ECONSTOR
Make Your Publications Visible.

A Service of
ZBW
Leibniz-Informationszentrum Wirtschaft
Leibniz Information Centre for Economics

Šlegerová, Lenka

Working Paper

How is the career choice of a medical speciality dependent on gender inequality in the region

IES Working Paper, No. 12/2022

Provided in Cooperation with:
Charles University, Institute of Economic Studies (IES)

Suggested Citation: Šlegerová, Lenka (2022) : How is the career choice of a medical speciality dependent on gender inequality in the region, IES Working Paper, No. 12/2022, Charles University in Prague, Institute of Economic Studies (IES), Prague

This Version is available at:
https://hdl.handle.net/10419/265198

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

WWW.ECONSTOR.EU

Mitglied der Leibniz-Gemeinschaft

INSTITUTE
OF ECONOMIC STUDIES
Faculty of Social Sciences
Charles University

HOW IS THE CAREER CHOICE OF A MEDICAL SPECIALITY DEPENDENT ON GENDER INEQUALITY IN THE REGION

Lenka Šlegerová

IES Working Paper 12/2022

Institute of Economic Studies,
Faculty of Social Sciences,
Charles University in Prague

[UK FSV – IES]

Opletalova 26
CZ-110 00, Prague
E-mail : ies@fsv.cuni.cz
http://ies.fsv.cuni.cz

Institut ekonomických studií
Fakulta sociálních věd
Univerzita Karlova v Praze

Opletalova 26
110 00 Praha 1

E-mail : ies@fsv.cuni.cz
http://ies.fsv.cuni.cz

Disclaimer: The IES Working Papers is an online paper series for works by the faculty and students of the Institute of Economic Studies, Faculty of Social Sciences, Charles University in Prague, Czech Republic. The papers are peer reviewed. The views expressed in documents served by this site do not reflect the views of the IES or any other Charles University Department. They are the sole property of the respective authors. Additional info at: ies@fsv.cuni.cz

Copyright Notice: Although all documents published by the IES are provided without charge, they are licensed for personal, academic or educational use. All rights are reserved by the authors.

Citations: All references to documents served by this site must be appropriately cited.

Bibliographic information:
Šlegerová L. (2022): "How Is the Career Choice of a Medical Speciality Dependent on Gender Inequality in the Region" IES Working Papers 12/2022. IES FSV. Charles University.

This paper can be downloaded at: http://ies.fsv.cuni.cz

How Is the Career Choice of a Medical Speciality Dependent on Gender Inequality in the Region

Lenka Šlegerová[a]

[a]Charles University, Institute of Economic Studies at Faculty of Social Sciences, Czech Republic
Email: lenka.slegerova@fsv.cuni.cz

June 2022

Abstract:
Using a unique survey of almost 2,000 Czech and Slovak medical students run in 2020 and 2021, the paper investigates whether gender inequality and stereotypes as proxied by the gender unemployment rate gap drive students' choices of specialities. The data suggest that the higher the gender unemployment rate gap in the region (by 1 p.p.), the higher the probability its permanent residents choose a respective gender-dominated speciality (by 3.9 p.p.). This effect is driven by men in the sample. However, women report significantly more frequently encountering discrimination during the undergraduate training (41% vs 23%), presumably influencing their speciality choices. The study demonstrates the need to combat the prevalent gender stereotypes and discriminatory behaviour.

JEL: I18, I23, J16
Keywords: gender inequality, medical speciality choice, unemployment gap

Acknowledgements: The author would like to thank all the survey participants for their time and effort. To Petr Michenka, MD, and Martin Kočí, MD, for their cooperation in surveying the medical students. And to Paola Bertoli, PhD, for her valuable comments on this paper. This publication is dedicated to project START/MED/071 supported by Grant schemes at Charles University, No. CZ.02.2.69/0.0/0.0/19_073/0016935.

1 Introduction

In many countries, medical specialities are disproportionately dominated by physicians of one gender, e.g., surgery, gynaecology, or paediatrics (Alers et al., 2014; Klifto et al., 2020; Taylor et al., 2009). Understanding this non-uniform distribution and the role of gender stereotypes is essential for the planning of human resources in healthcare, especially when facing increasing shares of women physicians (Pelley & Carnes, 2020; OECD, 2021).

This study hypothesises that medical students from a more gender unequal environment tend to frequently choose a speciality according to their gender (women, women-dominated specialities, and men, respectively). Furthermore, it explores the differences in treatment that women and men experience during medical training, their decision-making processes and opinions on the appropriate income.

Data on speciality preferences of 1,990 Czech and Slovak medical students studying in the Czech Republic were collected in two waves of a cross-sectional survey in 2020 and 2021. Gender inequality of the environment is measured by the gender unemployment rate gap and women employment rate in the region of respondent's permanent residence. This approximation is supported by the European Values Study that surveyed opinions on gender stereotypical statements (EVS, 2020) and assumes that students do not change their permanent residence after enrolling at the university.

The findings suggest that choosing a medical speciality depends on gender inequality in the region of student's permanent residence. Students residing where the women unemployment rate is higher than that of men by one percentage point choose a respective gender-dominated speciality with a higher probability, an average increase of 0.039. However, this effect is driven solely by the men in the sample.

The training perception differs for women and men. Women report significantly more frequently that they have encountered behaviour that could be described as discriminatory (41% vs 23%). This is relevant when exploring speciality choices, as both women and men attach great importance to the training experience. Not only with the field's content (approximately 77% of respondents indicate it as a level six or seven on a 7-levels Likert scale) but also with physicians' behaviour in the field (65% for women, 60% for men).

