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Isabekova, Gulnaz

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Healthcare Workers in the Southern Caucasus: Availability, Migration and Patients' Access to Healthcare

By Gulnaz Isabekova (CRC 1342 "Global Dynamics of Social Policy" and Research Centre for East European Studies at the University of Bremen)

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Abstract

The availability of qualified healthcare workers is essential to patients' access to healthcare. An increased demand for medical workers has contributed to their shortage and uneven distribution across and within the states. Looking for a better life and career prospects, healthcare professionals move from rural to urban areas and from developing to developed countries. This article focuses on the issue of availability of medical workers in Armenia, Azerbaijan and Georgia. The analysis illustrates the unequal access to healthcare caused by the concentration of medical personnel in urban areas. Therefore, the shortage of healthcare workers is related to the uneven geographic and professional distribution, rather than to the lack of personnel. Reviewing the secondary literature on retention of medical personnel and the scarce empirical data on the three countries, this article provides policy recommendations and argues for an inclusive approach that accounts for both patients' and medical workers' interests.

Introduction

The increasing demand for healthcare workers has contributed to their uneven distribution within and across the countries. There is a shortage of healthcare workers in the world, and it is likely to increase in the upcoming years. By 2030, the deficit of medical staff will reach 15 million, with 1.2 million in lower and upper middle-income countries in Europe and Central Asia (Liu et al., 2016, p. 9). Changing demographics, higher life expectancies and the increasing number of ageing populations are among potential contributory factors. The increased demand for healthcare professionals facilitates their migration in search for a 'better' life, which results in uneven distribution. There is an outflow of medical personnel from developing to developed countries, and from rural to urban areas. Uneven distribution of healthcare workers jeopardizes healthcare systems and the quality of the services. The lack of qualified personnel impacts the control of infectious diseases (Agwu and Llewelyn, 2009, p. 1665) and may result in overburdened service providers and increased diagnostic and intervention errors (Kollar and Buyx, 2013, p. 2). As a result, the populations in areas with limited number of medical personnel become more vulnerable to diseases and have limited access to quality healthcare.

This article analyses availability of healthcare workers in Armenia, Azerbaijan and Georgia and its impact on patients' access to healthcare. Migration of medical personnel is one of the factors facilitating uneven distribution of service providers. Therefore, the first part of the article discusses this issue in the case of three countries. The following sections analyse general availability of healthcare workers by evaluating the supply or training

of a sufficient number of professionals, their distribution, and performance, including the quality of their work (Liu et al., 2016, p. 2). As it is difficult to judge the performance of healthcare professionals, the paper focuses on incentives for performance and opportunities for quality improvement. By developing policy suggestions, the article argues for an inclusive approach to resolving the issue of availability of healthcare workers and their migration, which needs to account for the views of both the patients and those of medical workers.

Migration of Medical Personnel in the Southern Caucasus

In the southern Caucasus, there is considerable migration of healthcare professionals within the countries and across the post-Soviet region, while the role of migration outside the region at this stage is somewhat limited. Healthcare workers migrate for higher salaries, better working conditions and professional development opportunities. There are cases of migration to Western Europe and the United States. In Georgia, for instance, many graduates of medical universities have gone abroad, mainly to Germany or the United States, to complete their training and obtain recognized qualifications to find a job there (Lefèvre and Hohmann, 2014, p. 66). There is no information on Armenia and Azerbaijan, although a similar tendency could also apply there. Joining the Bologna process, all three countries aim at improving the quality of education and the competitiveness of medical graduates, which may also contribute to their migration opportunities. But the role of migration to countries outside the former Soviet Union remains insignificant (cf. Karanikolos et al., 2014, p. 83), as the

primary destination points for healthcare workers are the post-Soviet region and the Russian Federation in particular. The main reason is that along with acknowledgment of medical qualifications, migrants have almost no language barriers in Russia (Karanikolos et al., 2014, p. 83). There is no data on the number of external as well as internal healthcare migrant workers in the southern Caucasus. However, the review of secondary literature, policy documents and the Healthcare Systems in Transition (HiT) reports suggests considerable migration of healthcare professionals from rural to urban areas.

Supply of Healthcare Professionals

Similar to other post-Soviet countries, Armenia, Azerbaijan and Georgia train a large number of doctors. The average density of physicians as well as mid-level healthcare personnel (nurses, midwives) is much higher than the threshold of 4.45 per 1000 people recommended by the WHO (2016) (Tables 1.1 and 1.2 on pp. 12–13).

