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Geographical Access to Abortion in Austria

Sophia Glinka • 11936081 & Jaro Habiger • 12236175
Camille Belmin • BA Theme in Economics and Politics • S04942
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Introduction

Abortion remains a political battleground in Austria with little progress since the introduction of the so-called *Fristenlösung* in 1975. Still part of the criminal code, womens' rights activists problematize the continued stigmatisation of women seeking abortions and inequitable access across Austria, both due to socio-economic status and location of affected persons. In our investigation *Geographical Access to Abortion in Austria,* we model the nationwide travel times to abortion clinics by car and public transport and produce correspondent visualisations. In this paper, we sketch the general situation on abortion in Austria, introduce data and methodology to investigate *Geographical Access to Abortion in Austria* and discuss our results. We close with reflections.

Context

The legal status of abortions is regulated under §§96-98 of the criminal code (*Strafgesetzbuch*, StGB) which replaced §144 StGB which punished women who aborted with 1 to 5 years in prison (Zach, 2024). Although §96 StGB still generally criminalises abortion, §97 StGB defines circumstances under which it is not punishable, i.e. if a doctor performs it within the first 12 weeks and after a preliminary consultation, or if there is an acute danger to the pregnant person's health and/or life. §98 StGB handles cases in which an abortion is performed without the pregnant person's consent.

Additionally, §97 exempts doctors from any obligation to perform abortions apart from life-threatening situations. This so-called conscience clause (ger. *Gewissensklausel)* is a main factor which hinders access to abortion across all Austrian regions, as not even public hospitals have a mandate to offer the service as a pillar of public health (Lampert, 2023, p. 3; Tazi-Preve & Kytir, 1997, p. 21). The 2022 report on women's health in Austria states:

> *"Access to abortion in Austria is difficult for many affected persons based on their place of residence" (Mayerhofer, 2022, p. 81).*

Apart from stark differences in geographical access, the report cites the generally high cost of € 350-800 as an obstacle for equitable and low-threshold access to abortion for women and girls. Health insurance only covers the cost if the abortion is due to medical or criminological indicators. Non-governmental actors like the initiative 'CHANGES for Women' have stepped in and offered low-threshold and unbureaucratic financial aid to affected persons (Lampert, 2023, p. 1). Those of low socio-economic status and/or from areas with bad coverage are especially affected. Women's rights advocates, organisations and experts on public health thus demand that public hospitals with gynaecology departments offer

abortions as a regular service - a demand that remains unfulfilled for over 40 years (Aktionsplan Frauengesundheit, 2015; Lampert, 2023, p. 3; Tazi-Preve & Kytir, 1997, p. 21).

Data and abortion

Other than many other European countries, there are no official nationwide statistics on abortions performed in Austria as of now. Estimates put the lower limit on ca 30000 procedures performed annually (abort-report.eu, 2024). One reason is that as it is a privately paid procedure, the public health insurance provider ÖGK does not have access to the data; Efforts to change this are recurring but usually opposed by feminist groups. Recent pushes to collect data on abortions and especially the patients' reasons for the procedure have been made from the FPÖ-ÖVP government in Salzburg. Although presented as a way to improve counselling and "prevention", feminists fear that the data might be used to politically scandalise and discredit womens' choices – an "attack on the *Fristenlösung* through the back door" (Hagen & Hausbichler, 2023).

In this paper, we try to do the opposite: We "compile [...] counterdata" (D'Ignazio & Klein, 2020, p. 52) to challenge power structures. We deliberately do not use, process or collect data about the reasons or other private circumstances of abortions. Instead, we produce data about accessibility of abortions and focus our inquiry on the state and the medical system, in the interest of improving access to abortion.

#AusPrinzip

In light of the 50th anniversary of the *Fristenlösung,* the campaign "#AusPrinzip" pushes for the next step for abortion rights in Austria. Their three demands are:

- *#AusPrinzip raus aus dem Strafgesetz*: Complete decriminalisation by removal of §§96 and 97 StGB
- *#AusPrinzip kostenfrei*: Coverage of abortion and contraceptives by public health insurance.
- ***#AusPrinzip in Wohnortnähe*:** Improving access to medical care to enable abortions close to peoples' residencies. (#AusPrinzip, 2023)

As one of the main inspirations for this paper, we have focused on the last demand in our investigation. The following chapter will describe our further process.

Methodology

For analysing the geographical access to abortion in Austria quantitatively, we employ a somewhat involved processing chain and use data from various publicly available sources.

Data Sources

The central dataset is a list of all the currently active abortion clinics and doctors offering abortion. We used data collected and provided by the “Österreichische Gesellschaft für Familienplanung” (2024) and manually transformed the 25 listed doctors into a machine-readable format (csv). We then added geo coordinates to all the addresses using the python “geocoder” library (Denis, 2014/2016).