Moreover, women medical students perceive as appropriate a significantly lower starting net basic physician's salary than men (33.9 vs 36.8 thousand CZK). It is unclear whether this difference is one of the causes or consequences of the high gender pay gap from which the Czech Republic suffers (Eurostat, 2021). Regardless, both sums are higher than the starting net basic salary in public healthcare facilities in the Czech Republic (Government

Regulation no. 341/2017 Coll., as amended).
There is relatively extensive literature on the career choices of medical students and young physicians. Studies worldwide focus on factors influencing the speciality choices of women and men medical students, such as the undergraduate experience, work-life balance, remuneration, and contact with patients (Corrigan et al., 2007; Diderichsen et al., 2013; Levaillant et al., 2020; van Tongeren-Alers et al., 2013).
Only a few studies put forward the importance of 'culture'. Alers et al. (2014) suggest the differences in choices of women and men originate in the cultural background and suggest these may also relate to the male-to-female ratio in the study population. Nevertheless, they do not quantify the effect of cultural background. Other research includes Smith et al. (2018) who focus on the culture of sexism related to the training experience. And van Tongeren-Alers et al. (2013) who focus on work culture exemplifying the frequency of part-time positions for women in the Netherlands and Sweden.
This paper contributes to the existing literature by relating culture to gender stereotypes and quantifying them by the gender unemployment rate gap. It exploits regional variability in the Czech Republic and Slovakia to measure its effect on choosing gender-dominated specialities. Furthermore, this paper newly publishes the opinions and preferences of Czech and Slovak medical students regarding the training, speciality choices and appropriate physicians' income.
The rest of this paper is organised as follows. Section 2 describes the data collected from medical students in the Czech Republic and the methodology used to test the hypothesis of speciality choices driven by regional gender inequalities. Section 3 compares the choices of women and men and the underlying decision factors. Section 4 puts the results in context and discusses the limitations. Section 5 concludes the paper.

2 Data and Method

2.1 Data and data collection

An anonymous online questionnaire was distributed to students in the fourth to the sixth (final) study year at all nine medical faculties in the Czech Republic, studying either a General Medicine programme or at the Faculty of Military Health Sciences (Czech programmes only).[1] The e-mail call and one reminder were sent out by all study departments with the permission of the

[1]The survey has been approved by the Ethical Committee of the Faculty of Social Sciences, Charles University.

Association of Deans of Medical Faculties of the Czech Republic. Data from two waves of this cross-sectional survey conducted at the end of academic years in 2020 and 2021 consist of 2,278 respondents. The response rate is 25.2%, representing also the total coverage of students in 'clinical years'.
Women are mildly over-represented in the data (as expected in web surveys; (Keusch, 2015)), accounting for two-thirds of the respondents (66.8%), but only for 60% of the students in 2020, according to the Czech Statistical Office (ČSÚ, 2021).[2] There is a minor under-representation of sixth-year students, who constituted around 35.7% of all the students approached during the survey. However, the distribution of respondents is 34.2% in the fourth year, 32.7% in the fifth, and 33.1% in the sixth. The discrepancies in the actual share of students and the share of respondents at individual faculties are relatively small. An over-representation of students from the Second Faculty of Medicine at Charles University is outweighed by the under-representation of Masaryk University.[3]
The group of medical students in the Czech Republic is relatively homogeneous[4], so respondents' age is only approximated by the study year, ethnicity by the country of permanent residence, and marital status is omitted. Students residing in Slovakia constitute the biggest national minority among medical students (N=468, 20.5% of respondents). Students residing in other countries (N=50, 2.2%), mostly in the Russian Federation and Ukraine, were dropped from the dataset.
Apart from data collected through the survey among medical students, the unemployment rates for women and men and women employment rate in 2019 were gathered for each region in the Czech Republic and Slovakia (14 and 8 NUTS-3 regions, Table 4) from the Czech (ČSÚ, 2020b,c) and Slovak (ŠÚSR, 2020a,b,d) statistical offices. Even though newer values are available, these are highly influenced by the COVID-19 pandemic, which might have distorted the standard relations between regions. The average unemployment rate (4.9%) and the gender unemployment rate gap (1.8 p.p.) are higher in Slovakia than in the Czech Republic (2.0% and 0.7 p.p.).

[2]Women constituted 59.7% of students of Medicine in all study years and 59.9% of graduates. These comprise both Czech and international students (ČSÚ, 2021).

[3]This under-representation can be considered random. We attribute it to the later questionnaire distribution to students due to technical issues.

[4]According to the Ministry of Education, Youth and Sports, in 2020 and 2021, 91% of Czech students in full masters' programmes were under 28 years old MŠMT (2022).

2.2 Method

The designed survey aims to comprehensively explore students' clinical competencies and occupational preferences. Out of the 43 residency specialities (listed in the Act no. 95/2004 Coll., as amended) a respondent can (i) prefer one speciality, (ii) shortlist two or three specialities, or (iii) declare to be yet undecided or not wishing to pursue a medical career. Only respondents falling into the first two groups are further considered as they have already formed some preferences on specialities.

If the share of respondents who decide for or shortlist a particular speciality is significantly different for women and men (one-sided $p < 0.001$), this speciality is labelled as 'gender dominated'. Only specialities preferred/shortlisted by at least 30 respondents are included in these two-sample tests of proportions.[5] This way we define women-dominated specialities: dermatovenerology, general practice medicine, gynaecology, ophthalmology, paediatrics; and men-dominated specialities: cardiology, gastroenterology, orthopaedics, plastic surgery, cardiac surgery, vascular surgery.

This list matches foreign studies of gender-dominated specialities, e.g. in the UK, gynaecology, paediatrics and dermatology residency programmes have the highest proportion of women physicians, whereas men dominate in surgery, cardiology, gastroenterology programmes (Campbell et al., 2020). Ophthalmology is preferred by men both in the UK and the US (Chiang et al., 2020). Other specialities were either excluded from our analyses as small or they do not have a counterpart in foreign residency programmes.