There are different regulations on the supply of healthcare workers in the three states. To address the oversupply of the clinical staff in Armenia, the Ministry of Health in coordination with the Ministry of Education limits the number of state-funded positions at Yerevan State Medical University (Richardson, 2013, p. 22). This facilitates enrolment in specialties underrepresented in the market, although its impact on the reduction of overrepresented specialties is unclear. Medical education can also be obtained at private universities, outside of the state-funded positions. Similar to Armenia, the Department of Human Resources, Education and Science in the Ministry of Health of Azerbaijan analyses vacancies in the public sector and contacts medical institutions, although, since 2009, the department moved to planning according to demographic changes in the population (Ibrahimov et al., 2010, p. 57). This reflects changes from a market-driven to a needs-based approach. In contrast to both countries, Georgia seems to have no regulations on the number of graduates. The Ministry of Labour, Health and Social Affairs has limited control over the number of specialties, as it administers postgraduate education, whereas the undergraduate level is under the responsibility of the Ministry of Education (Chanturidze et al., 2009, pp. 66–67). Organization and planning of human resources is unclear. Given the large number of private universities in the country, state planning is also unlikely to work.

Undergraduate and graduate medical education in the three countries is provided by the mix of public and private institutions. After independence, the number of private institutions providing medical education increased in Georgia (Chanturidze et al., 2009, p. 62). The government did not limit their activities but

introduced the unified exam for all students. The Armenian government was stricter in this regard. It refused to grant graduates of private institutions the licenses to practice medicine (Hakobyan et al., 2006, p. 97). However, there are still a number of private institutions in the country. Postgraduate training is provided by the American University of Armenia, the National Institute of Health and Yerevan State Medical University. In Azerbaijan, the government closed private medical schools by retaining the Azerbaijan Medical University as the primary institution providing undergraduate and graduate medical education.

Long after the independence Armenia, Azerbaijan and Georgia initiated reforms in medical training to comply with international standards. The states joined the Bologna process in the mid-2000s by introducing residency programmes, dividing bachelor and master studies and merging some faculties (Richardson, 2013, p. 58; Chanturidze et al., 2009, p. 67; the Ministry of Education Republic of Azerbaijan, 2009). These measures were taken to improve the quality of education and competitiveness of graduates. However, the post-Soviet region remains isolated from scientific developments in the West, such as evidence-based medicine (Karanikolos et al., 2014, p. 84), and the three countries are no exception. Medical qualifications obtained in the Southern Caucasus are primarily acknowledged in the former Soviet region, which also influences migration opportunities and preferences of the healthcare workers.

Uneven Distribution of Healthcare Workers

There is uneven distribution of healthcare workers in relation to specialties and geographic locations. This article specifically focuses on nurses and mid-level professionals. Midwives and feldshers¹ provide preventive, diagnostic and therapeutic care, predominantly in rural areas (Karanikolos et al., 2014, p. 79). Therefore, their qualification is essential to patients' access to healthcare. Armenia and Azerbaijan train two times more nurses and midwives than physicians, which complies with global dynamics (cf. World Health Organization [WHO], 2016a, p. 14). However, there is certainly an undersupply in the case of Georgia, where the ratio of physicians to nurses and midwives is almost equal (Tables 2.1 and 2.2 on p. 13). Underrepresentation of these professions could be related to limited educational opportunities and misperceptions among the population. Nursing, for instance, is not considered a profession (cf. Chanturidze et al., 2009). Despite differences in quantities, all three states offer limited training opportunities. In Georgia,

1 Healthcare workers providing basic medical care, mostly in rural areas.

students attend vocational school or a higher education programme to obtain the general practice or nurse title (Lahtinen et al., 2014, p.1043). In Azerbaijan, nursing is not equal to higher education, and graduates of nursing schools receive a vocational diploma (Lahtinen et al. 2014, p.1043; Ibrahimov et al., 2010, p.59). The situation is somewhat better in Armenia, where students may obtain a diploma or bachelor's degree in nursing (Lahtinen et al., 2014, p.1043), although there are still limited opportunities for graduate education. Various international organizations and NGOs provide training courses for nurses in Armenia and Georgia (Hakobyan et al., 2006, pp. 118–119; Chanturidze et al., 2009, p. 68). However, there is no systematic approach in all three countries, and the educational opportunities for nurses as well as midwives remain limited.