For these abortion clinics, we then generate “travel time surface” maps. A travel time surface map is a map that associates the travel time from each point of the map to a given destination point. These maps are called differently by different tools here we will stay with the term travel time surface maps. Because we are interested in the accessibility by car and by public transport, we need to generate one set of maps for each mode of transportation. For generating the travel time surface maps using cars as a means of transport, we use the open source routing engine “Valhalla” (Valhalla Contributors, 2016/2024) using an extract of Austria of the OpenStreetMaps project (OpenStreetMap Contributors, 2024). For generating the travel time surface maps using Public transport, we used the OpenTripPlaner (OpenTripPlanner Contributors, 2011/2024) routing engine which again uses the same OpenStreetMaps extract. In addition to this, we collected train timetables in the GTFS format of the different train and local transport companies in Austria (Kärntner Linien, 2024; Linz AG, 2024; Mobilitätsverbünde Österreich, 2024a, 2024b; ÖBB, 2023; Oberösterreichischer Verkehrsverbund, 2024; Salzburger Verkehrsverbund, 2024; Verkehrsverbund Ost-Region, 2024; Verkehrsverbund Steiermark, 2024; Verkehrsverbund Tirol, 2024; Verkehrsverbund Vorarlberg, 2024; wiener linien & gtfs.pro, 2024). Some of these public transport datasets did not adhere to the GTFS standard and thus could not directly be read by OpenTripPlaner. Therefore, we had to clean these datasets using another open source tool “gtfstidy” (Brosi, 2016/2024). Taking each of the abortion clinics as a destination, we generated 25 Maps per means of transport meaning 50 maps in total. These maps are then saved as “geotiff” files for later analysis. Using travel time surface maps allows us to evaluate a large number of routes in a reasonable amount of computation time. However, it does introduce some slight inaccuracies: routes could have different durations from point A to point B than from point B to point A. This is especially true for public transport, but ignored in this analysis. Moreover we only use data about streets and public transport in Austria, so faster routes going through

neighbouring countries are ignored. This could lead to slight overestimates in travel time on the edges of Austria.

Finally, we use population density data from the “WorldPop” Project (WorldPop, & Bondarenko, 2020) for our analysis. This dataset contains an estimate of the population per square Kilometre on a grid of 30 arc seconds and also comes as in the “geotiff” file format. Because the grid is smaller than 1 square kilometre, the tiles of the dataset overlap. We correct for this by multiplying the population density with a latitude dependent factor. Because after this, the sum of people in all cells is still slightly to high, we introduce a global scaling factor of ~0.93 to get a total population of ~8.9 Million (Worldometer, 2024).

For some plots, we additionally needed figures for the number of abortions in Austria (ca. 30000) and the number of women in child-bearing age (ca. 2 Mio). For both of these figures we used estimates from the abort-report.eu project (2024) because no definitive data was available. Analysis steps using these numbers ignore geographical differences in demography.

Analysis

After acquiring and preparing these datasets, we run our main analysis: For each point in the population density map, we look up the travel time to each clinic. These times are then ranked and the clinic with the lowest travel time is chosen. If other clinics also are reachable within up to 15 minutes more, the clinic with the lowest number of patients is selected. This serves the purpose of distributing the people more evenly onto the clinics and models the real world, posing that patients would accept slightly longer trips for shorter wait times for appointments. In reality, clinics have a limited capacity and patients sometimes will have to travel much longer when there is simply no appointment available. The data gathered from this analysis is the distribution of patients to clinics (c.f. Figure 1).

In addition to the clinic, we also store the time it takes to travel to the selected clinic. This gives us maps with a time value for each location in the map (c.f. Figures 2, 3, 6, 7). In addition to visualising this data in the form of maps, we analyse how many people need how long to reach an abortion clinic. This data is then plotted as histograms (c.f. Figures 4, 8) and as a bar chart showing the percentage of women needing less than a certain time (c.f. Figures 5, 9).

This analysis process is done both for car based transport and for public transport and then plotted using the python library “matplotlib” (Hunter, 2007) for bar charts and the R programming environment with the “leafletR” library (Graul, 2016) for map data.

What if: Every Public Hospital With a Gynaecological Station Would Do Abortions

In addition to calculating these figures for the currently available abortion clinics in Austria, we also compare them to a hypothetical world in which every public hospital with a gynaecological station offers abortions as a regular service.

For this we add semi-automatically obtained data about the public hospitals that have gynaecological stations from kliniksuche.at (2024), which results in a total of 95 clinics that could offer abortions. We then repeat all the previous steps (generating 190 additional travel time surface maps in the process). With this we can quantitatively evaluate the effects that this political change would have.

Results

Validity

According to our analysis, ca. 1% of the population of Austria cannot currently access an abortion clinic by car. This is probably due to mispredictions in the density data (people predicted to be living in inaccessible regions of the Alps) and to gaps in the OpenStreetMap data. For the public transport analysis, this figure is a bit higher: 3% of the population cannot access an abortion clinic. Although a bit higher than for car based transport, this figure is still relatively low, which makes us confident that our public transport data has good coverage and contains all major services. These numbers do not significantly change when adding all public clinics with a gynaecological station and thus indicate deficiencies in the transportation network / our model of it.

