EDUCATION AND DEVELOPMENT PROGRAMME

# *Spatial Inequities in Higher Education Admissions in Georgia: Likelihood of Choosing and Gaining Access to Prestigious Higher Education Institutions*

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# Contents

## Introduction

This paper examines associations between rurality of higher education (HE) applicants' residential origin, their priority choices of higher education institutions (HEIs), and university destinations in Georgia. By applying mixed-methods to the study of the quantitative data on approximately 118,000 applicants, a purposive sample of households and policy-makers, the paper contributes to the understanding of academic higher education access inequities in Georgian settings. The findings of this paper indicate that applicants who graduate from rural schools tend to apply and gain access to relatively less prestigious, i.e. less rigorous, HEIs than those applicants who graduated from urban schools.

In different countries, applicants make HEI choices at different times in the process of HE application. In China, for instance, applicants choose HEIs after sitting examinations and familiarising themselves with correct answers to examination questions in each test. This is to allow for the self-assessment of test performance before making HEI choices (Liu et al., 2011).

Each HE applicant in Georgia establishes their choices of HEIs and programmes of study before sitting examinations, as part of the examination registration process. An applicant can gain admission to a single programme of study at a HEI included in their HE application; admission depends on applicant's competitive test scores. Applicant's scores are first ranked against all other applicants who named the same HEI/programme of study combination as their first choice. If applicant's test scores fall among the pre-defined number of top applicants that can be accepted to the specific HE programme, applicant's other choices are disregarded. If not successful, the scores are ranked consecutively against those who applied for every subsequent choice that the applicant has made. Thus, applicants do not face enrolment decisions, i.e. they do not receive admissions offers to choose from. Instead, they choose several HEIs before sitting the Unified National Examinations (UNEs) and receive an offer only for one of them, depending on their HE entrance examination scores.

International research shows that the quality of HEI is closely linked with higher probability of graduation, greater access to postgraduate studies, as well as higher wage premium. Considering this evidence, it can be suggested that those rural students who

gain HE admission may enjoy the benefits of tertiary education to a lesser extent than urban students, since the former, on average, end up at lower quality HEIs than the latter. International literature on HEI choices is not extensive and, to the best of my knowledge, there is absolutely no literature on HEI selection process in the Georgian context (Table 1).

**Table 1. Selected factors associated with university selection in Georgia and internationally**

| Factors | Georgian context | International context |
|---|---|---|
| HEI reputation/quality/selectivity | | (Avery & Hoxby, 2003; Briggs, 2006; Connor, Burton, Pearson, Pollard, & Regan, 1999; Hawkins et al., 2008; R. James et al., 1999; Moogan & Baron, 2003; Price, Matzdorf, Smith, & Agahi, 2003; Whitehead, Raffan, & Deaney, 2006) |
| Availability of desired programme of study | | (Connor et al., 1999; R. James et al., 1999; Maringe, 2006; Price et al., 2003; Whitehead et al., 2006) |
| Distance to HEI | | (Briggs, 2006; Griffith & Rothstein, 2009; Hawkins et al., 2008; R. James et al., 1999; OECD & World Bank, 2009; Turley, 2009) |
| Labour-market motives/employability | | (R. James et al., 1999; Maringe, 2006) |
| Family income | | (Avery & Hoxby, 2003; Hawkins et al., 2008; Sutton Trust, 2008) |
| Cost of tuition / affordability / availability of financial aid | | (Avery & Hoxby, 2003; Maringe, 2006; McPherson & Schapiro, 1998; Mullen, 2010) |

HEI selection process is increasingly viewed as consumer choice-making (Brown, Varley, & Pal, 2009). Literature shows that the process is complex and involves consideration of a number of factors. Judging from the scholarship overviewed for the purposes of this study (Table 1), the most obvious factors are HEI reputation, availability of desired programme of study, distance to HEI, and the cost of studies.

