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Policy Paper

Green Transformation: reconfiguration of consumption in Norway and the Czech Republic in a more sustainable direction

Comparisons and identification of knowledge gaps

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Preface

The following paper is a part of the project *Green Transformation: Sustainable Consumption and European Single Market policies* **supported by the Norway Grants** in the Czech Republic.

The project aims at strengthening the cooperation between Consumption Research Norway (SIFO) at OsloMet - Oslo Metropolitan University, EUROPEUM Institute for European Policy, STEM and Charles University in sociological research concerning European integration, de-carbonisation, sustainability, and the role of consumption in relation to climate change.

We expect that the following research note will become a baseline for our future joint research in the aforementioned areas. The goal is to fill the current gaps in knowledge so that policy makers and scientists have sufficient amount of data to propose climate neutral and sustainable policies.

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Introduction

The focus of this Research Note is to analyse the preconditions for a move into comprehensive sustainability for Norwegian and Czech consumers, focusing on the consumption areas of *households* (mainly domestic energy use), *transport,* and *nutrition*. These are considered the most important areas from a global warming perspective, in addition to *the purchase of products* (consumer electronics, household appliances, clothes etc.).

The climate effect of consumption of products is mainly indirect, as most manufacturing today takes place in Southeast Asia, causing greenhouse gas emissions there, but affecting us all. The ambition is twofold: First, we want to give an overview of the present situation in Norway and the Czech Republic, including possible research gaps. Secondly, we want to describe the unique national contexts and experiences in order to identify fruitful avenues for comparisons between the two countries.

In 2019, the European Union confirmed its obligation to become a climate-neutral economy by 2050. The EU legislators simultaneously push hard for decarbonization of transportation, and development of a climate friendly energy sector. A lot of attention is also paid to the construction industry. The only exception is nutrition, as there are presently no plans to regulate consumption of meat and other greenhouse gas-demanding products. As part of the effort to achieve climate neutrality by 2050, the European Union has recently (December 2020) decided on a 55 % reduction in GHG emissions by 2030, compared to 1990, aptly termed the 'Fit for 55 Package'[1]. This is a significant increase of ambitions; the 2030 goal originally was on 40 %. It is interesting to compare Norwegian and Czech responses to this sharpened policy. It will call for drastic measures to achieve this reduction in less than ten years.

In any case, should the EU meet its climate obligation, a radical change in consumer behaviour in nutrition, households and transport is needed. This obviously cannot be achieved without the cooperation of the EU's population. The EU and its member states will have to develop policies that not only lead to lower greenhouse emissions; they must also be accepted by the population.

This is also the background for this research note. It should become a baseline for further research in consumer behaviour in three areas – nutrition, households and transport. It describes what has already been studied in the Czech Republic and Norway in order to ascertain what knowledge gaps must be filled in order to provide policy makers with a good overview on how to change consumption among Czechs and Norwegians in a more climate friendly direction.

We also presume that the paper will create a foundation for larger scientific projects that will be carried out within the next 5 years by all organisations participating in the project. If successful, the consortium will be able to cover all important aspects of social dimensions tied to the decarbonisation process.

Theoretical approach

The general theoretical frame for most modern research on sustainability is *ecological modernisation* (Weale 1992, Hajer 1995, Spaargaren 1997). We will not dive into details, but we remind of the overall

[1] https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/package-fit-for-55

conclusion: The sustainable society is a modern, wealthy, densely populated high-tech society, taking on the environmental challenge as a set of problems that are soluble within the present political-economic system.

In this Research Note the Norwegian case utilizes an approach developed at SIFO in the 1990s (Strandbakken & Kasin 1995, Vittersø, Strandbakken & Stø 1998), wh ere we defined environmental measures at three levels. The consumer/household might operate on:

1. The level of product substitution
2. The service level/level of reorganisation
3. The level of reduced consumption

The relevance of this scheme varies between consumption areas, and it is probably best exemplified with transport. At the product level, the consumer or household may select a more environmentally friendly car; a small, fuel-efficient car, an electric car or a hybrid (or hydrogen fuelled). The lifestyle as such is not affected, but the ecological footprint of the family's transport behaviour is reduced (1). At the service level, or the level of reorganisation, the household "consumes" the same number of kilometres, but the transport service is delivered by collective options; bus, train, tram etc., or by car sharing (2). At the level of reduced consumption, the family travels less, consumes fewer kilometres. This might be achieved by working closer to home (either by changing dwelling or by changing workplace), by taking vacations more locally and so on. In real life, the three can, and will be combined.
Different projects and reports from the preceding 20-30 years use a number of different theoretical approaches (i.e., practice theory, attitude-behaviour models), but ecological modernisation and the three-level approach informs most of the studies of the sustainability and non-sustainability of Norwegian consumption.

The case of Norway

Introduction

The Monarchy of Norway has been independent since 1814. Its head of state is a king. It is a constitutional democracy, based on parliamentary rule and elections every fourth year. Norway has a population of approximately 5,4 million. The employment rate is high, and the unemployment was estimated at 5.1 % in August 2021[2], a corona-based rise from a "natural" level at approx. 3.7 %. Its main exports include oil, natural gas, fish, metals and hydroelectric power. In addition, some offshore and oil extraction technology. Oil and gas accounts for almost half of the country's export income.

Other natural resources are agriculture, forests, and minerals. The government collects much money from various sources, and has policies intended to spread this wealth among Norwegians. This spread of wealth, is done both directly and indirectly. The production of hydroelectric power means that domestic electricity use is more or less 100 % based on renewable sources. Electricity is used for domestic heating, and it has historically been very cheap.

Norwegian offshore *oil production* accounts for huge GHG emissions (27 % of the country's total emissions, according to the Norwegian

[2] Labour force survey by Statistics Norway: https://www.ssb.no/en/arbeid-og-lonn/sysselsetting/statistikk/arbeidskraftundersokelsen

Environment agency, not including the subsequent burning of the oil and gas), but these are not counted as part of Norwegian *consumers' impact,* Table 1. Furthermore, the actual use of the exported oil (and gas) is conventionally seen as producing emissions from the countries where it is consumed, not where it is produced.

Table 1: Greenhouse gas emissions from Norway in 2020 and development between 1990-2020 and 2019-2020[3]

Emissions to air[1]			
	Million tonnes CO2 equivalents[2]	Change in per cent	
	2020	1990 - 2020	2019 - 2020
Emissions	49.3	-3.9	-3.4
Oil and gas extraction	13.3	62.7	-4.4
Manufacturing industries and mining	11.4	-42.2	-1.6
Energy supply	1.6	288.0	-1.9
Heating in other industries and households	0.6	-79.7	-18.8
Road traffic	8.4	13.1	-3.9
Aviation, navigation, motor equip. etc.[3]	7.3	38.0	-4.5
Agriculture	4.4	-6.6	-0.2
Other	2.2	-17.1	-3.2

[1] Figures published in June are preliminary. Final figures are published in November.