Current Workload for Clinics

The first evaluation we want to perform is on the current workload of clinics and the distribution of abortions onto them.

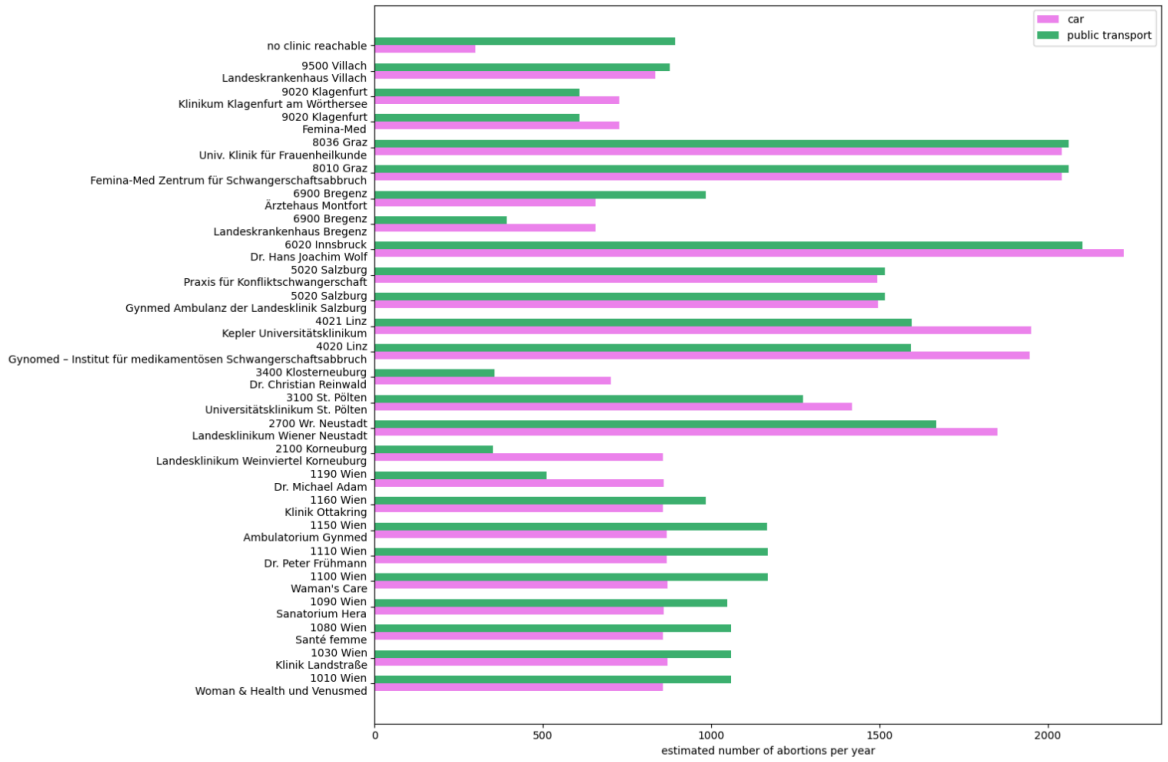

Figure 1: The distribution of abortions onto clinics as calculated with our model.

Figure 1 shows the distribution of abortions onto clinics as calculated with our model. Because no reliable data is available on how many abortions are performed per year, we used the estimate of 30000 from the abort-report.eu project (2024). These abortions are distributed as described (patients choose the clinic nearest to their home, or, if there are multiple options within a 15-minute margin, the one with the lowest load). On the y-axis, the clinics' names and addresses are listed, the x-axis counts the estimated numbers of abortions per year. The pink bars show the calculations based on car travel, green indicates the use of public transport. The category "no clinic reachable" stems from our transportation models not reaching all areas that are populated according to the population density data we used and is not directly translatable to real life (see above section "Validity").

The estimated abortions were mapped in accordance with general population density, but do not account for geographical differences of other demographic factors, namely sex and age. This leads probably to a slight skew towards real world observations (more young people live in cities) but is in accordance with the political goal of equitable access across rural and urban areas.

Due to Vienna's good public transport connection, Viennese clinics bear a higher load in the public transport model, other locations seem to be more accessible by car.

As also apparent in the cartographic representation, the accessibility to abortions in the countryside is highly dependent on individual private actors such as Dr. Wolf in Tyrol. Despite being located in a relatively low-density area, his practice has the highest predicted load of yearly abortions as he is the only doctor performing the procedure in the area.

Generally we can see that there is a very high load on the clinics available. 1000 Abortions in one clinic year mean 3 – 4 abortions per work day (assuming 280 work days / year). In practice clinics cannot carry out abortions at an arbitrary rate which results in patients having to drive even further, as they cannot get an appointment at one of the clinics closest to their home location.