Distance to HEIs is considered to be a factor affecting HEI choices. Low income applicants are particularly prone to applying to HEIs nearby. Turley (2009) measures HEI proximity by the number of HEIs within the commuting distance from a potential

applicant's home and discovers that for low income families residence in the vicinity of a HEI is associated with higher likelihood to applying to the nearby college. Internationally, for rural applicants in particular, distance to HEIs is a significant factor when making HEI choices as rural applicants are less likely to afford studying very far from home (OECD & World Bank, 2009). Since in Georgia all HEIs are located in urban areas (Annex 1), urban applicants do have substantially more choices than rural applicants.

HEI quality is another aspect that is considered when making HEI choices. Common measures of quality in scholarly literature are inputs (expenses per student or faculty salaries) or peer quality, which is the same as prestige, [1] as expressed by the average academic achievement/test scores of entering students (Black & Smith, 2004). Internationally, applicants from disadvantaged backgrounds (e.g. ethnic minorities, rural residents, etc.) are considerably underrepresented at selective HEIs  (Carnevale & Rose, 2003; Chevalier & Conlon, 2003; OECD, 2008; Yang, 2010).

Some studies introduce HEI selectivity variable when establishing the relationship between HEI choices and distance. Griffith & Rothstein (2009) use bivariate probit analysis to discover that, holding income and other characteristics equal, as the distance to the selective HEI increases applicants are less likely to apply to it.

Literature has looked at private returns associated with the attendance of selective HEIs. As indicated earlier, certain advantages are related to the attendance of a selective HEI, among them: higher probability of graduation, greater access to postgraduate studies, as well as higher wage premium (Brand & Halaby, 2006; Carnevale & Rose, 2003; Chevalier & Conlon, 2003; Monks, 2000; Morley & Aynsley, 2007; Rivera, 2011).

Students at selective[2] universities in the US have higher graduation rates than those in less selective universities; graduation rates for the students from the top tier HEIs are 86% and from the lowest tier 54% (Carnevale & Rose, 2003). This effect persists even when controlling for student test scores. Scholars have difficulties in providing an empirical explanation of this finding – why would students of the same

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[1]The words selective, elite, rigorous are used as synonyms of the word prestigious.

[2] This article follows Barron's measures when classifying colleges by selectivity: the median SAT I or median composite ACT entrance exam score; students' high school class rank; students' grade point average; and the percentage of students accepted (Carnevale & Rose, 2003). These measures are largely related to student academic achievement, similar to the prestige measure used in this study.

academic achievement be more likely to graduate at top tier HEIs than at lower tier institutions? It could be the case that the top tier institutions have high expectations about the performance of their students, attract students with higher expectations about their own performance, and/or have better support systems (Carnevale & Rose, 2003).

Graduates of selective universities in the US proceed to postgraduate education in larger proportions than those from less selective universities; postgraduate enrolment rates for the graduates of the top tier HEIs are 35% and from the lowest third and fourth tiers - 15% (Carnevale & Rose, 2003). This effect persists when controlling for student SAT scores.

Literature on the earnings premiums shows that when controlling for the academic qualifications, attendance of a very selective HEI is associated with 5-20% wage premium in the US (Carnevale & Rose, 2003). The UK evidence also supports the finding that average private returns from HE differ by the type of HEI attended, with earnings premium being substantially higher (in the range of 2% - 17%) for those attending more prestigious HEIs (Chevalier & Conlon, 2003). In China, which is a developing country with a similar HE admissions system to Georgia, graduates of elite colleges enjoy 22.3% wage premium (Hongbin, Meng, Shi, & Wu, 2011). Literature also shows that the wage premium effect of attending prestigious HEIs may stem from the quality of teaching as well as the network effect (Chevalier & Conlon, 2003).