Another pressing issue in the distribution of healthcare professionals is related to geographic discrepancies. There is a considerable rural-urban inequality in the availability of healthcare professionals (Tables 3.1–3.4 on pp. 14–15). Tbilisi has three times more doctors per 1000 inhabitants than any other region in Georgia, while mountainous areas suffer from the lack of specialists (Hauschild and Berkhout, 2009, pp. 22–23). Because of the decreasing population in certain rural areas, village doctors in Armenia are not replaced, and following the staff rationalization programme, an emphasis was placed on urban healthcare centres and hospitals (Lefèvre and Hohmann 2014, p. 57). 70% of physicians, 63% of hospital beds and 29% of ambulatory and polyclinic facilities are concentrated in Yerevan (National Statistical Service of the Republic of Armenia and the World Bank 2017, p. 130). In Azerbaijan, 30% of positions for paediatricians and gynaecologists remain vacant in rural areas, with similar positions in urban areas being overcrowded (Ibrahimov et al., 2010, p. 100). A large and dense concentration of healthcare professionals and facilities in large cities, or mainly capitals, in all three countries suggests significant inequality in accessing healthcare.

The unequal distribution of healthcare professionals influences access to services and their quality. The concentration of the staff in urban areas limits the number of services in rural healthcare facilities. The unavailability of obstetric care (care during and after pregnancy) in Armenia contributes to the rural-urban divide (WHO Regional Office for Europe, 2010, p. 11). Looking for services, patients refer to city hospitals or search for other local alternatives. Hence, the issue of institutional delivery in rural and disadvantaged areas of Azerbaijan is resolved by assistance and birth attendance for deliveries at home (Joseph et al., 2016, pp. 6–11). There is a decline in personnel and skills in rural areas, and the staff members without support often make critical deci-

sions (Balabanova and Coker, 2008, p. 632). Healthcare personnel might also be overburdened if the positions of colleagues remain vacant. This influences the referral tendencies among the population. As the rural *feldsher* ambulatory stations are understaffed, patients in Azerbaijan prefer to directly refer to district hospitals (Rzayeva, 2013, pp. 49–50). This tendency may further contribute to the deterioration of local facilities and the concentration of professionals in urban areas. However, referral to city hospitals is not affordable to all, as it incurs transportation and accommodation, in addition to service costs. Therefore, the uneven distribution of healthcare professionals in rural areas creates inequality in accessing the healthcare services.

Incentives for Improving Performance and Quality of Work

As there is limited information on the quality of healthcare services in post-Soviet countries (meaning that there is no indicator to compare across the countries), this section of the article will focus on incentives provided to healthcare professionals, such as salary (as well as bonus payments) and continuing education.

The three countries have comparatively low spending on healthcare in comparison to other countries in the post-Soviet region, and the share of general government health expenditure is also small (Tables 4.1 and 4.2 on p. 16). The nominal salaries are above the minimum wage level, defined by the law, but nevertheless remain low (Tables 5.1–5.3 on pp. 16–17).

Countries have different regulations and mechanisms for paying the healthcare workers. The healthcare workers in Armenia are contracted since the country's independence. The number of staff and remuneration is defined by hospital directors (Richardson, 2013, p. 54; Hovhannisyan et al., 2001, p. 58). The government intervenes only in cases of healthcare workers providing state-financed services, such as primary healthcare (Hakobyan et al., 2006, p. 60). In this case, the state pays healthcare facilities according to the number of people enrolled and makes bonus payments for achieving the healthcare indicators (Petrosyan et al., 2017). In this situation, healthcare providers are incentivized to improve the quality of services to retain patients and improve outcomes to meet target indicators. Similar to Armenia, the healthcare staff in Georgia is contracted by health facilities. The managers of healthcare facilities define salaries and there is a growing interest in increasing payments to keep qualified personnel (Chanturidze et al., 2009, p. 48). However, the general level of wages remains low. The government provides higher payment rates for physicians working in remote areas to incentivize them (Gamkrelidze et al., 2002, p. 59). It also