[2] Greenhouse gas emissions expresses in CO2-equivalents show how much warming effect a greenhouse gas has, converted to the amount of CO2.

[3] Navigation - costal traffic and aggregated figures are corrected in the period 1990 to 2020, June 30th 2021.

Norway has legislated the reduction targets for green house emission in the Climate Change Act.[4] The purpose of this Act is to promote the implementation of Norway's climate targets as part of its process of transformation to a low-emission society by 2050. In the act it is specified that "The target is for greenhouse gas emissions to be reduced by at least 50-55 % by 2030 from the level in the reference year 1990" (Section 3). Within 2050 the target is to transform Norway into a low-emissions society. "The target is for Norway to become a low-emission society by 2050. A low-emission society means one where greenhouse gas emissions, on the basis of the best available scientific knowledge, global emission trends and national circumstances, have been reduced in order to avert adverse impacts of global warming, as described in Article 2 1.(a) of the Paris Agreement of 12 December 2015. The target is to achieve reductions of greenhouse gas emissions of the order of 90-95 % by 2050 from the level in the reference year 1990. The effect of Norway's participation in the EU Emissions Trading System is to be taken into account in assessing progress towards this target." (Section 4).

[3] Statistics Norway https://www.ssb.no/en/natur-og-miljo/forurensning-og-klima/statistikk/utslipp-til-luft

[4] https://lovdata.no/dokument/NLE/lov/2017-06-16-60

Households

In this context, we define the environmentally interesting aspects for the policy area 'household' as the domestic consumption of energy. As mentioned in the country overview, electric power is the dominating energy source. Electricity has traditionally been very cheap, and a large number of Norwegian households are "electricity hostages", with few or no alternatives to using electricity for space heating etc. This is a result of a willed policy from the Government, because the hydroelectric power stations needed a comparatively large number of customers in order to be profitable.

Even with more than 92 % renewable electricity [5], the country has led a policy of energy saving in households, supporting the instalment of heat pumps, banning oil furnaces and supporting the instalment of modern, "clean burning" wood stoves. The policy of energy saving has been led in order to reduce peaks in consumption, potentially damaging infrastructure, in addition to releasing surplus electricity for other tasks (electrifying transport, exporting clean energy to coal based neighbouring countries).

There is some EU based controversy over hydropower, as the Commission considers regarding hydropower as 'unsustainable' and comparable with electricity from fossil fuels. This, in our view rather awkward proposition, will - if enacted - probably not influence the status of existing power plants, but perhaps make financing of future projects a bit more difficult. Hydropower will remain renewable and emissions-free, regardless of political-administrative redefinitions. But dams and power plants are obviously not without negative environmental impact, mainly for biodiversity. Hydropower is not environmentally unproblematic, but in the climate perspective it is emissions-free. The Commission will legislate on and regulate what will be regarded as green investments at a later date.

Energy saving in Norwegian households has been a success: *"Largely unnoticed by the media and the public, the electricity consumption of Norwegian households has stopped growing and even decreased since the middle of 1990s"* (Heidenstrøm, et.al. 2010: 2047). This is all the more interesting, as the slow decrease in consumption occurred in a period of historically unprecedented economic growth, probably giving one of very few examples of radical decoupling of economic activity from environmental loading.

We believe that this 'reduced consumption' success results from a set of factors; the most important probably being a wide diffusion of air-to-air heat pumps in households, better insulation and ventilation in new buildings, refurbishment of older buildings and perhaps reduced size of new apartments and houses (Heidenstrøm & Strandbakken 2012).

Policy instruments have been the aforementioned financial measures regarding heat pumps, wood stoves and some other technological changes, the also aforementioned ban on oil furnaces, some support for district heating in new apartment blocks, and rather rigid building requirements.

In addition, there has been a set of information campaigns, encouraging consumers to reduce their indoor temperature, but we do not believe that these have had any significant effects. To

[5] Statistics Norway https://www.ssb.no/en/statbank/table/08308/

reduce the indoor temperature is clearly an example of consumption reduction (level 3).

One more factor where policy is present is the increased energy efficiency of household appliances. Here the EU Energy Label has contributed. For cold appliances and washing machines the reduction is substantial. Most policy here operates on level 1; product substitution. The government supports product substitution and product implementation in households (heat pumps and clean burning wood stoves). Support for improved insulation after refurbishment might also be relevant here, even if it is a 'stretching' of the product substitution concept.

A final explanatory factor behind the reduced electricity consumption in households might (sadly) be climate change. Due to global warming, winters are generally milder so the need for space heating is reduced.

The three-level approach does not fit too well to the household/domestic energy field.

Transport

GHG emissions from transportation are mainly linked to emissions from private vehicles, to air travel and to transport of goods by trucks and by ship. In the consumer perspective, private cars and air travel are seen as the most important, because they are direct.

Indirectly, the transportation of goods results from consumption, but this is mainly be seen as part of the consumption of consumer goods, belonging to other consumption areas. So, here we restrict the analysis to person transportation and to climate relevance. The last point means that the other negative aspects of the car culture will not be considered, beyond a simple mentioning of local problems with dust and particles (respiratory problems) and the vast spaces that individualised car transport claims (degrading urban areas, reducing biodiversity etc.).

At the level of simple product substitution (level 1), there is presently a strong international trend towards emission free cars, with big car producers like Japan banning the sale of new fossil fuel cars from 2035. The Norwegian government envisions a 2025 where 90 % of new cars will be zero emission vehicles; an ambition reduced from originally 100 %. According to the Norwegian environmental agency, this measure will result in a reduction in greenhouse gas emissions by 2.54 million CO^2 equivalents between 2021 and 2030.[6] The shift from petrol and diesel cars to electric cars will mainly be achieved by a combination of positive and negative financial incentives. This is a policy that is to a large extent supported by the population. In a survey conducted by SIFO in December 2020 and January 2021 the majority (54 %) support the statement "Electric cars are a good environmental measure". Only 37 precent agreed to the statement "Private motoring must be reduced in order for greenhouse gas emissions in Norway to decrease". This finding may indicate that it will be easier to get Norwegians to buy an electric car than to make them stop driving their own car (Tangeland, 2021).

As for transport, of the sale of new private cars to Norwegian consumers, the market share for electric cars reached 54 % in 2020 (for new vehicles).[7] Over the last two decades the

[6] The Norwegian environmental agency https://www.miljodirektoratet.no/globalassets/publikasjoner/m1625/m1625_sammendrag.pdf

[7] Statistics Norway https://www.ssb.no/transport-og-reiseliv/artikler-og-publikasjoner/over-halvparten-av-nye-personbiler-er-elbiler

number of electric vehicles has increased fast in Norway from 0.02% of the total carpark in 2000 to 13.04% in 2020, figure 1.