Applicants also consider the following factors when making HEI choices: affordability/price/financial aid (Avery & Hoxby, 2003; McPherson & Schapiro, 1998; Mullen, 2010), easiness of getting from the HEI to home (James, Baldwin, & McInnis, 1999), HEI quality, availability of the preferred programme of study (James et al., 1999), employment rates for the selected HEI graduates (although most of the applicants seem to have only a vague understanding of these statistics) (James et al., 1999; Maringe, 2006). There are also applicants, constituting a minority in the applicant pool, whose preferences for a particular HEI significantly overweighs the importance of the availability of a specific programme, i.e. they are eager to gain access to any programme in the targeted HEI (James et al., 1999).

## Methodology

The mixed-methods design allows combining the breadth of numeric trends with details coming from the in-depth individual level exploration; it helps convey the voices of the disadvantaged as well as the selected policy-makers who can work for the improvement of university access opportunities for them. In this paper, I analyse quantitative data on approximately 150,000 HE applicants, a purposive sample of sixteen households and selected policy-makers to explain geographic inequalities in university choice-making in Georgia and to argue that applicant residential origin is associated with the selectivity of HEIs that they enter.

The major secondary data source is the UNE pooled data from four years – 2006-2009. Besides the National Examinations Center data on the Unified National Examinations, the data sources include: Georgian Social Service Agency, the Ministry of Education and Science, the National Statistics Office of Georgia. I also use different government documents in order to shed light on the selected policies and regulations.

The main variables used in the quantitative analysis are rurality of HE applicant residential origin and HEI prestige.

For the purposes of this study, prestige is the measure of university's academic rigour as proxied by average UNE scores of its student cohort. Before creating this variable, considerable preparatory work was completed to rank all Georgian HEIs by prestige. For the purposes of ranking HEIs by prestige, scores in all the three compulsory examinations for each applicant were summed up and an average sum of scores was calculated for each HEI. The mean scores were then ranked and prestige percentiles established: least prestigious (below 20th percentile), second least prestigious (20-40th percentile), medium prestige (40-60th percentile), second most prestigious (60-80th percentile), and the most prestigious (above 80th percentile).

The question predictor is the rurality of HE applicant area of origin. This variable specifies the rurality of the area where an applicant graduated from a secondary school. I combined the data from two sources to construct this variable:  the UNE data (NAEC, 2009a) on general schools that each applicant graduated from and the MES database on general school location in Georgia (MES, 2009).

I use five-category, three-category and two-category rurality variables, as required in the analysis. The binary one classifies applicants into rural and urban. The three-category variable differentiates applicants from the capital from rural mountainous school graduates, bringing the rest together in the middle category. The five-category variable classifies applicants in greater detail – from mountainous villages, villages, towns, big cities, and the capital. The categorisation process is broadly based on the government-approved classification of general schools by location - urban, rural and mountainous rural schools (GoG, 2007). My coding for rural and mountainous rural exactly follows the government classification. Since these used to be the recognised categories for voucher financing, my variable coding coincides with the data provided in the MES school location dataset (MES, 2009).

However, there is a more complex task to be performed when differentiating schools under the urban category into the capital, big cities, and towns. As I have mentioned above, this category is subdivided into three for a higher level of precision. Although the capital is easily distinguishable, differentiation between big cities and towns requires establishment of a threshold between the two types of urban settlements. The National Statistics Office of Georgia Yearbooks data (GeoStat, 2009) is used to separate six biggest cities from the rest of the urban areas. I put all urban centres on the common scale by the number of residents (Annex 4). Out of 53 urban centres, I distinguished six biggest cities (Kutaisi, Batumi, Rustavi, Zugdidi, Gori, Poti) with the population over 47 000 and left all other towns in the town category. I take 47 000 as the cutting point as this threshold seems logical considering the country's socio-demographic and economic features. Also, the difference between the least populous big city (Poti with 47 500 residents) and the most populous town (Samtredia with 29 600 residents) is proportionally much larger than any differences between adjacent towns on the scale below Samtredia (Annex 4).

