediate surrounding municipalities).

We aim to look for the three occupational groups preferably from three sectors in each country. Here, we want to include especially industry and health care (as part of the service sector) in all of our cases. We plan to sample three to four individuals from each class position, and this from each of the three sectors in each case, totaling 30 interviews per country. We also recognize that this selection cannot be too rigid. The idea to sample 3-4 by 3 is a feasible plan, but it will probably need adjustments (including country-specific adjustments) once we start recruiting individuals for this research. However, it makes sense to use this as a common framework in light of our overarching comparative framework, which is the point of departure from which we devise the sampling strategy.

Foregrounding gendered labor arrangements in our research, we include the health care sector into our sample. Health care workers are situated in feminized sectors, where their work is undervalued based on social norms that categorize it as "reproductive" rather than "productive", which reflects the underlying logic of gender inequality. We compare health care in all four country cases.

In addition to the health care sector, we plan to focus also on sectors and industries within targeted countries that are more directly impacted and influenced by European and national regulatory frameworks aiming for decarbonisation of the economy (Table 1). We will not compare identical sectors and industries across selected countries due to the varying economic significance and focus of each region. However, following the logic of strategic importance and research topic relevance, we have chosen the following specific sectors.

One important issue that shapes the contextualization of our sampling strategy via sector is that the three class positions that we are interested in are likely under- or overrepresented in specific sectors. For example, there are many socio-cultural professionals working in the field of education, but not as many in the industrial branches of the economy. Gender also strongly shapes this composition: For example, in Norway, a large share of socio-cultural professionals are female, while most higher-level managers are male. In industry, there are certain branches that are heavily male-dominated (such as the steel industry), whereas others might traditionally be more characterized by feminized labor (such as textile).

Therefore, we approach the sectors by understanding gender and social status composition and create a more balanced view for our sampling, to ensure that we also capture perspectives from individuals who are statistically underrepresented in the specific field.

2.3 Country context for sampling

TABLE 1: THREE COUNTRY-SPECIFIC SECTORS AND PRE-SELECTED OCCUPATIONS WITHIN THREE DESIGNATED WORK LOGICS

Country	Skilled workers (manual & Service)	Managers	Socio-Cultural (Semi) Professionals
Slovakia	Automotive industry workers; Agricultural workers (crop and livestock farmers, forestry and related workers); Healthcare workers (Personal care workers and health care assistants, hospital staff)	Automotive industry managers and trade union professionals; Agricultural and forestry production managers; Hospital managers, Health services managers (e.g. health insurance company)	Vocational education teachers; Agricultural educators, Rural community development and cultural heritage specialists; Medical doctors, Nursing professionals, Pharmacists, Medical data and policy analysts
Norway	Building/construction workers; Health-Care workers (e.g. personal care workers and health care assistants, nurse assistants); Skilled workers in education	Building/construction managers; Hospital managers, Health services managers (e.g. health insurance company); Higher administrative personnel from education sector	Building/construction managers; Hospital managers, Health services managers (e.g. health insurance company); Higher administrative personnel from education sector
Spain	Automotive industry workers; Health-Care workers (e.g. personal care workers and health care assistants, nurse assistants); Skilled workers in education	Automotive industry managers and trade union professionals; Health services managers (e.g. health insurance company); Higher administrative personnel from education sector	Medical doctors, Nursing professionals, Vocational education teachers; Public employees health and education; teachers and other socio-cultural professionals from public education sector
Austria	Tourism/Skiing/Cable Railway workers; Production workers in the lumber or steel industry; Health care workers (e.g. nurse assistants)	Tourism (Skiing/Cable/Railway managers); Managers in the lumber or steel industry; Hospital managers, Health services managers (e.g. health insurance company)	Tourism/Skiing/Cable Railway (PR workers e.g. Tourism information offices etc.); Vocational Educators (lumber/steel); Health Care (nurses, midwives, medical doctors)

Slovakia

Automotive industry. Slovakia is the largest per capita passenger car producer in the world. Car manufacturing currently makes up 13% of Slovakia's GDP and 54% of its entire industrial production, and it is also the leading sector in terms of job creation. Thanks to its skilled yet cheap labor force, Slovakia has attracted some of the industry's crucial players, including Volkswagen, Kia, Stellantis, and Jaguar Land Rover. In 2022, the Slovak government signed an investment deal with Volvo, which plans to build an electric vehicle manufacturing plant in eastern Slovakia. Moreover, several factories for batteries and EV components have been announced to start operations in the upcoming years. Slovakia's dependence on the automotive industry – whether fossil-based or electric – is likely to continue in the near future. Therefore, the composition of the automotive industry workforce provides an important sample to better understand the relationship between different work logics and climate boundaries.

Agriculture, Forestry, and Fishing. The agriculture sector is directly affected by environmental and climate changes, as well as European and national directives and regulations. Agriculture and forestry together contribute approximately 2.8% to Slovakia's GDP and employ less than 3% of the workforce. Despite its relatively low economic significance, the sector is crucial for meeting the basic

needs of the population. Moreover, agricultural workers and farmers are often politically vocal about the effects of green and economic regulations on their work. Their protests and active engagement in political negotiations, combined with their everyday contact with the environment, create an almost perfect sample where political, environmental, and working logics intersect with emotions.

There is a clear pattern of gender segregation in the Slovak labor market, with men dominating traditionally male-oriented sectors like agriculture and industry, while women are heavily concentrated in health and social assistance (Štatistický úrad SR 2024). Agriculture, forestry, and fishing is a male-dominated sector, with men making up about 75% of the workforce (Men: 46,300, Women: 15,600). Industrial production is also male-dominated, though less so than agriculture. Men represent around 66% of the workforce, while women account for 34% (Men: 381,600, Women: 197,300). In contrast, the health and social assistance sector is predominantly female, with women making up around 82% of the workforce (Men: 36,700, Women: 166,500).