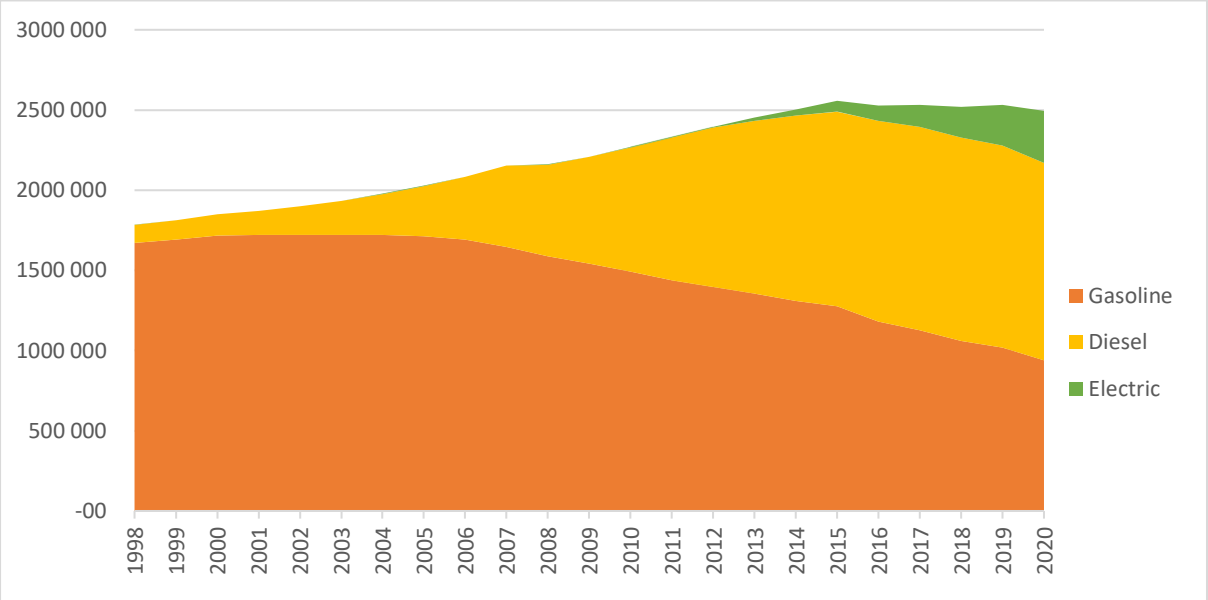

Figure 1: Number of private vehicles by type of energy[8]

Policies of encouraging collective transport by bus, tram and train (the service level) are also relevant, albeit slightly less so under corona restrictions demanding social distancing. To reduce GHG emissions from air travel, there has been some use of tariffs on individual travel. Another approach, that might be used simultaneously, would be to demand airplanes that emit less. Further, we do not know if the huge reductions in air travel in 2020, due to the epidemic, also has contributed to a permanent change of consumer habits/travel patterns. SIFO have queried in several surveys to what extent people have reduced their air travel to reduce their negative impact on environment and climate. From 2014 – 2020 the number that replied that they haven't conducted any reduction decreased from 32 to 20 precent. This trend indicates that there is a shift in attitudes and behaviour in a more environmentally friendly direction (Tangeland, 2021).

For air transport, as well as for transport on land, there is a possibility to reduce emissions by travelling less (level 3). Not necessarily by encouraging consumers to travel less, but for land travel i.e., by rearranging the social geography of cities, reducing distances between home, workplaces, schools and commercial areas. This is a policy area, perhaps mainly for municipalities, and its effects on emissions has a long-time perspective, but it is nevertheless an important factor that contributes to shape our lifestyles. To achieve a reduction in leisure air travel, other policies will be necessary (price disincentives, information campaigns). Work related travels are presently being reduced by the pandemic-induced online meetings.

[8] Statistics Norway https://www.ssb.no/en/statbank/table/07849

Nutrition

There has been an increasing awareness of the climate impact of meat consumption. In order to reduce the climate footprint of Norwegian consumption, a change of diet is potentially an important contribution. According to The Norwegian environmental agency a change that leads to a reduction in the intake of red meat in favour of planet-based food and fish will reduce greenhouse gas emissions by 2.89 million tonnes of CO^2 equivalents between 2021 and 2030.[9] The health authorities recommend a diet with more vegetable-based meals, and more protein from fish and less from meat. These are the same recommendations that we would issue for environmental reasons. The Norwegian environmental agency has also estimated that a reduction in food waste can contribute to reduce the greenhouse gas emissions by 1.54 million tonnes of CO^2 equivalents between 2021 and 2030.

Using our three levels, households would, at level one (product substitution) select organically produced foodstuffs, a measure where the lifestyle is not affected directly. Indirectly, however, this will lead to increased expenditure for food. At the service level, we get our 'calorie-services' more from plants and less from meat, which would be beneficial for health, the environment, in addition to reducing food expenditure.

To advocate 'reduced consumption' (level 3) here is irrelevant, even if obesity is an important social problem. But it has been suggested that the aim might be reformulated to *reduce food waste* (Hebrok & Heidenstrøm 2019). In addition to information campaigns, the government might use financial incentives and disincentives; both at the production phase and in the consumer phase. A measure rather close to the consumer market is the employment of labels, focussing on organic produce, local produce etc.

Purchase of products

As mentioned, a large part of Norwegian consumers' climate footprint stems from the acquisition of products. Earlier, emissions from industry/product manufacture were what environmental policies tended to focus on. Our cleaner environment today is largely a result of the West having moved product manufacture to Southeast Asia. Local pollution and environmental degradation, as well as the well-known health problems of rapid industrialisation remain in the manufacturing countries, but GHG emissions are global, and looms as a dark shadow of our consumption. When we talk about clothes, consumer electronics, appliances, cars (!), toys etc. in energy calculations, for instance for cold appliances like refrigerators and freezers, the (climate relevant) *indirect energy component* is often neglected.

It seems as if the most obvious way to reduce the climate impact of Norwegian (indeed all Western) consumption would be to buy less. This might be done by buying longer lasting products (Laitala, K., et al., 2021, Strandbakken 2007, Strandbakken & Bøyum, 2017) or as an unintended effect of product convergence (when the smartphone becomes music provider, camera, bank, and PC ++, the demand for what used to be separate products will decrease). In addition, it might be done by voluntarily simply buying less. An economic setback will give similar results. Further, we can demand stricter regulations of the manufacturers, possibly using a sort of climate

[9] The Norwegian environmental agency https://www.miljodirektoratet.no/globalassets/publikasjoner/m1625/m1625_sammendrag.pdf

labelling. This will probably lead to higher product prices, thus reducing consumption in another way. Norwegian consumers support in general that products that harms the environment and climate should be prohibited (58 %). They also agree (56 %) to the statement *"I am willing to give up the goods and services I now use, if I can thereby help to protect our natural resources"*. The share that agrees decreases when we move from general statements to statements that are "closer" to the individual behaviour. 54 % agree to the statement *"It should cost more to produce goods that contribute to environmental pollution and climate emissions, even if it makes these products more expensive to sell".* The level of agreement drops one more step (45 %) when we ask them to what extend they agree to the statement *"I am willing to pay more for environmentally friendly / sustainable products"* (Tangeland, 2021).