Rurality is a composite, multidimensional construct; it refers to some distinct but interrelated dimensions which I treat as a single theoretical concept. This construct brings together a number of educational, socio-economic, and cultural (dis)advantages which applicants from different types of localities face. There has been a debate between the advocates and critics of multidimensional construct utilisation. Opponents argue that such constructs are ambiguous and explain less variance in the outcome than would have been explained by including the different components of the construct

separately in the model (Gerbing & Anderson, 1988; Hattie, 1985; Johns, 1998; Paunonen, Rothstein, & Jackson, 1999; Schneider, Hough, & Dunnette, 1996). On the other hand, proponents maintain that multidimensional constructs are excellent for the purpose of holistic representation of complex phenomena; also, such constructs help explain larger variance in the outcome (Hanisch, Hulin, & Roznowski, 1998; Hulin, 1991; Ones & Viswesvaran, 1996; Roznowski & Hanisch, 1990). I use the multidimensional construct as I am inherently interested in establishing the cumulative detrimental impact of residential origin. It would have been useful to model relationships using the components of this construct separately and to compare the two models. This is, however, impossible because of the unavailability of multi-level data.

## Findings

### HEI choice-making

How do university aspirants make their choices of higher education institutions in Georgia? Do they base their choices solely on their professional aspirations or are they largely driven by pragmatic considerations? Harvard University President talks about parking space theory of life in her address to a graduating class:

> Don't park six blocks away from your destination because you are afraid you won't find a closer space. Go to where you want to be. You can always circle back to where you have to be. You can discover, sometimes improbably, a new version of who you are. (Faust, 2011)

Interviews with rural families in selected districts demonstrated that applicants rarely take a risk of naming institutions where they want to be as their first choices on the HE application form. Instead, university choice-making is a complex process of weighting a number of factors like HEI location (distance to home, cost of living), cost of studies, HEI prestige, and availability of the desired programme. Cross tabulations of first-choice prestige vs. the rurality of the area where applicants graduated from a secondary school are provided in Figure 1.

The demand for the most prestigious HEIs increases as we move from mountainous villages to more urban areas. 26% of rural mountainous applicants and 46% of the applicants from the capital name a HEI above 80th percentile as their first

choice. In contrast, the lowest quality HEIs (below 20th percentile) are named by 2% of applicants from Tbilisi and 21% from mountainous villages.
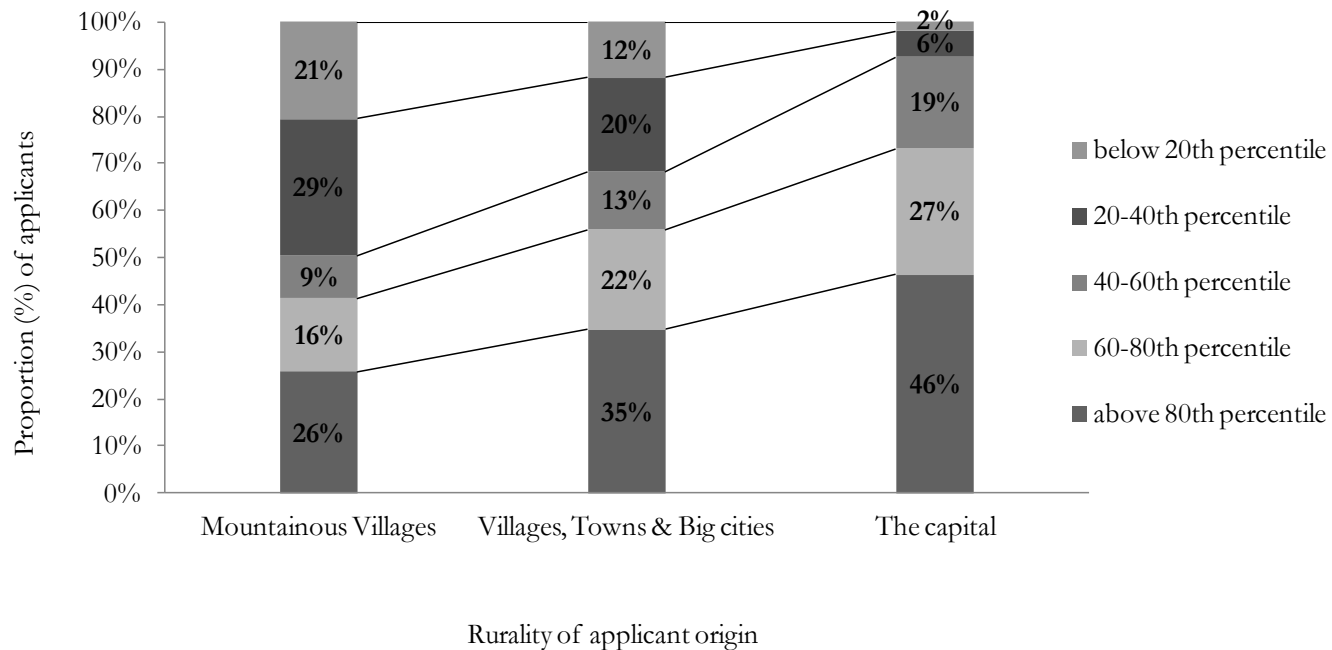