encouraged the independence of rural PHC doctors by changing their status. Previously employed by a district polyclinic, they became budget holders, deciding their own payment by economizing in other areas (Chanturidze et al., 2009, p. 48). In other words, they gained the capacity to allocate available budget to increase remuneration. In contrast to the other two countries, Azerbaijan retained centralized control over the healthcare providers. Salaries are defined according to the unified tariff scale, with co-payments for working with certain diseases (Ibrahimov et al., 2010, pp. 38–39). However, the average salary for healthcare personnel is below the average for other professions, and additional benefits, such as free housing and utilities, available under the former Soviet Union, have been abolished (Rzayeva, 2013, p. 46). In general, all three countries have low salaries. Therefore, healthcare workers are incentivized to ask patients for informal payments (Richardson, 2013, pp. 46–47; Holley et al., 2004, 52; Gamkrelidze et al., 2002, p.50). Without increasing wages, the situation with 'under the table' payments are likely to remain despite the reforms on officialising them.

In addition to financial benefits, professional development opportunities, such as continuing medical education, contribute to service quality improvements and incentivize the staff to perform better. The countries vary in terms of the available options. Continuing medical education courses are provided by medical institutions or international organizations operating in these countries. All physicians and nurses in Azerbaijan are required to pass a certification every five years, including a written test and an interview (Karanikolos et al., 2014, p. 88). Armenia has similar relicensing terms with additional requirements for continuing medical education and professional development (Richardson, 2013, p. 59; Hovhannisyan et al., 2001, p. 58). The country recently introduced the credit model (News.am, 2017). The government demands that healthcare professionals take additional courses to improve their qualification. In contrast to Armenia, there is no requirement for continuing medical education in Georgia. It is desirable or voluntary, but not mandatory (Chakhava and Kandlakhi, 2013, p. 21). At the same time, the self-financing requirement for these courses (cf. Karanikolos et al., 2014, p. 88) could be problematic, as their accessibility to medical personnel with low salaries, such as physicians and nurses, could be challenging.

Policy Suggestions

Based on the analysis of the supply of healthcare professionals, their distribution, performance incentives and opportunities for continued education, the following policy suggestions could be generated:

First, there is a need for a comprehensive human resource planning policy addressing the needs of the population and healthcare workers. Labour dynamics or needs-based approaches are unlikely to work without considering the interests of service providers. This may result in unemployment of healthcare professionals along with unfilled vacancies (McPake et al., 2013, p. 841; Liu et al., 2016, pp. 2–3). Although there is no information on the number of healthcare workers unemployed in the three countries, there is certainly a mismatch between the large number of graduates and vacant positions in rural areas. The failure to account for healthcare workers' preferences could be the key in understanding this situation. The mandatory assignment of medical graduates to regional facilities, as suggested in the case of Azerbaijan, is unlikely to work without additional incentives. The healthcare workers will possibly use informal connections to find a job elsewhere (McPake et al., 2013, p. 841). The potential incentives could include a faster promotion track, training, fellowships and grants for healthcare personnel from rural areas (Kollar and Buyx, 2013, p. 6). This may also include financial rewards, such as additional bonuses to the salary. All these measures might be demanding for the state budget. However, given a targeted implementation with the focus on certain regions or specialities (Araujo and Dussault, 2017a, p. 385), incentives might be feasible. They could facilitate attracting more graduates to remote areas, although their retention there is unlikely.

Second, regional inequity in accessing healthcare could be targeted by training mid-level professionals and mobilizing local communities. The internal and external migration of the healthcare workers is inevitable. One of the solutions is to strengthen training and increase the number of mid-level professionals. Focussing on them, rather than doctors, may ensure access to basic services (Ghimire et al., 2009, p. 291). This will require reforms in medical education, providing more opportunities for nurses and midwives to obtain undergraduate and graduate education. This could be combined with residency programmes in rural health facilities. An acknowledgement of the importance of mid-level healthcare personnel will also contribute to changing the perception of their importance and value to the healthcare system. Furthermore, local community representatives could be trained to assist them. Community representatives could serve basic healthcare needs to ensure the access to preventive care in remote areas (Nair and Webster, 2013, p. 160). This may include, for instance, awareness-raising about infectious diseases, hygiene, sanitation and promoting a healthy lifestyle.