This study uses binary logistic regressions to explore the respondents' preferences for gender-dominated specialities using a dataset containing 1,990 respondents. The dependent dummy variable (*gender_following_choice*) equals one for women preferring women-dominated specialities and, respectively, for men and men-dominated specialities; zero otherwise. The explanatory variables fit into three groups: (i) variables characterising gender inequalities in the region of respondents' permanent residence, (ii) respondent's demographics, (iii) respondents' attitudes/opinions.

$$
\begin{aligned}
Prob(gender_following_choice = 1) = \Lambda\big(&\beta_0 + \beta_1(unemployment_rate_gap)_i \\
&+ \beta_2(employment_rate_women)_i + \beta_3(gender)_i + \beta_{4-5}(study_year)_i + \\
&+ \beta_{6-12}(faculty)_i + \beta_{13}(income)_i + \beta_{14-19}(organisation_)_i \\
&+ \beta_{20-25}(feedback_)_i + \beta_{26}(survey_year)_i + \epsilon_i\big)
\end{aligned}
$$

[5]Small specialities (under 30 respondents interested) not included in the tests of proportions: biochemistry, forensic medicine, geriatrics, genetics, hygiene, microbiology, maxillofacial surgery, nephrology, neurosurgery, nuclear medicine, radiation oncology, rheumatology.

The gender unemployment rate gap and women employment rate are expected to support the hypothesis of the speciality preferences driven by regional gender inequalities. In regions with a higher gender unemployment rate gap, i.e., where women have a higher unemployment rate than men, people tend to agree more with gender stereotypes, $|\rho|$=0.48, and there is a higher share of mothers aged under 25 years, $|\rho|$=0.75 (ČSÚ, 2020a; ŠÚSR, 2020c). The residents' opinions on statements which we consider to be stereotypical were surveyed by the European Values Study, see Table 5 (EVS, 2020).

The expectations on the demographic variables depend on their construction; *gender:* women as the base group; *study_year:* fourth as the base year; *faculty:* the Faculty of Medicine and Dentistry at Palacký University Olomouc as the base group as it has the highest share of respondents preferring a respective gender-dominated speciality. Negative coefficients are expected for higher study years, as the respondents get more decided on their one preferred speciality (25% of respondents in the fourth year declare to be decided; 39% in the fifth; 78% in the sixth), thus the probability of shortlisting a (gender-dominated) speciality is likely to decrease by construction.

Respondents share their views on the organisation of mandatory practical training (*organisation_*) and the frequency of teachers' feedback (*feedback_*) in paediatrics, gynaecology and surgical disciplines. These were re-coded into three-level variables; the base group when the organisation was rather or very good, and feedback was provided (almost) every time, second when the organisation was rather or very bad, and feedback was provided sometimes or (almost) never, and third when training has not taken place yet. As these can affect the choice of a gender-dominated speciality in both directions, their expected effect is uncertain.

In the survey, medical students further indicate the appropriate starting net basic salary of a physician in the Czech Republic (*income*; in thousand CZK). This is neither their expected salary nor the appropriate salary for their chosen speciality, which might have had caused endogeneity. Instead, it maps their views on remuneration in general. Its effect on choosing a respective gender-dominated speciality is expected to be insignificant when controlling for the respondent's gender.

To gain a deeper understanding of the decision-making processes of medical students, 7-levels Likert-scale questions targeted in the survey's second wave the importance of the following factors for the speciality choice; experience with the field's content, the behaviour of physicians, physicians' satisfaction with their own field, contact with patients, the possibility of private practice, social prestige, and compatibility with family. Moreover, the effect of encountering behaviour that could be described as discriminatory is studied as well.

3 Results

The data from our national survey confirm that students' speciality preferences are heavily dependent on gender, especially among women. A narrow majority (52.4%) of women in the sample prefer a women-dominated speciality, whereas only around 43.2% of men prefer a men-dominated speciality (Table 1).

Table 1: Students' distribution based on choosing a respective gender-dominated speciality

		gender-following choice			
		0		1	
total		1008	50.7%	982	49.3%
gender	women	633	47.6%	697	52.4%
	men	375	56.8%	285	43.2%

Notes: The shares of women and men choosing a respective gender-dominated speciality are significantly different, $p < 0.001$ in a one-sided test of proportions.

'Unexpected preferences' for medical specialities are reported by 20.2% of women who consider pursuing men-dominated specialities, whereas as much as 25.3% of men ponder about a women-dominated speciality (the difference being significant, $p < 0.01$). Hence, women seem to be more influenced by their gender. Nevertheless, there appear to be unalike reasons for both genders to choose a respective medical speciality. First, they look for different aspects in the specialities, second, their training experience varies, and thirdly, the characteristics of the region of their permanent residence (presumably where they were raised) affect them differently.

Both men and women attach great importance to the experience with the field's content. Women consider significantly more the compatibility with family, the possibility of private practice and the extent of contact with patients. On the other hand, men attach higher importance to the field's prestige, though the importance is not very high for either men or women. Additionally, women have reported moderately more frequently the importance of the behaviour of physicians in the field as a factor affecting their speciality choice (64.7% vs 59.8%, one-sided $p < 0.1$, see Table 2).

These coincide with the existing literature, even though the decision factors vary partially across countries and students' experience level (Cleland et al., 2014; Smith et al., 2018). Work-life balance seems to be of high importance for both women and men; nevertheless, women students prefer part-time work more frequently (Diderichsen et al., 2013; Levaillant et al.,

2020; Smith et al., 2015; van Tongeren-Alers et al., 2011). Women also seem to value more direct patient contact, whereas men attach higher importance to a good salary and prefer more specialities in line with technical skills (van Tongeren-Alers et al., 2011).