Rurality of applicant origin

**Figure 1. First choice HEI prestige by applicant area of origin**
*Source:* own calculations based GeoStat (2009a), MES (2009b), NAEC (2009a) data

Multinomial logistic regression was conducted to estimate the degree to which naming of HEIs of different prestige as first choice is predicted by applicant area of origin, when controlling for applicants' general aptitude (Table 2). Population groups who named a least prestigious (below 20th percentile), second least prestigious (20-40th percentiles), medium prestige (40-60th percentiles) and second most prestigious (60-80th percentiles) HEIs were compared to those who named a most prestigious HEI (above 80th percentile). Multinomial logistic regression estimates the probability of membership in each category of the dependent variable. So, in our five category case, the focus is on the probability of naming the least prestigious, second least prestigious, medium prestige and second most prestigious HEIs vs. the most prestigious one as applicant's first choice. Thus, the reference category for the dependent variable is the group of most prestigious HEI, and the reference category for the main predictor is the group of applicants from the capital. Table 2 presents the odds ratios for the contrasts by HEI prestige categories. Overall, the full model fits the data well. The change in the likelihood ratio test is significant ($\chi^2$=2.82, *p*=.000), which indicates that our final model is significantly better than the intercept-only model. The association is of medium strength (Nagelkerke $R^2$=.226).

The results of the multinomial logistic regression (Table 2) indicate that applicants with higher general aptitude tend to have consistently higher odds of applying to the most rigorous HEIs. Of two applicants with the same measured general aptitude, however, an applicant from a mountainous village is approximately 12 times more likely to apply to a least rather than a most prestigious HEI than an applicant from the capital. An applicant from a town or a village with the same measured general aptitude as an applicant from the capital is 5-6 times more likely to apply to a least rather than a most prestigious HEI. An applicant from a mountainous village is around 6 times more likely to apply to a second least prestigious rather than a most prestigious HEI, as compared to an applicant from the capital. The odds for villagers and town residents are also very high to apply to a least or second least prestigious HEI instead of applying to a most prestigious one, when compared to the odds of a Tbilisi resident (Table 2).