Third, there is an acute need for providing incentives to healthcare workers by increasing the salaries and

improving the access to continuing medical education. Higher wages could contribute to retention of healthcare workers. Certainly, migration of healthcare workers, both internal and external, is driven by a number of factors. This may refer to a better lifestyle, opportunities, education for their children and safer working conditions (Ghimire et al., 2009, p. 291). All these factors cannot be targeted in the reform programme, as they are related to a broader socioeconomic and political situation beyond the healthcare system. However, targeted actions could be taken to address the essentials, such as salaries and professional development. Empirical studies show little except the impact of wage changes on the supply of doctors and nurses (Araujo and Dussault, 2017b, pp. 383–384). Extremely low wages facilitate informal payments, ‘brain drain’ of healthcare professionals in search for a ‘better life.’ A substantial increase in salaries is unlikely given the economic situation in these three states (although paradoxical in the case of Azerbaijan). Therefore, a feasible wage increase needs to be complemented with other incentives. This may include safer working conditions, continuous training and reward for performance (Araujo and Dussault, 2017a, p. 385). Particular importance can be given to opportunities for professional development and better living and working conditions, as these measures are known to be more efficient than higher wages (Nair and Webster 2013, p. 160). One of the first steps could be providing opportunities for continuous medical education. As self-financing for these courses is challenging, the government could collaborate with international

organizations and international professional associations to support and subsidize the costs, or offer the courses as rewards for working in regions and remote areas. A combined implementation of all these measures could facilitate better performance and quality improvements.

Conclusion

Following a global trend, there is a shortage of healthcare professionals in three countries in the southern Caucasus, although this shortage is mainly related to an uneven distribution across the professions and geographic locations rather than an insufficient supply. Similar to other countries with low healthcare spending, the three states are vulnerable to an outflow of qualified staff to the Russian Federation or beyond. However, the analysis also shows that there is considerable internal migration of healthcare professionals that causes unequal access to healthcare within the countries. Armenia, Azerbaijan and Georgia have different state regulations on the supply of medical graduates, salaries and incentives for healthcare professionals. However, the countries share a number of commonalities, such as low wages, an oversupply of doctors, an undersupply of mid-level workers and limited opportunities for professional development. To target these issues, the countries need to develop an inclusive policy for human resources planning, which should take into account the interests of both patients and service providers. Otherwise, the phenomenon of a large number of graduates with medical education and unemployment together with unfilled positions in these countries is likely to remain.

About the Author

Gulnaz Isabekova is a researcher of the CRC 1342 “Global Dynamics of Social Policy” based at the Research Centre for East European Studies at the University of Bremen. She is also a doctoral student within the MSCA Innovative Training Network “Caspian” and the Bremen International Graduate School of Social Sciences (BIGSSS).

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STATISTICS

Healthcare Workers in Armenia, Azerbaijan and Georgia

Density of Health Care Personnel

Table 1.1: Density of Physicians, Nurses and Midwives per 1,000 Population

		Armenia				
Year	2010	2011	2012	2013	2014	
Physicians	2.759	2.779	2.805	2.811	2.803	
Nursing and midwifery personnel	5.529	5.579	5.557	5.465	5.423	
		Azerbaijan				
Year	2010	2011	2012	2013	2014	
Physicians	3.636	3.407	3.454	3.415	3.402	
Nursing and midwifery personnel	7.991	7.530	7.317	7.131	6.871	
		Georgia				
Year	2010	2011	2012	2013	2014	
Physicians	4.289	4.377	4.406	4.477	4.776	
Nursing and midwifery personnel	4.024	3.986	3.808	3.898	3.971	

Source: The World Health Organization, 2016. Global Health Observatory data repository. Density per 1,000, data by country. <<http://apps.who.int/gho/data/node.main.A1444>>

Table 1.2: Average Density of Physicians, Nurses and Midwives per 1,000 Population (2010–2014)

Armenia	8.302
Azerbaijan	10.8308
Georgia	8.4024
WHO recommended threshold	4.45

Note: Average density is calculated as = density of physicians + nurses and midwives for 2010–2014 divided by 5. Source of the underlying data: The World Health Organization, 2016. Global Health Observatory data repository. Density per 1,000, data by country. <<http://apps.who.int/gho/data/node.main.A1444>>

Distribution of Healthcare Workers by Specialties

Table 2.1: Absolute Number of Physicians, Nurses and Midwives

Armenia					
Year	2010	2011	2012	2013	2014
Physicians	8,177	8,249	8,355	8,412	8,425
Nursing and midwifery personnel	16,386	16,557	16,552	16,352	1,6302
Azerbaijan					
Year	2010	2011	2012	2013	2014
Physicians	33,085	31,441	32,335	32,434	32,756
Nursing and midwifery personnel	72,717	69,484	68,498	67,731	66,166
Georgia					
Year	2010	2011	2012	2013	2014
Physicians	18,227	18,366	18,235	18,278	19,270
Nursing and midwifery personnel	17,104	16,725	15,761	15,913	16,023