Table 2: The importance of individual factors for the choice of a medical speciality (in %), difference between women and men and its significance

	women	men	p-value
Experience with the field's content	76.05	78.41	0.2308
Behaviour of physicians in the field	64.67	59.85	0.0945
Satisfaction of physicians with their own field	59.68	53.03	0.0385
Extent of contact with patients	53.49	40.53	0.0003
Possibility of private practice	52.10	39.02	0.0003
Social prestige of the field	7.98	16.67	0.0001
Compatibility of the field with family	62.67	46.97	0.0000

Notes: The factors are represented by 7-levels Likert-scale questions in the survey among medical students. The created dummy variables equal one for the two highest levels (most important), zero otherwise. The statistical significance of the difference between the shares of women and men is reported as a one-sided p-value from the test of proportions.

Apparently, the experience is of high importance for choosing a medical speciality, nevertheless, it is not the same for women and men in some aspects at least. Women in the sample report significantly more frequently than men that they have encountered behaviour that could be described as discriminatory (41.1% vs 23.1%). For women, not encountering such behaviour is mildly positively correlated ($\rho = 0.028$) with choosing an unexpected, i.e. a men-dominated speciality. Although the influence of exposure to discrimination on speciality choices has not been widely studied, Stratton et al. (2005) found in the US that 45% of women medical students who reported exposure to gender discrimination and sexual harassment also reported they were influenced by it in their speciality choices.

The importance of gender inequalities in the regions of respondents' permanent residence for their choices of medical specialities is displayed in Table 3. The model (Column 3) suggests an average increase of 3.9 p.p. in the probability of choosing a respective gender-dominated speciality with a 1 p.p. increase in the gender unemployment rate gap. Such growth in the gap is feasible as its range in the Czech Republic and Slovakia is over 3 p.p. This effect is driven solely by the men in the sample, as displayed in Columns (4) and (5), where the logistic regression was run on the sub-samples of only men and only women, respectively. For women, the significance of the gender

Table 3: Logistic regressions on choosing a respective gender-dominated speciality

gender_following_choice	(1)	(2)	(3)	(4)	(5)
unemployment_gap	0.160**	0.161**	0.164**	0.343**	0.073
employment_women	3.980**	4.087**	4.122**	8.345**	1.437
gender=men	-0.369***	-0.357***	-0.340***	.	.
study_year=5	-0.046	-0.045	-0.126	0.069	-0.166
study_year=6	-0.499***	-0.495***	-0.614***	-0.223	-0.827***
faculty=1. LF UK	-0.539***	-0.543***	-0.578***	-0.707**	-0.518**
faculty=2. LF UK	-0.844***	-0.846***	-0.809***	-1.228***	-0.527**
faculty=3. LF UK	-0.454**	-0.457**	-0.498**	-0.536	-0.471*
faculty=LFHK UK	-0.697***	-0.696***	-0.751***	-0.398	-0.943***
faculty=LFP UK	-0.663***	-0.671***	-0.690***	-0.335	-0.835***
faculty=LF MUNI	-0.574***	-0.571***	-0.589***	-0.475	-0.652***
faculty=LF OU	-0.361	-0.369	-0.403	-0.270	-0.521*
income	.	-0.005	-0.004	0.001	-0.009
org_sur=rather/very bad	.	.	-0.136	0.045	-0.158
org_sur=no training	.	.	0.005	0.021	0.210
org_paed=rather/very bad	.	.	-0.088	-0.241	0.009
org_paed=no training	.	.	0.421	-0.663	1.005**
org_gyn=rather/very bad	.	.	-0.321**	-0.184	-0.376**
org_gyn=no training	.	.	-0.350	0.103	-0.604
fdbk_sur=some/(almost) never	.	.	-0.038	-0.372	0.081
fdbk_sur=no training	.	.	-0.064	-0.810	0.343
fdbk_paed=some/(almost) never	.	.	-0.126	-0.124	-0.138
fdbk_paed=no training	.	.	-0.436	0.948	-1.274**
fdbk_gyn=some/(almost) never	.	.	0.362**	0.564*	0.249
fdbk_gyn=no training	.	.	0.324	0.427	0.351
survey_year=2021	-0.004	0.003	-0.009	-0.079	0.033
constant	-1.356	-1.258	-1.118	-4.317**	0.688
N	1990	1990	1990	660	1330

* 0.10 ** 0.05 *** 0.01

Notes: Columns (1-3) consist of all the observations, column (4) only of men, column (5) only of women.

Base groups of categorical variables: women, fourth study year, Faculty of Medicine and Dentistry at Palacký University Olomouc, rather or very good organisation (org) of mandatory practical training in surgery (sur) or paediatrics (paed) or gynaecology (gyn), teacher's feedback (fdbk) provided (almost) every time, survey year 2020.

Medical faculties at the Charles University: First Faculty of Medicine (1. LF UK), Second Faculty of Medicine (2. LF UK), Third Faculty of Medicine (3. LF UK), Faculty of Medicine in Hradec Králové (LFHK UK), Faculty of Medicine in Plzeň (LFP UK), Faculty of Medicine at Masaryk University (LF MUNI), Faculty of Medicine at University of Ostrava (LF OU).

Students from the University of Defence are reported with students from the Faculty of Medicine in Hradec Králové at Charles University since all the civilian training takes place together.

unemployment rate gap is lost.
The results are not dependent on the survey wave. They are also robust to omitting the variables evaluating the training and the views' on the appropriate income (Columns 1 and 2). The significance of the effect of the gender unemployment rate gap is robust to its construction; it remains significant when defined as a share instead of a difference. Moreover, the effect reaches the same value in a probabilistic regression as well as in a linear probability model with robust standard errors.
The perceived appropriate income is insignificant for the choice of a respective gender-dominated speciality when controlling for the respondent's gender. Nevertheless, it is interesting that men find appropriate a significantly higher net basic salary than women, i.e. 36.8 thousand CZK, 5%-CI: (36.1, 37.5) vs 33.9 thousand CZK, 5%-CI: (33.5, 34.3). This is consistent with the existing literature that suggests women typically expect lower remuneration than men (Cone et al., 2021; Schweitzer et al., 2014; Streilein et al., 2018).