**Table 2.** *Multinomial Regression Modelling of the First-Choice HEI Prestige*

| Predictors | Least prestigious (below 20th percentile) compared to most prestigious (above 80th percentile) | | Second least prestigious (20-40th percentile) compared to most prestigious (above 80th percentile) | | Medium prestige (40-60th percentile) compared to the most prestigious (above 80th percentile) | | Second most prestigious (60-80th percentile) compared to most prestigious (above 80th percentile) | |
|---|---|---|---|---|---|---|---|---|
| | B | Exp(B) | B | Exp(B) | B | Exp(B) | B | Exp(B) |
| Intercept | -.30*** | | 0.36*** | | 1.277*** | | 1.04*** | |
| Mountainous villages | 2.51*** | 12.34 | 1.87*** | 6.48 | -0.52*** | 0.59 | -0.19*** | 0.82 |
| Villages | 1.87*** | 6.47 | 1.35*** | 3.86 | -0.35*** | 0.70 | -0.09*** | 0.91 |
| Towns | 1.64*** | 5.13 | 0.92*** | 2.5 | -0.27*** | 0.76 | -0.02 | 0.98 |
| Big cities | 2.34*** | 10.34 | 1.96*** | 7.11 | -0.33*** | 0.72 | 0.03 | 1.03 |
| GAT | -.06*** | 0.94 | -0.05*** | 0.95 | -0.04*** | 0.96 | -0.03*** | 0.97 |

* p<.05, ** p<.01, *** p<.001

*Interpretation note*: odds of choosing a HEI in the given category of prestige, as compared to the most prestigious ones, are equal if Exp(b) is 1.00, greater if it is more than 1, and less if it is less than 1. For example, applicants from mountainous villages are more likely to choose a least prestigious HEI than a most prestigious one.

The reference category for the dependent variable is the group of most prestigious HEI, and the reference category for the main predictor is the group of applicants from the capital.

*Source*: own calculations based on NAEC (2009b) data

Thus, applicants who have not graduated from a secondary school in the capital tend to consistently name the least and the second least prestigious HEIs as their first choice most frequently. However, they tend to favour the most prestigious ones over the second most prestigious and the medium prestige universities. This evidence, namely the second part of it, is somewhat counterintuitive. Table 3 may shed some light on this finding.

**Table 3. Higher Education Institutions by Prestige and Location**

| HEI ranking by prestige | % located in the capital | % located outside the capital |
|---|---|---|
| Most prestigious HEIs | 100 | 0 |
| Second most prestigious HEIs | 100 | 0 |
| HEIs of medium prestige | 100 | 0 |
| Second least prestigious HEIs | 84 | 16 |
| Least prestigious HEIS | 35 | 65 |

*Source*: own calculations based on NAEC (2006, 2007, 2008, 2009a, 2009b) data

As seen in Table 3, all HEIs in the categories of most prestigious, second most prestigious and the medium prestige are located in the capital. However, the statistics change as we move down the ladder of prestige; 84% of all second least prestigious and only 35% of the least prestigious HEIs are in Tbilisi. It can, therefore, be hypothesised that applicants from outside the capital favour the last two categories the most since they tend to be located outside the capital and, possibly, closer to home. However, when it comes to the selection between the first three categories, which are all located in Tbilisi, i.e. away from their homes, they tend to name the most prestigious HEIs instead of the second most prestigious and medium prestige. In other words, the main choice applicants seem to be facing is between HEIs in the capital and outside the capital. For those who decide to name a Tbilisi-based HEI as their first choice, it seems to be worth to apply to the best among the available HEIs in Tbilisi, whereas those who cannot name a Tbilisi HEI as their first choice are left with the least prestigious categories.

The finding on significant associations between the rurality of residence and prestige of first-choice HEI needs to be discussed in the context of the interplay between tuition costs, HEI location, and their prestige rankings. More prestigious HEIs charge higher tuition rates and also require higher living expenses from those students who do not reside in the capital as all prestigious HEIs are located in Tbilisi. Statistical analysis of average tuition rates by HEIs shows that universities of higher prestige charge significantly higher tuition than HEIs of relatively low prestige (*Figure 2*). Average