We will not go further into this field here, but this is clearly a field where all the three levels are relevant, and to shift between them will often be a fruitful exercise.

Controversies

Politically, there has been some controversy in Norway over windmills/wind-based power plants. National policy has been strongly in favour of establishing mill parks to utilize the huge wind resources in a rather sparely populated countryside, but local resistance is increasing. The arguments are usually based on the unique environments, noise, killing of birds and the degradation of recreational areas. Opponents also tend to question the need for more electricity.

There has also been much political unrest and opposition to attempts at regulating traffic, through congestion charges, toll roads, reduction of parking space and conversion of car lanes into bike lanes. In the latest municipal elections, the "party" or campaign against toll roads had some success in some of the bigger urban areas. The most important arguments are based on claims that the private car is a necessity for being able to cope with the challenges of everyday life.

There has been little controversy over electrical cars, except perhaps that they pass toll road stations for free. This critique is enhanced when the number of electric cars grows so high that governmental or municipal revenue from toll roads is significantly diminished. A Norwegian policy of reduced tax or fees on electric cars, making expensive cars like Teslas comparatively cheap, seems to have been accepted by the public.

A tax on passenger seats on airplanes has also been an issue, heavily criticised by a right wing, rather liberalistic party.

Kaltenborn, Krange & Tangeland (2017) found that trust in governmental institutions and parliamentary politicians combined with level of cultural resources influences on whether people believe that climate change is due to human activity or not. Those with high trust and a high level of cultural capital believe to a greater extent that climate change is due to human activity than those who have low trust and high level of cultural capital. In Norway the majority have a high trust high trust in the government (Bekkers & Sandberg 2018), which has reduced opposition and controversy over environmental policy. Even when the authorities went from supporting and promoting diesel engines (because of climate benefits), to restrain and hinder them (because of local air pollution and asthma), there were not much complaint. In the survey conducted by SIFO in 2020 we find that Norwegians have a slightly higher trust in EU than in National authorities when it comes to environmental

politics. Nevertheless, we see that a relatively high proportion (13 %) disagree with the statement *"Climate change is largely man-made"* (Tangeland 2021). This opposition group may make it more difficult to implement the necessary changes for Norway to become a low-emission society during the next decades.

No-goes

It seems as if the population is accepting rather dramatic changes in their everyday lives, but that there is reluctance to changing leisure activities, mainly connected to air travel. This was visible prior to the pandemic. For large consumer groups, the historically rather new opportunity to travel the world, is one benefit that they want to retain. There seems to be a willingness to reduce *more* in the everyday lives, in order to keep the newly won freedom of travel. This probably is the most missed part of our pre-Covid 'normality'.

The trust in new technology has been measured in Norway in contrast with consumer responsibility, figure 2. During this period, Norwegian consumers has become more technology optimistic. They believe to a larger extant that technology can solve climate and environmental problems alone. Between 1993 and 2014 the believe in consumer responsibility decreased. After 2014 we have seen an increase in consumer reasonability.

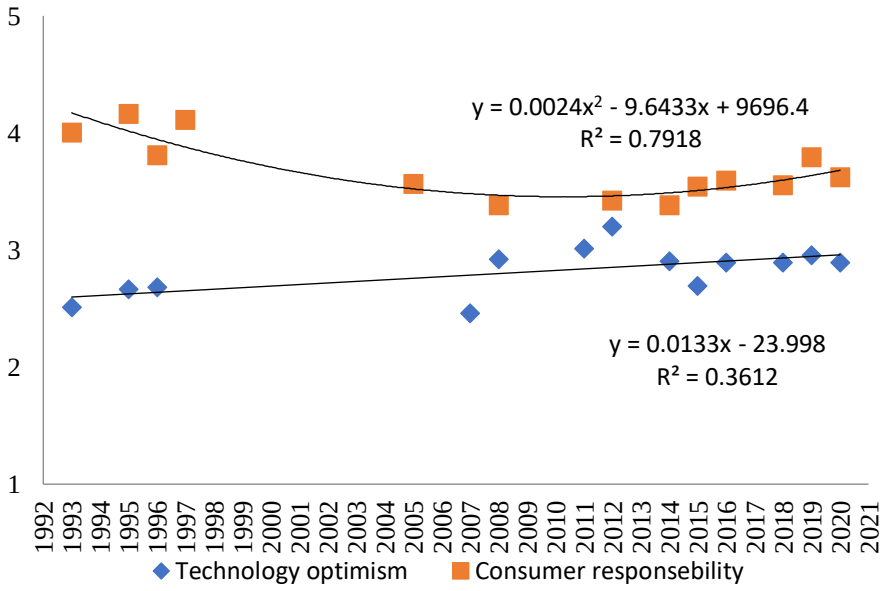

Figure 2: Change in Technology optimism and Consumer responsibility among Norwegian consumers between 1993 and 2020 (Tangeland 2021)

It has been shown that there is a connection between these two beliefs and willingness to reduce own consumption level (level 3). The more people believe that technology can solve climate and environmental problems the less they are willing to reduce their own consumption of meat, car use, flights, clothes, and electricity. For consumer responsibility, the opposite effect has been identified. Changes in these beliefs define to some degree the opportunities for politicians to promote policies that advocate for reduced consumption (Tangeland 2021).

Research gaps

If Norway shall meet its obligations to the EU regarding cuts in greenhouse gas emissions, society must undergo a reconfiguration. Based on available data, we have a good understanding of the composition and volume of

consumption among Norwegian. The current research also identifies that Norwegians understand the problems connected to climate change, believe in how the problems can be solved and willing to change their behaviour in a more sustainable direction. On the other hand, there is still a significant lack of understanding in many key spheres.

Firstly, we need a better understanding of what shapes level of trust in agents (e.g. institutions) that argues for a systemic change in consumption. Kaltenborn et.al. (2017) identified level of trust in institutions as on key variable to explain variations in believing in scientific knowledge about the causes of climate change. People that reported a low level of trust had a tendency to believe that climate change was due to natural fluctuations. Those who had high trust had a tendency to believe that climate change was due to human activity. Trust plays a crucial role in implementing. The more trustworthy an institution is the more prone the population is to respect new rules.

This leads us on to the next point. we must better understand the level of acceptance of lows and regulations put forward by the EU, national government, or local representatives. How fast are people willing to change their behaviour? What instruments do they accept to be used? Where is the pain threshold? Across Europe we have witness that resistance arises when lows and regulations put forward, especially by some groups experiencing that pushes too hard to bring about changes in consumption. In Norway, a political crisis arose in the run-up to the municipal and county council elections in 2019. The use of road tolls to finance new roads and as an instrument to reduce the use of private cars in favour of public transport in urban areas had become so much used that part of the population experiences it as a major financial burden that they thought it was the most important issue in the election. The opposition created the opportunity for a new political party - "No to road tolls". Which in turn create a government crisis ahead of the 2019 election.