Car based transport

Plotting the travel time to from different locations in Austria reveals shows that especially women in the middle of Austria and in the north of Lower Austria have to drive for long times to reach an abortion clinic (c.f. Figure 2). While Some areas have long travel times, the main problem here is a general lack of capacity (see section “Current Workload for Clinics”).

The travel times as well as the capacity is greatly improved by having all public clinics with gynaecological units offer abortions (c.f. Figure 3).

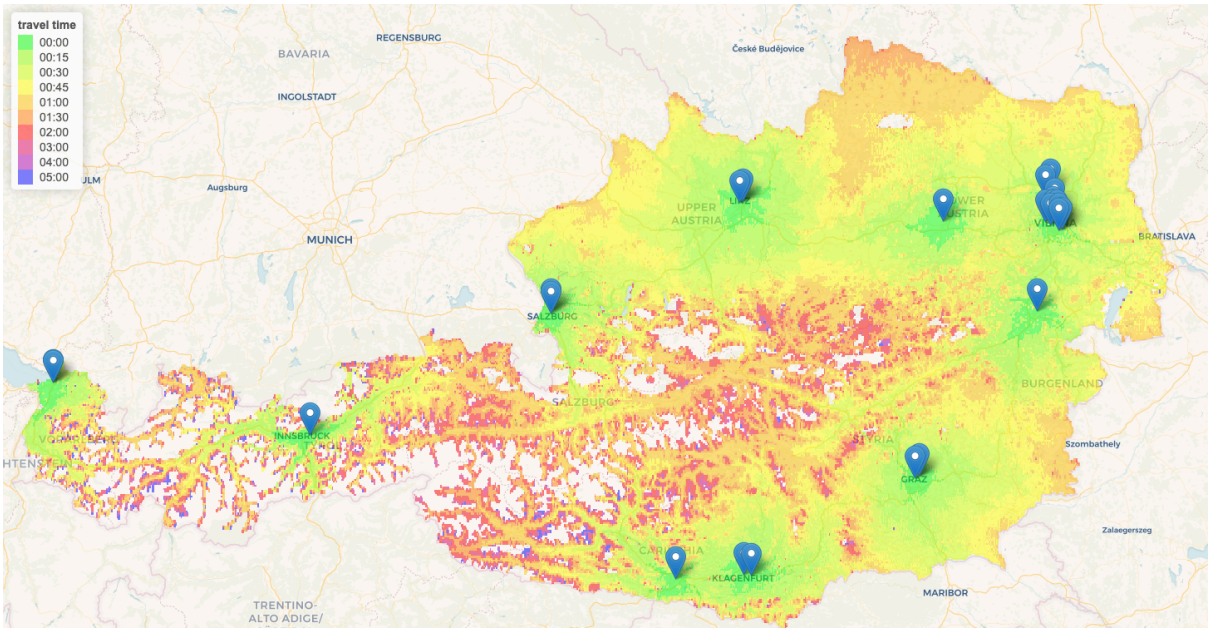

Figure 2: Travel time by car from each point in Austria to one of the current abortion clinics

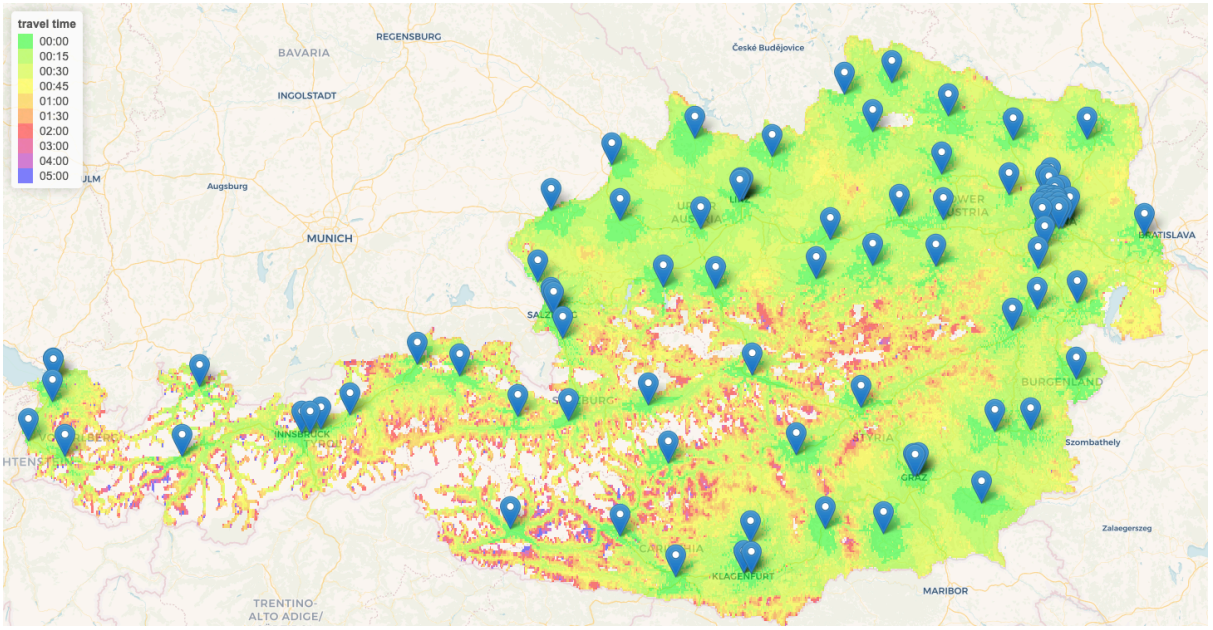

Figure 3: Travel time by car from each point in Austria to one of the current abortion clinics or public hospitals with a gynaecology ward

