

4.2 THE OUT-MIGRATION OF PHYSICIANS BETWEEN 2009–2017

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In this subchapter, we present the development of the likelihood of the out-migration of physicians abroad between 2009 and 2017. This analysis repeats, using more recent data, the calculations of an earlier study (Varga, 2017) that examined the same question regarding the 2003–2011 period, in order to see whether changes can be observed in the likelihood of the out-migration of physicians. The earlier study found that beside the out-migration of physicians abroad, a domestic tendency of changing careers was also substantial between 2003 and 2011, and the rate of those going into inactivity temporarily or permanently was also rather high (by the end of this period, the rate of those leaving their careers as physicians due to the causes mentioned above was 12, 16 and 14 percent respectively between 2003 and 2011). Out-migration abroad accelerated particularly after employment restrictions were lifted in Germany and Austria.

The analysis uses the Admin3 database compiled by the databank of the Centre for Economic and Regional Studies (KRTK) as its baseline database, from which we have created a sample of physicians.¹ In the sample of physicians, it can be followed month by month, for nine years (between 2009 and 2017), whether the observed individual worked; if they did, in what positions, employment relationships, and for which employers; and if they did not, whether they received any social allowances,² and whether they were studying. We have chosen this period because the previous study also analysed the out-migration of physicians throughout a nine-year period, and in this way, findings can be compared. We included every individual in the sample who had worked as a physician between January 2009 and December 2017 *for at least one month*, that is, had a FEOR code as a general physician,³ specialist physician or dental practitioner at least for one month during this period. 12,892 individuals were selected for the sample of physicians, whose status changes were followed month by month.⁴

In the category of those working abroad, we have included not only those who have officially signed out of Hungarian administration,⁵ but we also tried to identify those who have retained a Hungarian address but are working abroad indefinitely. The same method was used for identifying this latter group of those working abroad that was used in the previous study.⁶

We examined the changes in physicians' likelihood of moving abroad for work through event history analysis. Since those who had changed careers did so due to different, mutually exclusive causes (moving abroad, starting a new career in a different profession but domestically, their status becoming inac-

1 You can find a brief description of the database in the Appendix of *In Focus*, and more details in the study of Sebők (2019).

2 Parental leave (GYES and GYED), pension, unemployment benefits, etc.

3 The FEOR group of general physicians includes general practitioners, occupational physicians and residents.

4 We have created five consolidated status categories: 1. is working as a physician, 2. is probably residing abroad, 3. is working within Hungary but in a different career (not as a physician), 4. is inactive or unemployed, 5. has deceased.

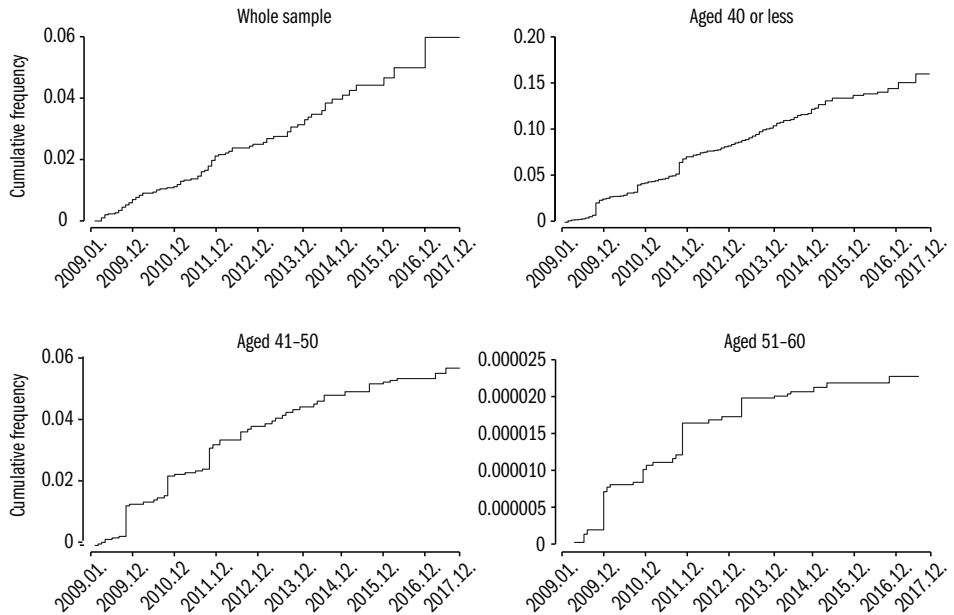
5 Those who have returned their official address card and have declared that they had settled abroad.

6 For a detailed description of the method, see: Varga (2017).

tive, or passing away), we have estimated competing risk models (*Fine–Gray, 1999*). This model calculates sub-hazards for the various competing outcomes, which show the momentary risk of someone changing careers due to one of the presented causes, if they were still working as physicians in the given month. We have completed the analysis for all of the competing outcomes, but here, only the results that pertain to moving abroad are presented.