tuition at a most prestigious HEI is $2515 whereas at a least prestigious HEI - only $928.[3] Analysis of average tuition rates by HEI location shows that there are significant differences in tuition among HEIs in towns, big cities and the capital. Average tuition in a HEI in a town is $717 whereas average tuition in the capital is $1231 (*Figure 3*).
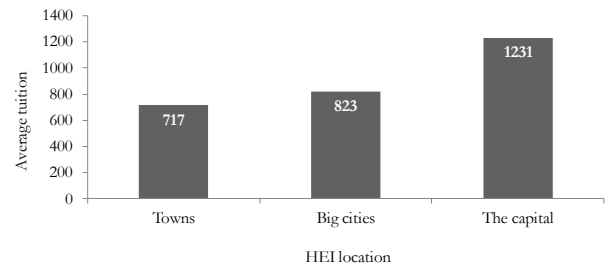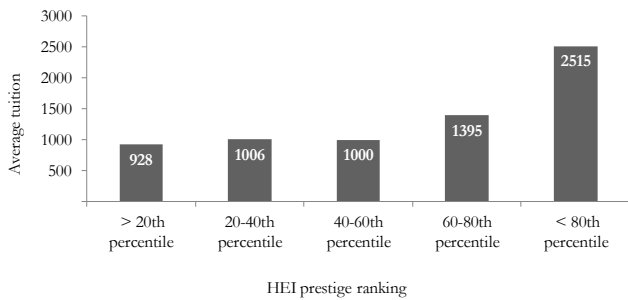


*Figure 2*. **Average tuition by HEI prestige**    *Figure 3*. **Average tuition by HEI location**

*Source:* own calculations based GeoStat (2009a), MES (2009b), NAEC (2009a) data

Thus, Tbilisi-based universities are more prestigious and more expensive than universities operating in other urban areas of Georgia. It can, therefore, be hypothesised that applicants from outside the capital favour HEIs in the last two categories of prestige the most since they tend to be located outside the capital, and possibly closer to their homes, charging less for tuition and costing less in terms of maintenance. Living costs are dramatically different for those who study within the commuting distance from their homes and for those who need to relocate in order to attend a HEI. Annex 1 shows the distribution of HEIs in Georgia. All of the HEIs are located in urban areas and some regions do not have a single HEI in the vicinity. This map demonstrates that commuting to a HEI from home is an option for those who live in Tbilisi, Kutaisi, Batumi, Poti, Gori, Akhaltsikhe, Zugdidi, Rustavi cities and the villages within the commuting distance. Students from the rest of the country need to relocate to these cities in order to attend a university.

None of the accredited HEIs in Georgia has a student accommodation or any student support to cover living expenses (MES, 2011). The minimum cost of living in Tbilisi would have been approximately $1360 per academic year in 2007. The calculation is based on monthly subsistence minimum of $64 for food (Geostat, 2007),

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[3] Georgian national currency GEL is converted to USD based on the exchange rates in mid-2007: 1 USD = 1.67GEL (National Bank of Georgia, 2007).

$60 for room and bills, $12 for transport, multiplied by 10 months. For an average rural adult in Georgia, this was equivalent to the average cumulative income for up to three years. According to the LSMS 2007 data, average monetary incomes in rural areas amounted to only half of average incomes in urban areas and equalled approximately $40 per month per rural adult (World Bank, 2008).

Most of the interviewed families talked about very high levels of poverty in the villages where they lived. I interviewed sixteen families in four districts of Georgia. Purposive selection technique was used to identify districts. As part of the district selection process, I regressed district poverty rates on district admission ratios to identify those districts which had higher / lower proportions of applicants gaining HE access than would have been expected considering their poverty levels (Annex 3). In other words, I specified those districts which represent positive and negative exceptions based on the regression analysis results. On average, those districts with higher levels of poverty have lower admissions ratios. For the purposes of qualitative analysis, I was interested in the variation in admission ratios only for relatively poor districts. All the districts on and above the 90th percentile of the distribution, i.e. the top 10% are assumed to be the poorest. There are eight such districts. In each of these poorest 10% of districts, 28.4% or more of the population is poverty allowance recipient (Annex 3). Instead of looking at all of the eight districts, however, I decided to avoid the four poorest districts in the country and focus on the next four within the top 10%.[4] The four selected districts are largely rural. They are all located in western Georgia as seen on the map (Annex 2). Three - Chiatura, Oni and Khulo - out of the four districts being qualified by the government as high mountainous for the purposes of general school financing.