A similar effect can be seen when looking at the travel time histogram (Figure 4). As expected, the bulk of the travel times is shifted to the left and the number of people having to drive longer than 30 minutes is reduced from 36.1% to 13.8%.

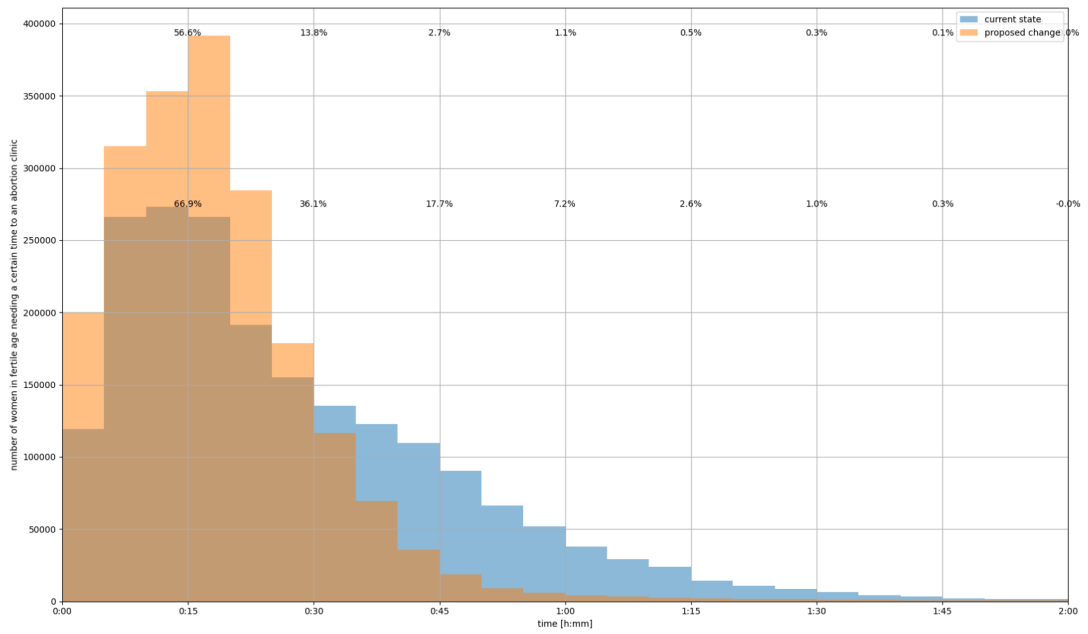

Figure 4: A histogram of travel times by car of women of fertile age to an abortion clinic

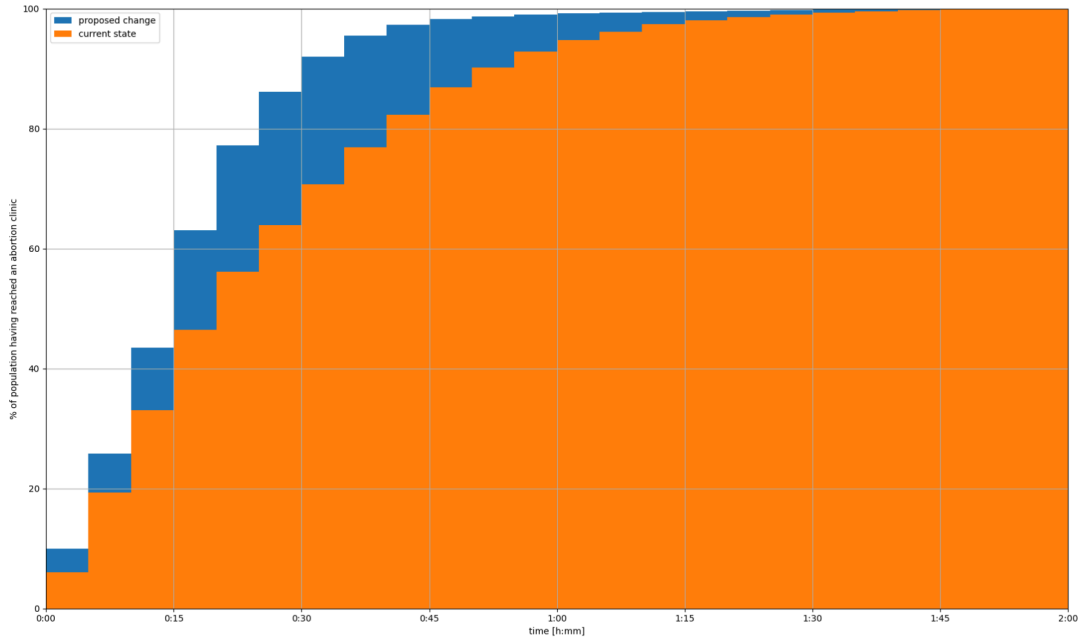

Figure 5: A bar chart showing after what time a certain percentage of women arrived at an abortion clinic by car.