Figure 4.2.1 shows the cause-specific cumulative incidence functions of *moving abroad* calculated for the whole sample and for the age group samples. The cause-specific cumulative frequency function shows the rate of doctors in month *t* who have, until month *t*, left their careers as physicians due to the given *cause* (in our case, moving abroad), considering that physicians may change careers not only due to moving abroad, but possibly other causes as well (changing careers within Hungary, becoming inactive or unemployed, death).

Figure 4.2.1: Cumulative incidence functions – moves abroad

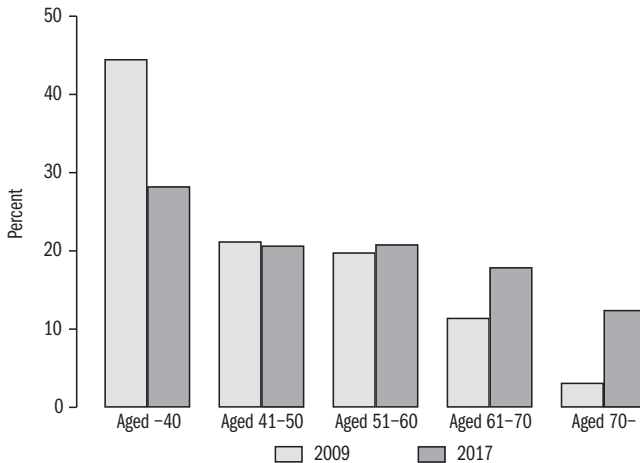


Source: Authors’ own calculations based on the Admin3 database.

Approximately 6 percent of the whole sample left Hungary between January 2009 and December 2017. More than 16 percent of young physicians (under 40), 6 percent of those between the ages of 41–50, and a negligible fraction of physicians above the age of 50 moved abroad. Relative to the data of the 2003–2011 period, across all physicians, the rate of out-migration has become somewhat lower. At that time, 12 percent of all physicians left Hungary during that nine-year period. Examining the differences by age groups, what emerges is that among those under the age of 40, the rate of out-migration was higher

in the 2009–2017 period than during the preceding nine-year timeframe (16 percent *versus* 14 percent). The out-migration rate of those between the ages of 41–50 was the same in both periods, but the out-migration rate of physicians above the age of 50 decreased. Thus, the lower overall out-migration rate of the whole sample was a result of the lower out-migration rate of older physicians, as well as the fact that the rate of older physicians among all physicians grew substantially between 2009–2017 (*Figure 4.2.2*).

Figure 4.2.2: The distribution of physicians by age groups, in 2009 and in 2017



Source: Authors' own calculations based on the Admin3 database.

Table 4.2.1 presents the results pertaining to moving abroad of the competing risk models, for the whole sample and for the various age-based subsamples. The table shows the sub-hazard rates. In the case of a sub-hazard rate value that is higher than one, the likelihood of career change grows alongside the growth of the value of the variable; in the case of a value that is lower than one, the likelihood of career change decreases.

The results of the estimations made using the whole sample show that age is a determining factor in out-migration: younger physicians, as well as those whose peers from the same employer also left in the preceding 3 months of the observation, are more likely to go abroad. (As the age group-based results show, this effect is only significant in the age group of older physicians between the ages of 51–60.) Among young physicians not older than 40, and thus within the whole sample, females are more likely to move abroad for work. Among physicians between the ages of 40–50, the out-migration of males is more prevalent. Among young physicians not older than 40, the physicians that are more likely to move abroad for work are those whose relative wages (relative to the wages of those of the same age and same sex) are lower. Among physicians between the ages of 41–50 however, those that are more

likely move abroad for work are those with higher relative wages, which means that in the 41–50 age group, more successful physicians seem to be the ones that decide to make the move. (This result may be distorted by possible (not admitted) informal payments.)

Table 4.2.1: Moves abroad for work – sub-hazard rates

Variable	Whole sample	Those under the age of 40	Aged 41–50	Aged 51–60
Age	0.94*** (0.004)	–	–	–
Male	0.82* (0.084)	0.52* (0.071)	1.65** (0.356)	1.41 (0.435)
Dental practitioner	0.926 (0.148)	0.85 (0.167)	0.66 (0.260)	0.54 (0.422)
Specialist physician	1.12 (0.146)	0.89 (0.134)	0.81 (0.235)	0.85 (0.334)
Relative wages	0.97 (0.113)	0.78* (0.1187)	1.52*** (0.207)	1.31 (0.255)
Others from the same employer have also moved abroad in the preceding three months	1.24* (0.112)	1.14 (0.169)	1.09 (0.251)	2.73* (0.387)
Others from the same employer have also changed careers in the preceding three months	0.99 (0.112)	1.15 (0.169)	0.97 (0.251)	1.07 (0.387)
Region	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Number of observed events	379,061	107,479	93,997	113,032
Number of observed individuals	12,892	5,423	4,381	4,874

Note: Competing risk models. Competing risks: Works in Hungary in a profession other than physician, is inactive or unemployed, deceased. Reference category: female, general physician.

Significant at the *** 1 percent, ** 5 percent, * 10 percent levels.

References

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