4 Discussion

The findings suggest that choosing a medical speciality depends on gender inequality in the region of student's permanent residence. The students residing in a more gender unequal environment tend to follow their gender more frequently. Furthermore, this effect is prominent in men only. We can thus conjecture that men either do not wish to defy gender stereotypes stemming from their residence or it is too difficult for them, as suggested, for example, by Croft et al. (2015).
On the other hand, women appear to be untouched by the environment where we assume they were brought up. We could credit this to the higher willingness of women to fight against the stereotypes and discrimination (Atkinson & Windett (2019); not much recent literature has been found on this). However, women student seem to be failing in this combat as they predominate in following their gender when choosing specialities (52.4% of women in the sample prefer a women-dominated speciality, whereas only 43.2% of men prefer a men-dominated speciality). Ultimately, women speciality preferences seem to be driven to a large extent by their experience with medical training and faculties.
Women in the sample report significantly more frequently that they have encountered behaviour that could be described as discriminatory which might discourage them from choosing men-dominated specialities. We cannot determine whether women objectively encounter discriminatory behaviour more frequently or if they are just prone to noticing and remembering it, as sug-

gested by Drury & Kaiser (2014). Nevertheless, perceived discrimination matters regardless of the objective reality.

Overall, the experience with the field and physicians' behaviour is essential for both women and men. Considering the continuing feminisation of Czech physicians (ČSÚ, 2020d), especially physicians practising in men-dominated fields should be aware of their influence on medical students. Kristoffersson et al. (2018) demonstrate this importance and how discouraged students are by the hostile and sexist workplace environment. Another recent survey shows that practising physicians can both positively and negatively influence the speciality choice; their perceived dissatisfaction included (Croghan & Baker, 2020). In the survey of Smith et al. (2018) women rarely explicitly identify experiencing sexism as influencing their speciality choices, but the following discussion 'suggests they factored in'.

The importance women attach to various factors confirms the divergence in decision-making processes from men. Furthermore, this study finds that women have different expectations and perceive themselves differently from men regarding the appropriate income. Women considering as appropriate a significantly lower starting net basic salary can be one of the causes of the Czech Republic suffering from one of the highest gender pay gaps in Europe (Eurostat, 2021). It can also be its consequence. Knowing they will receive a lower wage than men, women have learnt to accept it as appropriate. In any case, even though the physicians' salary is continually growing, the students' expectations are still higher than the starting net basic salary in public healthcare facilities in the Czech Republic in reality (Government Regulation no. 341/2017 Coll., as amended).

Policy implications can also be drawn from the concern the students, particularly women, put on the compatibility with family. Czech legislation can be considered child-friendly as it guarantees one of the longest maternity and parental leave in the EU; paternal leave has been prolonged since 2022 as well. Additionally, the Labour Code regulates the employer's obligation to grant a request for a shorter working time to parents of children under 15 years. The employer can deny shorter working time for serious operational reasons (Act no. 262/2006 Coll., as amended). However, as a work-life balance and a family are essential for young physicians, employers should reconsider supporting the part-time positions. This goes hands-in-hands with ensuring the accessibility of child care, which has positive effects on parent labour supply (Bauernschuster & Schlotter, 2015; Brilli et al., 2016; Morrissey, 2017).

In this study, the environment that instigates students' perception of gender and the expectations placed on them is approximated by the region of permanent residence. This poses two main limitations; one, the region of permanent residence does not have to be the region where the respondent

was brought up; two, the variation within NUTS-3 regions is still expected to be relatively large. Nevertheless, this approximation is well-founded, particularly for Czech students who have only minimal incentives to change their legal permanent residence from their parents' residence to match their usual residence (Černý, 2021). Slovakia's citizens can apply for permanent residence only after five years of continuous residing in the Czech Republic (Act no. 326/1999 Coll, as amended), presumably the main reason they keep it in Slovakia.

Gender inequality in the regions is measured by the unemployment rate gap utilising the link between gender stereotypes and the labour market (González et al., 2019; Kiausiene et al., 2011). Even though the European Values Study (EVS) directly surveys opinions on stereotypical statements (e.g. On the whole, men make better business executives than women do; When jobs are scarce, men have more right to a job than women), data are available only for NUTS-2 regions providing low variability (EVS, 2020). Moreover, these statements are rather extreme to capture people's beliefs. Therefore this study uses the gender unemployment rate gap instead. The regressions would further benefit from the availability of district-level data and the inclusion of, for example, parents' education level that would closer define the respondents' living environment.

The possibility to extrapolate the results of this study is limited by its design as it covers only students of medical faculties in the Czech Republic. A wider range of countries would introduce higher variability in the gender unemployment rate gap and other variables. For that, the students with permanent residence in Slovakia were included; however, they do not necessarily represent all medical students residing in Slovakia. Nevertheless, the absolute number of 2,278 respondents included in this study and the coverage rate of over 25% are respectable. On top of that, sampling methods do not pose difficulties as the population of medical students in the clinical years was addressed fully.

5 Conclusion

This study examines the role of gender inequalities and stereotypes in the speciality choices of medical students. It tests the hypothesis that students from a more gender unequal environment tend to follow more frequently their gender. The environment is represented by the gender unemployment rate gap in the region of permanent residence. Speciality preferences are taken from a survey conducted in 2020 and 2021 among medical students in clinical years at all medical faculties in the Czech Republic.