Thirdly, we need more knowledge about what chapes behaviour how it can be changed in a more sustainable direction. From previous research we know that behaviour is influenced by: (1) the individual factors, which refers to initiatives that focus on influencing the attitudes of individual consumers so as to change their behaviours and choices. (2) The social factors, which refers to the social norms, cultural conventions and shared understandings of consumer practices. (3) The material factors, which refers to the objects, technologies and infrastructures that both enable and constrain ways of behaving. To change behaviours in a more sustainable direction there is a need for development of instruments that uses these three factors. We need more knowledge about which instruments people accept being used in different consumption fields.

The case of the Czech Republic

Introduction

The Czech Republic is a member of the European Union, and it is fully integrated in its internal market. As a result, the entire EU law is binding for the Czech Republic and a large bulk of national regulation concerning consumerism is based on the common European legal framework.

The Czech Republic has approximately 10.9 million inhabitants and its 2020 GDP/capita in PPP reached 94% of the EU average,

according to the EuroStat[10]. The unemployment rate remains one of the lowest in Europe, as it does usually not exceed 4 %[11]. During the last years, Czechs have experienced a rapid wage growth and an increase in living standard. The overall level of earnings, however, still significantly fall short of Germany or Austria.

Although the GINI coefficient remains low, and the relative distribution of wealth is more equal than in other Western countries, a half of the Czech society has an income lower that 1277 €/month[12]. With prices comparable to western Europe, this fact makes the personal economic situation in the Czech Republic fragile.

Households

Regulation of consumer rights concerning households primarily pertain to energy efficiency of new buildings and labelling of energy efficiency in case of old constructions. Basis for the Czech national law provides EU Directive 2018/844 [13] on the energy performance of buildings and on energy efficiency.

The EU directive was implemented into the Czech legal system in form of several laws no. 406/200[14], no. 165/2012[15], no. 318/2012[16], no. 310/2013 [17] , no. 131/2015 [18] , and no. 3/2020[7]. Specific requirements for energy efficiency of buildings are further elaborated in the government regulation (vyhláška) no. 264/2020[8].

The government regulation determines what requirements newly build houses should have, how their energy efficiency is calculated and how energy efficiency labels are used. In practice this means that every new construction must acquire labels similar to appliances where it is clearly stated how energy efficient a building is. In case of old buildings, calculations of energy efficiency are not required, however, if data are not available, buildings are automatically categorized as the least efficient.

Apart from that, the Czech Republic supports construction of energy efficient buildings through various grant schemes, predominantly redistributing funding from the EU. The same also applies to reconstruction of energy sources to a more environmentally friendly ones – especially change of heating from coal to gas/renewables.

This in effect means that there is a strong tendency to regulate the market on the first level as defined by Vittersø, Strandbakken & Stø (1998). The Czech authorities support product substitution, exchanging older energy-ineffective solutions with new more environment friendly. As of now, no push for level 3 (consumption reduction) or level two (service level/level of organisation) are planned in the realm of housing.

Transport

E-mobility

The Czech Republic falls significantly behind Norway in support of sustainable transport. There are no broad government schemes that could accelerate EV adoption, the transition is left to the “free-market”. As a result, only around 1,5 % of newly sold vehicles are electrified and

[10] EUROSTAT
[11] See: https://www.uradprace.cz/web/cz/-/nezamestnanost-v-srpnu-klesla-na-3-6-
[12] See: https://www.czso.cz/csu/czso/cri/prumerne-mzdy-2-ctvrtleti-2021
[13] The 2018/844 directive amands original directive 2010/31/EU and directive 2012/27/EU. More: https://eur-lex.europa.eu/legal-content/CS/TXT/?uri=CELEX%3A32018L0844
[14] See: https://www.zakonyprolidi.cz/cs/2000-406
[15] See: https://www.zakonyprolidi.cz/cs/2012-165
[16] See: https://www.zakonyprolidi.cz/cs/2012-318
[17] See: https://www.zakonyprolidi.cz/cs/2013-310
[18] See: https://www.zakonyprolidi.cz/cs/2020-3

the average age of the car fleet is approximately 15 years. The high purchase price of electric cars in comparison to ICE vehicles, and the relatively lower income, make the EV adoption excessively slow.

The Czech government occasionally launch grant schemes for private enterprises financed from the EU budget – in 2018 the state offered 25-40% of purchase price; however, the total amount of call allocation was limited to 150 million CZK. As of 2021, there is no scheme in place and will not be established through the year. [19]

Czech EV drivers are freed from highway toll, and in some cities – such as Prague – they are free to park anywhere in the city and can use restricted lines for buses and taxi. EV owners can also acquire lower insurance costs, but they are generally low in the Czech Republic and thus do not represent a significant financial incentive. The Czech government predominantly focuses on building charging infrastructure as the number of charging points is still low and would easily become overwhelmed by any significant increase of EVs on the roads.

Apart from the consumer incentives, all automotive manufactures must comply with the European emission regulation – currently there is Euro 6d standard in place[20]. Furthermore, all dealers are obliged to clearly state how much CO2 a particular model exhausts and provide this information to a customer.

Public transport

Unlike Norway[21], the Czech Republic has an advanced system of public transport. There is a dense network of bus and train connections, allowing Czechs to reach even the most remote corners by public transportation. In 2012, a study found that Prague can be reached within 360 minutes by train from anywhere in the Czech Republic.[11] There is also a popular application "IDOS.cz" that provides travellers with live-updated information about how to get to their desired destination, including how much it will cost.

The Czech Republic is also well connected to its neighbouring states by buses and in some cases by train. Before the pandemic, there were regular bus lines to each Central European capital as well as other smaller regional centres. The international railroad network, however, appears underdeveloped in comparison to bus lines. The Czech Republic does not have any high-speed trains, which significantly hampers the competitiveness of trains while travelling abroad. As a result, most Czechs prefer plane, car or bus while travelling to another country.

Czech bus and train lines are usually run by private enterprises, but the network as such is planned by the public sector. Czech institutions issue tenders for public lines where any transport provider can apply. This does not apply to city public transport as Czech cities have their own subsidiaries providing transportation within their district. There are some exceptions when even private companies run their buses integrated in the city public transport network, but the absolute majority of all connection are serviced by the city owned companies.

[19] See: https://www.ceskenoviny.cz/zpravy/dotace-na-elektromobily-letos-v-cesku-nebudou/1996482
[20] See: https://ec.europa.eu/growth/sectors/automotive/environment-protection/emissions_en

[21] One of the reasons for this disparity is the simple fact that distances in Norway are significantly higher than in the Czech Republic, and that Czechia is more densly populated.