Spain

The choice of occupations of the interview participants in our sample is guided by the area's main economic sectors. After services (mainly trade), the industrial sector (primarily manufacturing) is the second-largest contributor to the country's economy, generating 21% of its GDP and employing 20% of the active population. Notably, Spain is the second-largest automotive manufacturer in Europe after Germany. Particularly in Valladolid, this industry has a strong relevance: Together with the French tire manufacturer Michelin, Renault and Iveco are the most important industrial companies. Only the first two employ around 7800 people.

Another relevant element in our sample design is that Castile and León have the second largest rate of public employees in Spain (18%). In Valladolid they are strongly represented in the public health system (two large public hospitals and their administration) as well as the main seat of regional administration bodies such as taxes and social security agencies, education, and defense (35.000 public servants).

Taking into account this particular composition, including largest industries and sectors, our Spanish interview participants will have their place of residence and main occupation in the city and will be employed by hospitals, the automotive industry, and public primary and secondary schools. Recruitment of participants will take into account the particular gender composition of each sector. While 70% of employees in the "manufacturing industry" are male, the opposite is true for the "education" sector, where 70% are female. When it comes to the Spanish "healthcare and social services" 80% of the workforce is female (INE 2022). Here it is relevant to note that social services has historically, and globally, been a markedly female field, impacting the joint reporting that Spanish authorities deliver on these two sectors.

Austria

The Austrian economy is characterized by a dominant tertiary (service) sector, which employs 70% of the workforce, including a notable majority of employed women (84%) compared to men (58%) The tertiary sector has been growing in importance in Austria for some time now. A total of 70% of all employed persons in Austria work in the service sector, with 84% of all employed women and 58% of all employed men in the service sector. A GDP of around 300 billion euros was recorded in this sector. Not very close behind is the industrial and commercial sector with around 26% of all employed persons (38% of all employed men but only 13% of all employed women) and a GDP of approximately 125 billion euros (2023). The primary sector of forestry and agriculture accounts for only 4% of all employed persons, with no significant gender difference and a GDP of around EUR 6

billion (2023). (Statistics Austria 2024b, 2024a). In addition to trade, the manufacture of goods (Food and Drink industry, Mechanical and Steel Engineering, Chemical and Automotive industry, Electrics and Electronics industry and Wood, Pulp and Paper industry), the healthcare and social services sector employs the most people in Austria (Klapfer & Moser 2024).

The gender differences in the sectors already indicate a gender difference in the monetary remuneration of work. After Estonia, Austria is the disappointing frontrunner in the EU in terms of the gender pay gap with a gap of over 18%, compared to an EU average of around 12%. This can be attributed not only to the very unequal distribution of around 2 hours more unpaid work by women per day in Austria, but also to an increased part-time rate among women. Partly due to a lack of (subsidized) childcare facilities, around 51% of all working women in Austria opt for part-time employment, while this figure is 13% for working men. (EUROSTAT n.d.; Foissner 2023)

Austria's tourism sector plays a key role in its national economy. In our study, we want to focus on winter sports and mountain tourism, which draws millions of visitors each year and significantly impacts local and national economic growth. At the same time, this sector is vulnerable to climate change, as rising temperatures and decreasing snowfall alter the landscape of winter tourism and challenge the sustainability of the industry.

Second, we want to focus on Austria's significant lumber or steel industry. These industries are crucial to both local economies and the national economy, providing significant employment and driving export revenues. Covering more than 47% of the country's land area, Austria's forests constitute the basis for a vital lumber industry. Similarly, the steel industry, exemplified by companies like Voestalpine AG, is known for producing specialized steel products essential for various sectors including automotive and construction. These industries support local job creation, particularly in rural areas – in regions of Salzburg, Upper Austria, and Styria, and also play a crucial role in Austria's global trade. Both sectors face changes towards sustainable practices with respect to Austria's commitment to environmental sustainability and reducing carbon emissions in industrial production.

Norway

In Norway, the sectors of building/construction, healthcare, and education provide a diverse landscape for our research. The building and construction sector in Norway plays a crucial role in the country's economy, driven by both public and private investments. It employs about 8% of the population (Statista 2024) and is structured around a relatively large number of small businesses (Government of Norway 2021). It is also characterized by a high degree of organization and regulations regarding safety, labor rights, and environmental standards. The sector is shaped by a growing emphasis on sustainable building practices and the use of eco-friendly materials, such as timber.

Like in Spain, we will focus on the education sector in Norway, with a focus on public primary and secondary schools. Education is also among the largest sectors in terms of employment in this country. It provides high standards across different levels. It is largely publicly funded, ensuring free access to education for all citizens. Healthcare, together with social work, is one of the largest sectors of the Norwegian economy in terms of employment (Statista 2023). Norway's healthcare sector is distinguished by its universal coverage and high standards of care, funded largely through taxation. There is a significant representation of women in the sector. Healthcare in Norway faces challenges such as managing an aging population and integrating advanced technology in healthcare services.

In Norway, our research will focus on the Oslo area and its immediate surroundings, as the economic sectors of interest can all be found in this region. As in our other cases, the Norwegian workforce is shaped by structural gender disparities. For example, in the public sector in 2016, more than 70% of the workforce was female, while in the private sector, these numbers are almost reversed.

Almost 65% of leadership positions were held by men, according to the Norwegian statistical office (Statistics Norway 2017). Regional disparities also affect these compositions, with Oslo being one of the more equitable regions, including in terms of the distribution of part-time work, which is typically more likely to be performed by women.

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