Source: The World Health Organization, 2016. Global Health Observatory data repository. Absolute numbers, data by country <<http://apps.who.int/gho/data/node.main.A1443?lang=en>>

Table 2.2: Disaggregated Data on Nurses and Midwives

Armenia					
Year	2010	2011	2012	2013	2014
Nursing and midwifery personnel	16,386	16,557	16,552	16,352	16,302
Nursing personnel	15,076	15,242	15,254	15,070	15,014
Midwifery personnel	1,310	1,315	1,298	1,282	1,288
Azerbaijan					
Year	2010	2011	2012	2013	2014
Nursing and midwifery personnel	72,717	69,484	68,498	67,731	66,166
Nursing personnel	66,401	63,653	63,002	62,336	61,157
Midwifery personnel	6,316	5,831	5,496	5,395	5,009
Georgia					
Year	2010	2011	2012	2013	2014
Nursing and midwifery personnel	17,104	16,725	15,761	15,913	16,023
Nursing personnel	16,191	16,064	15,127	15,319	15,416
Midwifery personnel	913	661	634	594	607

Source: The World Health Organization, 2016. Global Health Observatory data repository. Nursing and midwifery personnel, data by country, <<http://apps.who.int/gho/data/node.main.HWF1?lang=en>>

Regional Distribution of Healthcare Workers¹

Table 3.1: Number of Doctors per 10,000 Population in Armenia

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Yerevan	74.5	75.0	80.9	84.0	82.4	82.3	80.4	83.2	87.1	88.3
Aragatsotn	16.7	16.8	16.2	17.1	17.1	18.0	17.2	16.8	18.5	18.8
Ararat	16.3	16.5	16.8	16.7	17.1	18.5	18.1	18.0	18.0	17.8
Armavir	14.3	13.9	13.8	41.7	14.1	15.0	14.8	14.5	15.0	15.2
Gegharkunik	14.4	14.4	14.1	15.1	14.6	14.0	14.1	14	14.2	13.7
Lori	17.8	18.6	18.4	18.3	18.4	21.2	21.5	21.8	23.6	23.2
Kotayk	19.6	18.9	17.9	17.8	18.1	19.7	19.3	19.6	21.9	21.8
Shirak	19.8	19.8	19.6	19.5	19.4	22.7	22.5	22.1	23.8	22.7
Syunik	18.7	19.7	19.6	18.8	18.6	20.2	19.8	20	20.9	20.5
Vayots Dzor	20.3	19.7	19.5	19.6	20.3	21.6	20.5	21.4	23.0	20.7
Tavush	18.7	18.9	18.8	17.6	16.8	17.6	17.9	17.8	20.0	18.3

Source: This table has been compiled by the special editor on the basis of data available at the website of the Statistical Committee of the Republic of Armenia <<http://www.armstat.am/am/?nid=130>>

Table 3.2: Mid-Level Healthcare Workers per 10,000 Population in Armenia

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Yerevan	75.6	75.9	76.2	77.2	77.8	83.6	82.6	81.9	81.2	80.4
Aragatsotn	49.8	49.6	46.6	47.5	47.3	15.6	15.9	49.7	48.3	49.3
Ararat	38.6	39.7	40.2	40.0	40.2	43.2	41.8	39.7	39.5	38.9
Armavir	40.9	40.8	39.5	39.9	39.7	41.3	40.6	39.1	39.0	36.7
Gegharkunik	50.9	47.9	45.6	44.8	43.7	42.6	41.8	41.4	41.3	40.8
Lori	42.4	42.8	42.5	42.9	43.2	52.4	52.3	51.7	52.2	52.8
Kotayk	45.5	45.3	42.9	41.4	41.4	44.7	44.2	42.5	43.8	43.7
Shirak	57.1	54.3	53.9	53.7	53.7	60.4	58.6	58.0	57.7	58.5
Syunik	53.3	53.2	53.6	52.9	53.3	56.5	56.0	56.1	56.2	57.3
Vayots Dzor	50.3	54.8	52.7	51.3	54.7	54.8	51.3	50.2	47.2	45.3
Tavush	51.9	49.5	47.3	47.7	48.6	47.9	45.9	45.3	43.6	45

Source: This table has been compiled by the special editor on the basis of data available at the website of the Statistical Committee of the Republic of Armenia <<http://www.armstat.am/am/?nid=130>>

¹ Data on regional distribution of healthcare professionals is not available on the website of the National Statistics Office of Georgia, which contains general data on the number of physicians etc. but not their distribution <http://www.geostat.ge/index.php?action=page&cp_id=197&lang=eng>. For this reason there is no table on Georgia.