Public Transport

Even if transportation by car is most of the time the fastest option to get to an abortion clinic, using a car is sometimes not feasible. This can be due to socioeconomic factors, the need for a clandestine abortion (e.g. in abusive relationships), the girl being underage, or a dozen of other reasons. Thus, it is important that access to safe abortion is also provided using only public transport.

The access to abortion by public transport in almost all rural areas is currently very bad (c.f. Figure 6). While the situation would improve significantly by doing abortions at all public hospitals with a gynaecological ward (c.f. Figure 7), many rural areas would still have lacking coverage of this essential medical service. Thus, for improving the accessibility here one would need to improve the public transportation network in rural areas in addition to offering abortions at all public hospitals with a gynaecological ward.

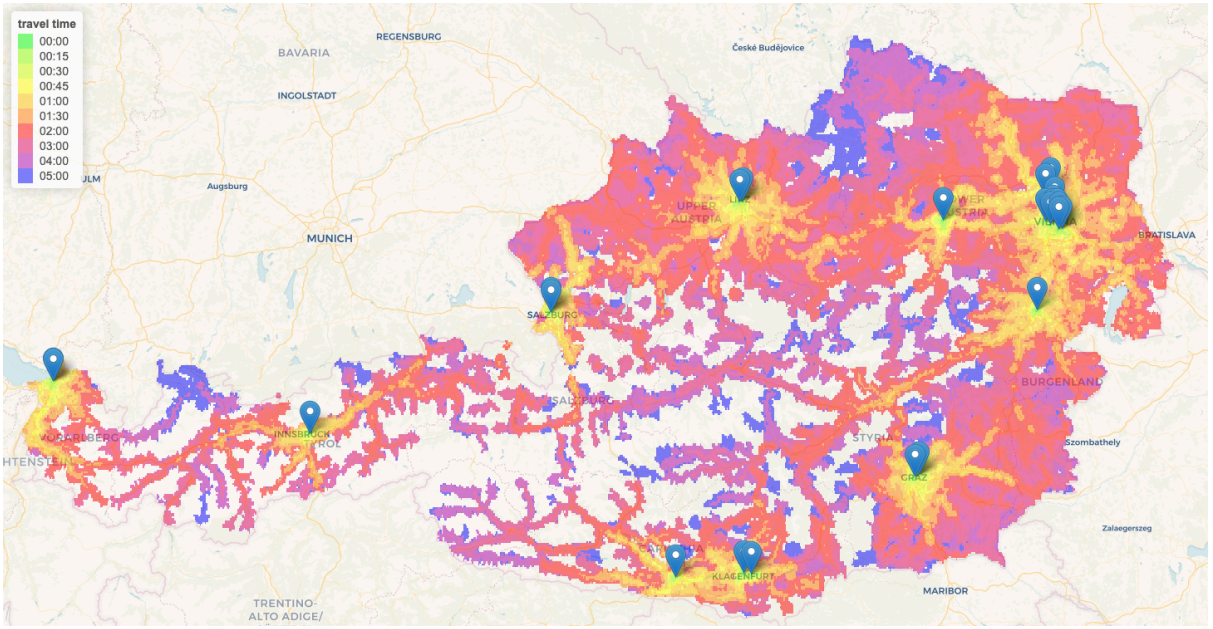

Figure 6: Travel time by public transport from each point in Austria to one of the current abortion clinics