Based on the preferences of 1,990 respondents, the choice of a medical speciality is dependent on gender inequality in the region of permanent residence. This effect is driven solely by men in the sample; women appear untouched by the environment. Nevertheless, women report more frequently that during the training, they have encountered behaviour that could be described as discriminatory. This can be discouraging from men-dominated fields as physicians' behaviour is assigned the second-highest importance from the studied decision factors after the experience with the field's content. Women also perceive as appropriate a significantly lower starting net basic salary than men.

The prevalence of discriminatory behaviour during medical training needs to be addressed. Considering the continuing feminisation of Czech physicians, the approach to women medical students and physicians should improve; otherwise, the Czech healthcare system risks a scarcity of physicians in the currently men-dominated specialities. There is a need to actively fight and break gender stereotypes, for example, through awareness-raising campaigns as suggested by the European Commission (EC, 2020). Overall, understanding the medical students' needs and views is essential for the sustainability of the Czech healthcare system.

Table 4: Unemployment and employment rates (in %, in p.p.), NUTS-3 regions of the Czech Republic and Slovakia, 2019

		unemployment rate			employment rate	
Czech Republic	NUTS-3	women	men	gap	women	men
Hlavní město Praha	CZ010	1.48	1.16	0.31	56.29	73.33
Středočeský kraj	CZ020	1.52	1.16	0.36	54.16	68.82
Jihočeský kraj	CZ031	2.21	1.44	0.77	49.58	66.58
Plzeňský kraj	CZ032	1.59	1.04	0.55	51.34	68.84
Karlovarský kraj	CZ041	4.47	3.95	0.52	52.95	66.75
Ústecký kraj	CZ042	3.33	1.88	1.45	47.59	64.30
Liberecký kraj	CZ051	2.57	1.29	1.28	47.89	65.62
Královéhradecký kraj	CZ052	1.65	1.64	0.00	51.30	66.23
Pardubický kraj	CZ053	1.68	1.53	0.14	52.05	66.54
Kraj Vysočina	CZ063	1.77	1.09	0.68	50.76	66.86
Jihomoravský kraj	CZ064	3.00	1.41	1.59	50.81	67.35
Olomoucký kraj	CZ071	2.83	2.15	0.68	48.87	66.39
Zlínský kraj	CZ072	1.84	2.04	-0.20	48.62	66.38
Moravskoslezský kraj	CZ080	4.00	3.39	0.61	50.22	63.88
Slovakia	NUTS-3	women	men	gap	women	men
Bratislavský kraj	SK010	3.26	2.44	0.82	57.22	70.39
Trnavský kraj	SK021	3.19	2.16	1.03	50.23	63.18
Trenčiansky kraj	SK022	3.74	2.75	0.99	48.97	64.51
Nitriansky kraj	SK023	3.74	2.26	1.48	48.36	63.08
Žilinský kraj	SK031	4.80	3.32	1.48	47.55	64.98
Banskobystrický kraj	SK032	7.98	5.52	2.46	49.79	59.94
Prešovský kraj	SK041	9.85	6.87	2.98	44.85	60.47
Košický kraj	SK042	9.25	6.21	3.04	44.11	59.29
min		1.48	1.04	-0.20	44.11	59.29
max		9.85	6.87	3.04	57.22	73.33

Source: ČSÚ (2020b,c); ŠÚSR (2020a,b,d); EU (2020)
Notes: The employment rate for Slovakia was computed by dividing the number of working individuals by permanent residents aged 15+.

Table 5: Respondents of the European Values Study (2017) agreeing with chosen statements (average z-scores), NUTS-2 regions of the Czech Republic and Slovakia, 2017

Czech Republic	NUTS-2	women	men	average
Praha	CZ01	0.425	0.084	0.255
Střední Čechy	CZ02	0.128	-0.026	0.042
Jihozápad	CZ03	0.191	0.015	0.111
Severozápad	CZ04	0.147	-0.114	0.026
Severovýchod	CZ05	0.256	0.064	0.173
Jihovýchod	CZ06	0.251	0.151	0.209
Střední Morava	CZ07	0.221	-0.227	-0.033
Moravskoslezsko	CZ08	0.269	-0.053	0.111
Slovakia	NUTS-2	women	men	average
Bratislavský kraj	SK01	0.278	-0.634	-0.169
Západné Slovensko	SK02	-0.147	-0.526	-0.340
Stredné Slovensko	SK03	0.257	-0.169	0.058
Východné Slovensko	SK04	-0.138	-0.487	-0.297
min		-0.147	-0.634	-0.340
max		0.425	0.151	0.255

Source: Own computations based on EVS (2020).
Notes: Two questions from the European Values Study (2017) are considered; v78: 'On the whole, men make better business executives than women do', v81: 'When jobs are scarce, men have more right to a job than women'. The respondents of the survey answered: agree strongly (=1), agree (2), disagree (3), or strongly disagree (4).The field work was conducted between September and November 2017 in both the Czech Republic and Slovakia.
For each individual, a z-score is calculated using the mean value of both men and women from the Czech Republic and Slovakia together. For that, provided weights balancing the sample both within and between the countries are used. Respondents who either did not answer or answered 'don't know' were disregarded. The regional values are computed as weighted average of the individuals living in the NUTS-2 area. Simple averaging was used for each individual to derive the average z-score for the two chosen questions.
The table displays average z-scores for the two questions. First for women, then men, and for all respondents in the EVS.

References

Alers, M., van Leerdam, L., Dielissen, P. & Lagro-Janssen, A. (2014). Gendered specialities during medical education: a literature review. *Perspectives on medical education* **3**, 163–178.

Atkinson, M. L. & Windett, J. H. (2019). Gender stereotypes and the policy priorities of women in congress. *Political Behavior* **41**, 769–789.