Table 3.3: Doctors per 10,000 Population in Azerbaijan

	2012	2013	2014	2015	2016
Baku	88.5	88.6	90.7	89.7	89.0
Absheron	33.7	33.2	32.5	31.4	31.3
Ganja-Gazakh	23.3	22.8	22.5	21.8	20.9
Shaki-Zaqatala	19.9	19.2	18.8	18.4	17.6
Lankaran	14.1	13.4	12.6	11.8	11.4
Guba-Khachmaz	14.8	14.6	13.7	13.6	13.6
Aran	17.7	17.2	16.6	16.2	15.4
Yukhari-Karabakh	14.7	14.0	11.9	11.6	10.0
Kalbajar-Lachin	7.9	7.8	7.5	6.7	6.4
Daglig-Shirvan	14.6	14.1	12.9	12.2	11.5
Nakhichevan Autonomous Republic	17.9	17.6	17.8	16.7	18.1

Source: This table has been compiled by the special editor from data available at website of the State Statistical Committee of the Republic of Azerbaijan <<https://www.azstat.org/MESearch/details>>

Table 3.4: Mid-Level Healthcare Workers per 10,000 Population in Azerbaijan

	2012	2013	2014	2015	2016
Baku	98.4	96.0	95.5	92.2	91.5
Absheron	62.9	60.2	57.5	56.0	54.5
Ganja-Gazakh	59.0	58.5	56.8	55.9	55.0
Shaki-Zaqatala	61.7	60.4	57.9	57.2	56.9
Lankaran	36.2	35.3	33.7	32.1	32.1
Guba-Khachmaz	40.3	39.1	37.7	36.9	38.0
Aran	51.8	50.6	48.7	47.2	46.4
Yukhari-Karabakh	52.8	50.7	47.0	43.6	35.4
Kalbajar-Lachin	30.3	33.3	34.2	28.3	26.0
Daglig-Shirvan	40.6	39.4	36.6	34.4	33.4
Nakhichevan Autonomous Republic	58.5	57.3	57.3	56.5	56.5

Source: This table has been compiled by the special editor from data available at website of the State Statistical Committee of the Republic of Azerbaijan <<https://www.azstat.org/MESearch/details>>