The Czech central government also supports public transport by granting 75% discounts to students and pensioners. Others must pay the full price; however, the tickets tend to be inexpensive, especially when comparing to Austria or Germany.

Based on the previous two subchapters, we can assert that there is no strong push for the level 3 adjustment in Czech citizens' behaviour. Apart from parking limitations within large Czech cities, there is no government policy that would incentivise reduction in consumption. Similarly, level 1 incentives exist in a very limited amount. There is no significant subsidy for buying an EV, most advantages are negligible in comparison with the high purchasing price.

We can, however, identify a strong support to level 2 adjustment in form of strong support to public transport, and investment in infrastructure such as railway connection, new coaches as well as reconstruction of large transport hubs. The government plans constructing highspeed railway connections to Germany, Austria and Poland. Similarly, a new 1hour railway is planned between Prague and Brno, which would make trains significantly more competitive over an individual car transport.

Nutrition

The discussions about environmental impact of nutrition are scarce in the Czech Republic. The same also applies to the change in meat consumption, which is considered a main cause of glass house gases.

Available data show that the meat consumption in the Czech Republic has been declining slightly over the last 30 years and the structure of meat consumption has changed quite significantly. The total meat consumption per capita was 96 kgs in 1989 and 82 kgs in 2019. Consumption of pork is constantly slightly decreasing (50 kgs in 1989 and 43 in 2019), the consumption of beef experienced rapid slump (30 kgs in 1989 and 10 in 2019). On the contrary, consumption of poultry meat is rapidly increasing (13 kgs in 1989 and 29 in 2019). These changes reflect changes in the lifestyle of Czech people. Detailed description of meat consumption can be found on Figure 3.

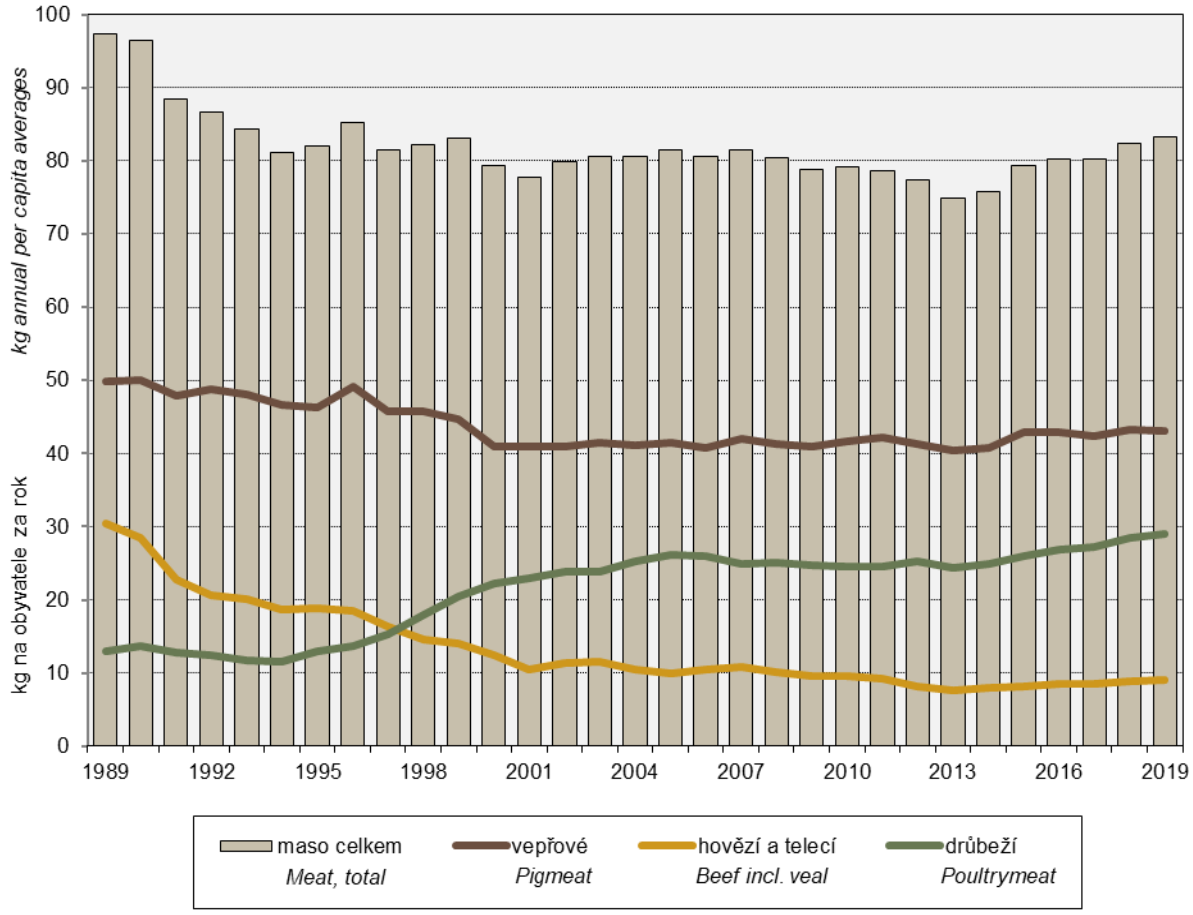

Figure 3: Changes in meat consumption among Czech people between 1989 and 2019[22]

Nutrition labels

Being an EU member state, the Czech Republic is part of the European Common Agriculture Policy and thus, an absolute majority of nutrition regulation has its origin in the EU legislation. Currently, there are six different labels of quality – Czech food, KLASA, Organic food, Regional food and Protected geographical indication, Traditional speciality guaranteed, and Protected origin indication.

The *Czech food* label is only for Czech-specific and indicates a product originating in the Czech Republic. Producers are free to decide whether they wish to use the marking, but if they do, they must fulfil strict point of origin criteria. The label was established in 1997 by law no. 110/1997.

The *KLASA label* is akin to an award by the Czech minister of agriculture for the highest quality food produced in the Czech Republic. It is awarded every year to selected producers "who prove exceptional quality and production process". Importantly, there is no limit as to how many products that can obtain the KLASA label – they must only be deemed worthy. The label is used only in the Czech Republic and it is part of a promotion activity of the Czech ministry of agriculture.

[22] See: https://www.czso.cz/csu/czso/food-consumption-2019

Organic food. The main basis for organic farming is law no. 242/2000[23] which introduced the label "BIO" (organic) in the Czech Republic as well as it determines what products under which condition can be considered organic. The privilege to use the label is not only tied to specific production procedures, but also to a defined form of land cultivation. Farmers have stricter rules as to how they treat fields and their surroundings.

Regional food. The label is similar to KLASA, but it is awarded by the agriculture ministry to winners of regional competition. The commission selects only one product in nine categories per "Region" (NUTS2). Awarded food must be produced from local ingrediencies and use an original regional recipe. Products can use the label for four years after being awarded.