Bauernschuster, S. & Schlotter, M. (2015). Public child care and mothers' labor supply—evidence from two quasi-experiments. *Journal of Public Economics* **123**, 1–16.

Brilli, Y., Del Boca, D. & Pronzato, C. D. (2016). Does child care availability play a role in maternal employment and children's development? evidence from italy. *Review of Economics of the Household* **14**, 27–51.

Campbell, A., Dennis, A., Wilkinson, T. & McAleer, S. (2020). The relationship between gender and career choice in medicine–an overview. *Journal of Gender Studies* **29**, 852–855.

Chiang, K., Lu, K., Hartley, M., Lu, Z., Winters, T., Hallan, D. R. & Sakya, S. M. (2020). Trends in gender representation and post-residency in-state retention at both an academic medical center and in the United States. *Cureus* **12**.

Cleland, J. A., Johnston, P. W., Anthony, M., Khan, N. & Scott, N. W. (2014). A survey of factors influencing career preference in new-entrant and exiting medical students from four UK medical schools. *BMC medical education* **14**, 1–10.

Cone, E. B., Westerman, M. E., Nguyen, D.-D., Stern, K. L., Javier-Desloges, J. & Koo, K. (2021). Gender-based differences in career plans, salary expectations, and business preparedness among urology residents. *Urology* **150**, 65–71.

Corrigan, M. A., Shields, C. J. & Redmond, H. P. (2007). Factors influencing surgical career choices and advancement in Ireland and Britain. *World journal of surgery* **31**, 1921–1929.

Croft, A., Schmader, T. & Block, K. (2015). An underexamined inequality: Cultural and psychological barriers to men's engagement with communal roles. *Personality and Social Psychology Review* **19**, 343–370.

Croghan, S. M. & Baker, T. (2020). The great gamble? a mixed-methods study of factors influencing medical students in specialty choice. *JR Coll Physicians Edinb* **50**, 422–430.

Diderichsen, S., Johansson, E. E., Verdonk, P., Lagro-Janssen, T. & Hamberg, K. (2013). Few gender differences in specialty preferences and motivational factors: a cross-sectional swedish study on last-year medical students. *BMC medical education* **13**, 1–8.

Drury, B. J. & Kaiser, C. R. (2014). Allies against sexism: The role of men in confronting sexism. *Journal of social issues* **70**, 637–652.

EC (2020). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A Union of Equality: Gender Equality Strategy 2020-2025. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0152. Accessed on October 25, 2021.

EU (2020). Statistical regions in the European Union and partner countries. NUTS and statistical regions 2021. Publications Office of the European Union Luxembourg.

Eurostat (2021). Gender pay gap in unadjusted form, code: SDG_05_20. https://ec.europa.eu/eurostat/databrowser/view/sdg_05_20/default/table?lang=en. Accessed on October 23, 2021.

EVS (2020). European Values Study 2017: Integrated dataset (EVS 2017). GESIS Data Archive, Cologne. ZA7500 Data file Version 4.0.0.

González, M. J., Cortina, C. & Rodríguez, J. (2019). The role of gender stereotypes in hiring: a field experiment. *European Sociological Review* **35**, 187–204.

Keusch, F. (2015). Why do people participate in web surveys? Applying survey participation theory to internet survey data collection. *Management review quarterly* **65**, 183–216.

Kiausiene, I., Streimikiene, D. & Grundey, D. (2011). On gender stereotyping and employment assimetries. *Economics & Sociology* **4**, 84.

Klifto, K. M., Payne, R. M., Siotos, C., Lifchez, S. D., Cooney, D. S., Broderick, K. P., Aliu, O., Manahan, M. A., Rosson, G. D. & Cooney, C. M. (2020). Women continue to be underrepresented in

surgery: a study of AMA and ACGME data from 2000 to 2016. *Journal of surgical education* **77**, 362–368.

Kristoffersson, E., Diderichsen, S., Verdonk, P., Lagro-Janssen, T., Hamberg, K. & Andersson, J. (2018). To select or be selected–gendered experiences in clinical training affect medical students' specialty preferences. *BMC Medical Education* **18**, 1–11.

Levaillant, M., Levaillant, L., Lerolle, N., Vallet, B. & Hamel-Broza, J.-F. (2020). Factors influencing medical students' choice of specialization: A gender based systematic review. *EClinicalMedicine* **28**, 100589.

Morrissey, T. W. (2017). Child care and parent labor force participation: a review of the research literature. *Review of Economics of the Household* **15**, 1–24.

MŠMT (2022). Universities - students of public universities (Czech citizens), by type of study program and year of birth, table f24_cr. https://dsia.msmt.cz//vystupy/vu_vs_f2.html. Accessed on March 10, 2022.

OECD (2021). *Health at a Glance 2021: OECD Indicators*. Paris: OECD Publishing.

Pelley, E. & Carnes, M. (2020). When a specialty becomes "women's work": trends in and implications of specialty gender segregation in medicine. *Academic medicine: journal of the Association of American Medical Colleges* **95**, 1499.

Schweitzer, L., Lyons, S., Kuron, L. K. & Ng, E. S. (2014). The gender gap in pre-career salary expectations: A test of five explanations. *Career Development International* **19**, 404–425.

Smith, F., Lambert, T. W. & Goldacre, M. J. (2015). Factors influencing junior doctors' choices of future specialty: trends over time and demographics based on results from UK national surveys. *Journal of the Royal Society of Medicine* **108**, 396–405.

Smith, V., Bethune, C. & Hurley, K. F. (2018). Examining medical student specialty choice through a gender lens: an orientational qualitative study. *Teaching and learning in medicine* **30**, 33–44.

Stratton, T. D., McLaughlin, M. A., Witte, F. M., Fosson, S. E. & Nora, L. M. (2005). Does students' exposure to gender discrimination and sexual harassment in medical school affect specialty choice and residency program selection? *Academic Medicine* **80**, 400–408.