Health Expenditures

Table 4.1: Current Health Expenditure (as Share of GDP): Post-Soviet Region

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Armenia	6.5%	6.5%	5.7%	5.6%	8.2%	7.0%	5.6%	5.4%	4.3%	4.7%	5.3%	3.8%	6.7%	8.3%	7.0%	10.1%
Azerbaijan	3.8%	3.7%	3.7%	6.0%	7.3%	7.4%	5.8%	4.7%	4.0%	5.4%	4.9%	4.8%	5.1%	5.4%	5.7%	6.7%
Belarus	5.5%	5.9%	5.8%	6.0%	5.9%	6.3%	5.8%	5.9%	5.5%	5.5%	5.3%	4.7%	5.3%	5.8%	5.4%	6.1%
Estonia	5.2%	4.8%	4.7%	4.9%	5.1%	5.0%	4.9%	5.0%	5.8%	6.5%	6.3%	5.8%	5.8%	6.0%	6.2%	6.5%
Georgia	7.4%	7.4%	8.0%	8.2%	8.3%	8.3%	7.8%	7.6%	8.7%	9.8%	9.5%	8.4%	8.4%	8.4%	8.4%	7.9%
Kazakhstan	4.2%	3.6%	3.9%	3.8%	4.0%	4.0%	3.7%	3.2%	3.6%	4.3%	4.2%	3.6%	4.0%	3.8%	3.6%	3.9%
Kyrgyzstan	4.4%	4.3%	4.6%	5.8%	6.2%	7.5%	8.3%	6.9%	6.6%	7.0%	7.1%	7.2%	8.5%	8.2%	8.3%	8.2%
Latvia	7.9%	8.4%	8.5%	8.2%	9.3%	8.9%	8.8%	8.9%	8.5%	8.9%	8.6%	7.9%	7.6%	7.5%	7.8%	5.8%
Lithuania	5.8%	5.8%	6.2%	6.2%	5.5%	5.6%	5.8%	5.8%	6.3%	7.4%	6.8%	6.5%	6.3%	6.1%	6.2%	6.5%
Moldova	5.8%	6.1%	7.1%	7.0%	9.0%	9.6%	10.5%	11.0%	11.0%	13.7%	12.2%	10.9%	10.9%	10.3%	10.3%	10.2%
Russian Federation	5.4%	5.6%	5.9%	5.5%	5.1%	5.1%	5.1%	5.1%	5.2%	5.9%	5.3%	5.1%	5.3%	5.5%	5.7%	5.6%
Tajikistan	4.3%	4.3%	4.2%	4.7%	4.8%	5.2%	5.0%	5.5%	5.9%	5.9%	5.8%	6.0%	6.0%	6.3%	6.7%	6.9%
Turkmenistan	6.9%	8.1%	7.0%	8.5%	10.6%	9.6%	8.4%	5.3%	5.9%	4.8%	5.0%	4.9%	4.8%	5.2%	5.5%	6.3%
Ukraine	5.3%	5.5%	5.8%	6.3%	5.9%	6.1%	6.2%	5.8%	5.3%	6.4%	6.4%	6.2%	6.8%	6.9%	6.1%	6.1%
Uzbekistan	5.3%	5.3%	5.4%	5.4%	5.3%	5.3%	5.6%	4.9%	5.0%	5.1%	5.5%	5.6%	6.0%	5.9%	5.9%	6.2%

Source: The World Health Organization, 2016. Global Health Observatory data repository <<http://apps.who.int/gho/data/node.main.GHEDCHEGDP SHA2011?lang=en>>

Table 4.2: Domestic General Government Health Expenditure as Percentage of Current Health Expenditure (%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Armenia	20.9	28.4	29.7	34.4	38.6	32.1	44.1	23.0	17.9	21.4	15.9
Azerbaijan	11.9	14.9	20.3	20.3	24.5	23.4	25.7	25.8	25.5	23.2	20.2
Georgia	14.9	15.4	14.8	18.4	21.1	21.3	17.6	18.5	22.9	27.7	38.8

Source: The World Health Organization, 2016. Global Health Observatory data repository <<http://apps.who.int/gho/data/node.main.GHEDGGHEDCHESHA2011?lang=en>>

Healthcare Workers' Salaries

Table 5.1: Monthly Nominal Wages in Armenia in Armenian Dram (AMD)²

	2010	2011	2012	2013	2014	2015	2016
Healthcare and social service	69,963	79,222	84,370	110,264	126,891	134,781	133,525
Minimum wages defined by law	30,000	32,500	32,500	45,000	50,000	55,000	55,000

Source: This table has been compiled by the special editor from data available at the website of the Statistical Committee of the Republic of Armenia <<http://www.armstat.am/en/?nid=81&phtid=acc&year=2007&submit=Search>>

2 Since 2011 there is a distinction between public and private employees' average earnings. I took numbers for the public workers.

Table 5.2: Monthly Nominal Wages in Azerbaijani Manat (AZN)

	2010	2011	2012	2013	2014	2015	2016
healthcare and social services	155.2	*no data	175.1	181.6	197.8	204.2	214.8
minimum wage level defined by law	85.0	93.5	93.5	105.0	105.0	105.0	105.0

Source: This table has been compiled by the special editor from data available at website of the State Statistical Committee of the Republic of Azerbaijan <<https://www.stat.gov.az/source/labour/>>

Table 5.3: Monthly nominal wages in Georgian Lari (GEL)³

	2010	2011	2012	2013	2014	2015	2016
healthcare and social work	435.0	496.6	581.3	645.9	732.4	836.5	899.2
average monthly nominal income	597.6	636.0	712.5	773.1	818.0	900.4	940.0

Source: This table has been compiled by the special editor from data available at website of the National Statistics Office of Georgia <http://www.geostat.ge/index.php?action=page&p_id=149&lang=eng>

3 The data on minimum wages could not be found, therefore it was substituted by average nominal income.