Protected geographical indication, Traditional speciality guaranteed and *Protected origin indication.* These labels are set of marks established by the European Union. Their goal is to protect regional products which are special, and their production is tied to the location of their origin – in this sense they are similar to patents. The labels are valid in the entire EU and they are based on Regulation (EU) 1151/2012.

To summarize, the Czech Republic does not show a significant change in population's behaviour or in government policies at all levels of the analysis. Nutrition seems to be a topic that is not being discussed and tackled in the country.

Existing research

During last 30 years Czech Republic participated in number of International sociological surveys, including ISSP, ESS, EVS and WVS. Some of national polls also tried to cover environmental topics such as pro-environmental attitudes, willingness to sacrifice and pro-environmental behavior.

International surveys focused on environmental topics were mainly environmental module of International Social Survey Programme (ISSP) administered in 1993, 2000 and 2010. The Czech Republic was involved in all of these waves. The focus of these surveys was mainly put on pro-environmental attitudes (part of NEP scale was included), willingness to sacrifice (WTP scale with three items were implemented) and the survey tried to map different pro-environmental behavior in individual waves. The Czech Republic decided to add more questions into the last edition (2010) and boost sample for young people (15-30).[24] All ISSP data files are archived in Data Archive for the Social Sciences[25], Czech data are available also in national Czech Social Science Data Archive (https://archiv.soc.cas.cz/en). Questions related to environmental concern are repeatedly administered in European Value Study (EVS). The Czech Republic participated in last 4 waves (1991, 1999, 2008 and 2017).[26]

National polls are usually generally focused on various topics and sometimes environment is among them. The largest pool of data can be found in surveys administered by Public Opinion Research Center (Czech Academy of Science), in publications Our Society. Every June the survey includes questions about the evaluation of environment in the place of living,

[23] The law has been amended several times and it is in conformity with the Regulation (EU) 2020/464

[24] The target population for ISSP is defined as adult people (18+).

[25] DAS, Koln am Rhein, https://www.gesis.org/en/institute/departments/data-archive-for-the-social-sciences

[26] International data are available through web page of the project: https://europeanvaluesstudy.eu/methodology-data-documentation/

evaluation of environment protection in the Czech Republic, attitudes towards nuclear energy, attitudes towards change of climate. Data from the survey Our Society are available through Czech Social Science Data Archive[27], partly in English, all files in Czech language.

On the other hand, research on consumerism is in its infancy in the Czech Republic. During the last two years, we have witnessed a more attention paid to these issues. Small surveys have been conducted by STEM and EUROPEUM, as part of larger research focused on the European Green Deal and labour transformation.

The largest survey on consumerism to date was implemented by STEM Institute at the end of 2020 for the public broadcaster Czech Radio. Although the results have already been published [28], copyright restrictions limit their utilization in this study.

Households

The latest STEM research on consumerism focused on the willingness of citizens to transition from old traditional energy sources to renewables. It also assessed to what extend the green transition could increase energy prices so that they are accepted by the population. Finally, the survey provided the STEM researchers with detailed data on the composition of Czech households – average number of occupants, size of the average floor space, living expenses as well as the most common sources of energy.

It can be asserted that the Czech population is open to build a more sustainable households; however, it is always a matter of money. Disagreements among Czechs can be found in attitudes to various state subsidies, which are designed to facilitate transition to more energy efficient housing. Czech citizens declared the largest support to grant schemes subsidizing renovations of old buildings (isolation, windows, energy management). The population also thinks that the state should support new local and environmentally friendly sources of heat. Finally, there is also a quite high degree of willingness to decrease energy and heating consumption through all segments of the Czech society.

Less consent can be found in cases where state subsidize should support/initiate general transition to low-carbon energy sources. STEM´s data suggest there is a general support to a Czech version of "Energiewende", however, the society has not managed to make its mind completely. There is a large part of the Czech society which is indifferent or is still about to decide. In this regard, 38% of Czechs state that they do not have any opinion about stopping coal energy production, and 44% do not have any idea whether the Czech state should stop subsidizing coal mining.

Transport

Modes of transportation are a very sensitive topic in the Czech Republic. The reason for that is that the country heavily depends on automotive industry (9% of GDP) as well as its leading car brand Škoda, being one of the few well know Czech products both in Eastern and Western Europe. It is a source of national pride. From previous studies conducted by STEM and EUROPEUM, we can assert that the Czech population does not favour e-mobility and it does not consent to subsidizing EV adoption in the Czech Republic[13].

The latest STEM research focused on Czech consumer habits examined not only preferred means of transport, frequency of high-emission

[27] More information: https://archiv.soc.cas.cz/en

[28] https://www.irozhlas.cz/zivotni-styl/spolecnost/klimaticka-zmena-dotace-opatreni-uhlikova-dan_2105140616_jab

transportation such as flying, but also what kind of vehicle Czechs use, how frequently and how economical they are. The research also asked whether the population would be willing to change its mobility habits so that there are less emissions produced.

The data showed that Czechs produce between 3000-5000 kg/CO2 per person and year (combining transport, food, energy). The wealthier a person is the more s/he tends to emit CO2 – the difference between the poorest and richest is up to 1000kg/CO2 per year. The discrepancy is primarily caused by more frequent travelling, especially flying. Languishing segments of the Czech society usually do not have financial means to travel and thus they tend not to use high-emission modes of travelling. Furthermore, they spend most of their time near the location of their household.

When it comes to the willingness to change habits, around quarter of the Czech population is willing to reduce its carbon footprint – either by taking more ecologically friendly means of transport or refrain from unnecessary travelling.

Nutrition

The latest STEM research focused on the question how deeply rooted meat consumption is in the Czech Republic, what the attitudes towards environmentally friendly and organic products are, as well as whether the population is willing to change its habits to limit CO2 emissions.

The data showed that the willingness to change nutrition habits is slightly lower than in case of transport. This applies not only to reduction of meat consumption, but also to organic/regional food. This can be explained by the fact that around 40% of the Czech population still purchases food according to its price, not quality nor environmental footprint.[29] There is also a well-developed meat consumption culture that will be difficult to change – only around 3 percent of Czechs declare they are vegetarians, and only 4 percent consider themselves flexitarians[30].

Future research

The preceding text tackled existing research on consumer responsibility in the Czech Republic. Based on the presented data, we can assert that there is a good understanding of Czech consumer habits in transport, nutrition and housing. The current research also identifies areas where the Czech population would be willing to change its behaviour. On the other hand, there is still a significant lack of understanding in many key spheres.

Firstly, we do not possess adequate knowledge about barriers and incentives that might convince Czechs to alter their habits as identified in the previous research. In other words, we do not know *why* the Czech population is willing to change its behaviour, how deeply internalized their opinion is and what could change their minds. We presume that vocal minorities or interest groups might have a significant impact in topics that are new to the society, but the data to substantiate this hypothesis is lacking. In any case, good knowledge of the population's motivations is crucial while designing new policies as they not only have to be effective, but they also must maximize internalization of new rules by the population. In this respect, there is a stark difference compared to the aforementioned Norwegian research.