Streilein, A., Leach, B., Everett, C. & Morgan, P. (2018). Knowing your worth: salary expectations and gender of matriculating physician assistant students. *The Journal of Physician Assistant Education* **29**, 1–6.

Taylor, K. S., Lambert, T. W. & Goldacre, M. J. (2009). Career progression and destinations, comparing men and women in the NHS: postal questionnaire surveys. *BMJ* **338**, 1–12.

van Tongeren-Alers, M., van Esch, M., Verdonk, P., Johansson, E., Hamberg, K. & Lagro-Janssen, T. (2011). Are new medical students' specialty preferences gendered? Related motivational factors at a Dutch medical school. *Teaching and learning in medicine* **23**, 263–268.

van Tongeren-Alers, M., Verdonk, P., Bor, H., Johansson, E. E., Hamberg, K. & Lagro-Janssen, A. (2013). How gender or culture affects first year Dutch and Swedish medical students' preferences for specialties and work-life issues. *International Journal of Medical Education* **4**, 214–20.

Černý, P. (2021). What good is census? *Statistika&My* **11**, 20–21.

ČSÚ (2020a). Demographic yearbook of the Czech Republic - 2019, code: 130067-20, table d.01. https://www.czso.cz/csu/czso/demograficka-rocenka-ceske-republiky-2019. Accessed on June 10, 2021.

ČSÚ (2020b). Employment and unemployment according to LFS results - annual averages - 2019, code: 250132-20, table 507. https://www.czso.cz/csu/czso/zamestnanost-a-nezamestnanost-podle-vysledku-vsps-rocni-prumery-2019. Accessed on April 21, 2021.

ČSÚ (2020c). Employment and unemployment according to LFS results - annual averages - 2019, code: 250132-20, table 509. https://www.czso.cz/csu/czso/zamestnanost-a-nezamestnanost-podle-vysledku-vsps-rocni-prumery-2019. Accessed on April 21, 2021.

ČSÚ (2020d). Focus on women and men 2020, code: 300002-20, table 2-1. https://www.czso.cz/csu/czso/zaostreno-na-zeny-a-muze-2020. Accessed on July 13, 2021.

ČSÚ (2021). Focus on women and men 2021, code: 300002-21, table 2-19. https://www.czso.cz/csu/czso/zaostreno-na-zeny-a-muze-s9uoog5djz. Accessed on March 10, 2022.

ŠÚSR (2020a). Datacube. Demographic and social statistics, age groups - sr-area-reg-district, u-r [om7007rr]. http://datacube.statistics.sk/#!/view/sk/VBD_DEM/om7007rr/v_om7007rr_00_00_00_sk. Accessed on April 21, 2021.

ŠÚSR (2020b). Datacube. Demographic and social statistics, employed by age (until 2020) [pr3815qr]. http://datacube.statistics.sk/#!/view/en/VBD_SK_WIN2/pr3815qr/v_pr3815qr_00_00_00_en. Accessed on April 21, 2021.

ŠÚSR (2020c). Datacube. Demographic and social statistics, life births by age [om7030rr]. http://datacube.statistics.sk/#!/view/sk/VBD_DEM/om7030rr/v_om7030rr_00_00_00_sk. Accessed on June 10, 2021.

ŠÚSR (2020d). Datacube. Demographic and social statistics, registered unemployment rate [pr3108rr]. http://datacube.statistics.sk/#!/view/en/VBD_SK_WIN/pr3108rr/v_pr3108rr_00_00_00_en. Accessed on April 21, 2021.

IES Working Paper Series

2022

1. Klara Kantova: *Parental Involvement and Education Outcomes of Their Children*
2. Gabriel Nasser, Doile de Doyle, Paulo Rotella Junior, Luiz Célio Souza Rocha, Priscila França Gonzaga Carneiro, Rogério Santana Peruchi, Karel Janda, Giancarlo Aquila: *Impact of Regulatory Changes on Economic Feasibility of Distributed Generation Solar Units*
3. Paulo Rotella Junior, Luiz Célio Souza Rocha, Rogério Santana Peruchi, Giancarlo Aquila, Karel Janda, Edson de Oliveira Pamplona: *Robust Portfolio Optimization: A Stochastic Evaluation of Worst-Case Scenarios*
4. Adam Kučera, Evžen Kočenda, Aleš Maršál: *Yield Curve Dynamics and Fiscal Policy Shocks*
5. Karel Janda, Ladislav Kristoufek, Barbora Schererova, David Zilberman: *Price Transmission and Policies in Biofuels-Related Global Networks*
6. Daniel Kolář: *Wealth Survey Calibration: Imposing Consistency with Income Tax Data*
7. Michal Hlaváček, Ilgar Ismayilov: *Meta-analysis: Fiscal Multiplier*
8. Salim Turdaliev, Karel Janda: *Increasing Block Tariff Electricity Pricing and the Propensity to Purchase Dirty Fuels: Empirical Evidence from a Natural Experiment*
9. Vojtěch Mišák: *Crime and weather. Evidence from the Czech Republic.*
10. Lukas Janasek: *Acquisition of Costly Information in Data-Driven Decision Making*
11. Josef Švéda, Jaromír Baxa, Adam Geršl: *Fiscal Consolidation under Market's Scrutiny: How Do Fiscal Announcements Affect Bond Yields*
12. Lenka Šlegerová: *How Is the Career Choice of a Medical Speciality Dependent on Gender Inequality in the Region*

All papers can be downloaded at: http://ies.fsv.cuni.cz

Univerzita Karlova v Praze, Fakulta sociálních věd
Institut ekonomických studií [UK FSV – IES] Praha 1, Opletalova 26
E-mail : ies@fsv.cuni.cz http://ies.fsv.cuni.cz