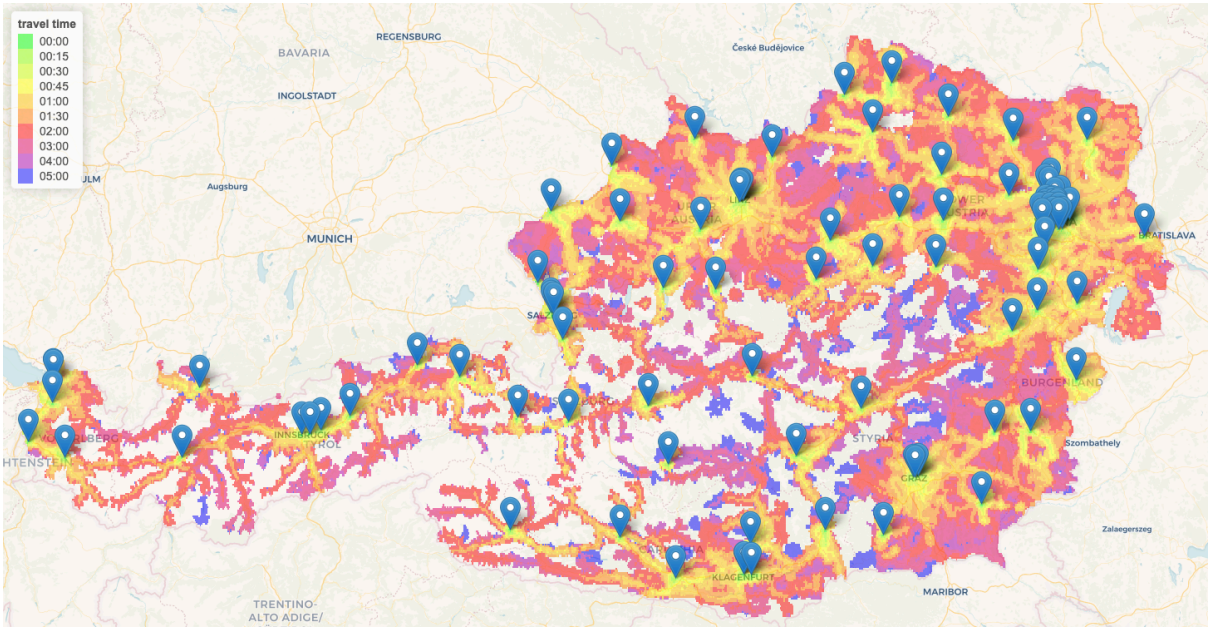

Figure 7: Travel time by public transport from each point in Austria to one of the current abortion clinics or public hospitals with a gynaecology ward

We can observe this in the histogram as well: The number of women that need to commute for more than 1 hour to an abortion clinic is reduced from 60.9 % to 46 % (c.f. Figure 8). However, even the state that almost every second women needs to drive more than one

hour by public transport to get an abortion would be unacceptable. That every fifth woman currently needs more than 2:15h to get to an abortion clinic by public transport (c.f. Figure 9) is a scandal.

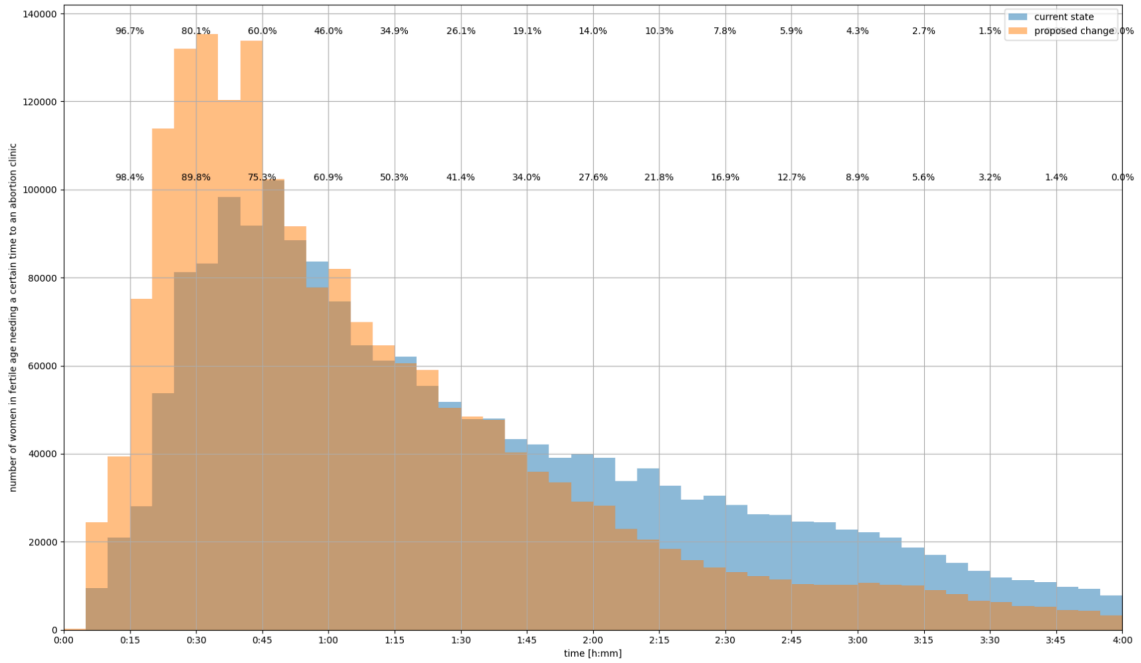

Figure 8: A histogram of travel times by public transport of women of fertile age to an abortion clinic