[29] See Aktualne.cz website: https://zpravy.aktualne.cz/finance/nakupovani/na-cene-uz-tolik-nezalezi-chceme-hlavne-kvalitu-cesi-rekli-j/r~bd94daa21f6911e7b494002590604f2e/

[30] See Hospodářské noviny website: https://infografiky.ihned.cz/pruzkum-jidla/r~8fe078f6610b11e9b9980cc47ab5f122/

Similarly, the current research has not studied the relationship between agents (e.g. institutions) arguing for a systemic change in consumer habits and willingness of the population to alter behaviour. There is a strong difference if a regulation is introduced by the EU, national government, or local representatives. Trust plays a crucial role– the more trustworthy an institution is the more prone the population is to respect new rules.

Thirdly, the future research should concentrate on the question of whether a policy should proceed a change of behaviour and its internalization. In other words, it is necessary to determine if policy makers should transform consumer habits by a new regulation, or it should be approached by a deliberative method where the population firstly internalizes new habits/attitudes and those are subsequently encoded in a new law and/or regulation. In this regard emission regulations for personal vehicles that transform the entire automotive industry are a good example. Would EVs became competitive and wide-spread if manufactures could have stuck to time-proven combustion engines?

Finally, Czech researchers should elaborate more on whether the desired changes in behaviour should be facilitated by new taxation scheme such as a levy or duty on carbon. This is actually the only area that has not been covered by the latest STEM research. The EU and many EU member states discuss shifting taxation policy so that it better reflects negative externalities of production on the environment and global warming. The Czech research has focused so far on willingness to change consumer behaviour, but less so on the actual policy methods.

Comparison and future areas for co-operation

Households

We can assert that the Norwegian and Czech policies are similar with regard to household regulation. There are policies in place who regulate behaviour on the first level, and the other two levels are overlooked. The main difference is that Norway puts significantly more stress on hydropower utilization in energy consumption of households, whereas Czech incentives and regulation focuses on support to energy efficient solutions no matter the source of energy.

That being said, there are still issues to be investigated. We still do not know exactly, where are the limits of support to more energy efficient living, especially in relation to costs. Renewable energy (except for hydropower in Norway) still tends to be more expensive than conventional sources of energy, which hampers its adoption in the Czech Republic. Since Norwegian consumers have no other option, this ambiguity between environmentally friendly and costs fall off.

Transport

Unlike in the case of households, the regulation of transport significantly varies between the Czech Republic and Norway. Norway enacted a strict approach that significantly favours EVs over ICE cars, making EVs relative cheaper than ICE cars to purchase and use. Contrary, the Czech Republic is reluctant to implement sufficient incentives that would convince buyers to opt for electric vehicles instead of conventional engines. We also know that the Czech population is excessively resistant to EVs adoption, although exact reasons need to be identified.

Overall, the Czech state prefers level 2 regulation – subsidizing public transport and

making it more competitive over individual transport. Norway, on the other hand, favour level 1 adjustments through incentivizing EV adoption in a combination with level 2 in urban areas where growth in transport will take place in the form of public transport and cycling.

As in other cases, we already know what kind of support EV adoption or development of public transport has. The reasons for these beliefs, however, are less clear. More thorough research is needed in order to understand why population holds certain positions and what narratives might convince them to support a more environmentally friendly means of transport. Variations in technology optimism and the belief in consumer responsibility between the two countries are relevant to investigate as these two believes are connected to willingness to change and also to some extent defines opportunities for policy making.

Nutrition

Based on our findings, Norway as well as the Czech Republic does not regulate nutrition apart from supporting organic production through regular agricultural subsidies. Almost the same applies also to meat consumption, which has been changing in the last 30 years, but there is no solid proof of a significant decrease in consuming.

The previous research has established a ground for the work in the sense, that we know to what degree Norwegians and Czechs constantly change their habits. Significantly less is known about the reasoning, though. As in the case of transport, we need to learn more about what drives populations' reasoning so that appropriate policies can be adopted.

General remarks

Apart from the specifics in regulating household, nutrition and transport, there are several general dossiers that must be studied in order to get a full picture of how a regulation should look like so that it is accepted by the population.

Firstly, there must be established what governance level should impose the particular regulation incentivizing sustainability and decarbonization. There is a difference when the EU introduces new rules, or when they are implemented by national governments. The question of which institution is the most legitimate to pursue a change should be a key in every research on consumer regulation. Such an issue is obviously more salient in the Czech Republic who is a full member of the EU, rather than in Norway where a large bulk of European legislation can be advertised as national even though it has nothing to do with the regulatory reality. Another important point is that even if particular institution is more trusted, there might be an actual gap between expectations and its ability to deliver. The EU might, for instance, be more trusted institution than the Czech government, but this does not mean that the EU can do anything with the problem of concern – either due to resistance of other states, or due to lack of power. This all must be taken into account while proposing new policies.

Secondly, the overall acceptance of changes can be influenced by population's perception of their own future. We can assert that if someone believes that her or his life will improve in the future, they might be more willing to digest new regulation. Similarly, a trust in new technology could be a key in understanding populations' motives. The hypothesis would suggest that the more trust in new technology, the easier it is for individuals to adopt it. This issue is under-researched in both Norway and the Czech Republic, and comparison might be very beneficial – whereas Norwegians trust new technologies in transport, Czechs remain sceptical and prefer conventional engines.

Thirdly, there is the question of affluence contributing to the willingness to embark on

"new endeavours". It is probably the most constraining factor for a change in Norway. It is very hard to rearrange consumption patterns towards sustainability when consumers are very well off. This is an individualised version of Jackson's (2009) observation on the societal level; that even when there is significant technological development, making products and processes more energy effective, a real decoupling of environmental impact from economic growth is very hard to achieve.

Finally, grand projects such as decarbonization and implementation of new technologies will create new winners and losers. This will surely put national welfare systems under pressure and national government will have to react. For example, it can happen that certain jobs will seize to exist, or energy prices will increase and drive parts of societies to energy deprivation. In this regard, it will be important to assess how willing Czech and Norwegian societies are willing to redistribute wealth and support safety nets that will mitigate disproportional impact of decarbonization and sustainability on their societies.

That being said, once a general as well as specific understanding of populations' motivations in transiting to sustainability and decarbonisation is established, the policy makers can proceed with drafting specific regulation. The goal is not to introduce new policies which might in effect cause a political backlash, such as in case of the French "yellow vests". The Union and its member states are entering uncharted waters and any pitfall on the way might prove fatal not only to policies focused on transition to sustainable and carbon-free economy, but they could also endanger the European integration process and stability of national political systems as such.

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