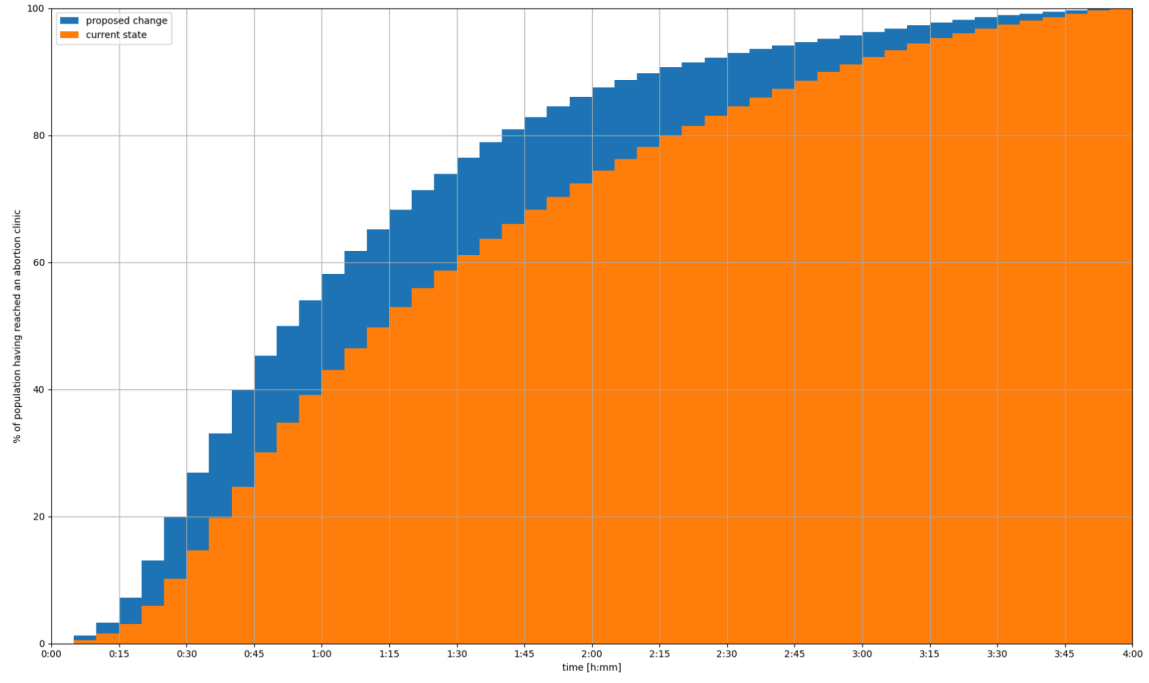

Figure 9: A bar chart showing how long a certain percentage of women need to travel by public transport to get to an abortion clinic.

Conclusion

The geographical access to abortion is an important issue that hinders comprehensive and easy access to bodily self-determination. Still, we are acutely aware that the measure of travel time cannot serve as a stand-in for the lived experience of a woman seeking abortion in Austria (or anywhere else, for that matter). Such a measure can never account for eventual emotional turmoil, continued stigmatisation, or possible humiliation through supposed caregivers that many seeking abortion face. Concurrently, increasing the number of clinics that offer abortions is not a comprehensive measure to equitable and safe abortions in Austria. Also, we refrain from judging which amount of time would be "reasonable". Such a judgement would necessarily be arbitrary, and could not account for the diversity of situations women face (e.g. care responsibilities, need for a clandestine abortion, access to transportation – physical/mental/fiscal).

Although our model of the amount of abortions per clinic is an indicator for how frail the coverage is (Dr. Wolf is doing a lot of heavy lifting), it does not directly translate into availability of appointments or waiting time. These measures would be closer to the lived experience of patients. We can see however, there is a severe lack of medical care when it comes to abortions, although it is the most performed gynaecological service world-wide. The quantitative data presented in this work needs to be accompanied by qualitative surveys to capture these lived experiences. Our scenario mapping showed a (feasible!) world in which geographical access is improved. This would not only result in a path to abortion with fewer hurdles and uncertainties, but the commitment of every public gynaecological hospital ward to offer abortions would generally strengthen the perception of the procedure as a regular health-care measure instead of a shameful, morally disdained practice.

Furthermore, we can see that even increasing the amount of clinics that offer abortions cannot compensate for the lacking public transport network. For very remote areas, solutions like telemedical services that enable abortions from homes should be discussed. We see that it is necessary to improve public transport in order to improve geographical accessibility for women in rural areas. The fight for better public transport is a feminist struggle!

What is to be done?

To reach the goal of bodily self-determination of everyone seeking to end their pregnancy we are convinced that, apart from physical accessibility, extensive decriminalisation (removal of §§96-97 StGB) and easily accessible information on abortion is necessary. In this paper, we investigate the sub-aspect of geographical accessibility and the possible policy change of

offering abortions in every public hospital with a gynaecological ward. We found proof that this would improve the situation. However,

> *"Proof can just as easily become part of an endless loop if not accompanied by other tools of community engagement, political organizing, and protest." (D'Ignazio & Klein, 2020, p. 58)*

In this spirit, we have decided to reach out to #AusPrinzip to make our work available to the campaign. We thus hope that our data breaks out of the loop and might contribute to furthering the struggle for self-determined and safe abortion for all.

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