In each district I interviewed two families whose members gained university access through the UNEs and two families whose members failed to gain access. Participants were selected using a random walk sampling technique. Upon arriving in the first village of the district, I chose the first person I encountered and explained to

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[4] The poorest four have been avoided as looking at the poorest four districts in the country would possibly produce extreme results and would resemble an exercise in outlier examination. Also, the next four districts (Khoni, Chiatura, Oni, and Khulo) have similar proportions of the poor but different HE admissions ratios. Chiatura and Khoni have higher admission ratios than would have been expected considering their poverty rates; Oni and Khulo have lower admission ratios than would have been expected considering the proportion of the poor in these districts.

them the purpose of my visit, asking them to point to families which complied with the requirements of my study – family-member should have participated in the UNEs. The first village in each district was the closest village to the central highway and, possibly, one of the most privileged in the district in terms of having the easiest access roads and transportation. Upon completing each interview, I would continue walking and engage in conversation with the next person I met.

Considering high poverty levels in the four districts where I conducted interviews, attending a university close to home and having lower tuition costs has been established as very important factors for rural applicants when making HEI choices.

> Some disadvantaged child from Khulo [a high mountainous district] will not apply to Tbilisi HEIs; s/he will apply to a nearest HEI. People are reasonable. Why do you think a disadvantaged, disabled child from some terrible family in a mountainous village shall have a desire to study at a prestigious HEI in Tbilisi?! They will never have such a desire because they were brought up in families that are not well-off and possibly nobody from the family attended HEI. They will, however, have enough power of reasoning to understand that Batumi [a big city near Khulo] is more accessible than Tbilisi. (Deputy Minister, 2010)

The Deputy Minister takes it for granted that a rural applicant, who is typically disadvantaged, disabled and comes from a terrible family (sic), would instinctively go for a local HEI rather than Tbilisi.  In the circumstances where no maintenance grant is available to any student in the country, rural applicants who are more likely to be poor, would most probably face serious financial considerations before naming one of the most prestigious HEIs as their first choice. Interviewed rural families confirmed this hypothesis. Most of the interviewed families seem to have considered tuition and maintenance costs as major factors when making HEI choices. For example, a mother of a student who gained admission to non-prestigious HEI outside the capital says that sending her daughter to Tbilisi would cost much more than supporting her in Kutaisi (Chiatura 1, 2010). In other words, the young lady was denied the opportunity of applying to more prestigious HEIs in Tbilisi because of purely financial reasons. As noted by the Deputy Minister of Education:

> Even if an applicant from Khulo [a high mountainous district] gains access to one of the most prestigious HEI, where the tuition is up to $8982, will s/he be able to

afford the payment? So what? What is the purpose of them applying to the most prestigious HEIs? (Deputy Minister, 2010)

Five out of the six most prestigious HEIs are private which means that they are allowed to charge much higher tuition than public HEI average. Under the centralised system of admissions, differences between public and private HEIs in terms of access are negligible. In order to show how public HEIs differ from private universities when it comes to tertiary access, two modes of government involvement in private HE access policies need to be explained. First, the Georgian government takes charge of selecting students for private HEIs in the same unified manner as for public HEIs. This is an unusual policy when compared to OECD countries.[5] Second, the Georgian government subsidises not only public but also privately-owned HEIs, by allowing students who obtain public tuition grants to cover their fees in any accredited HEI. Because of these two features related to admissions and financing, the major difference between public and privately-owned HE providers in terms of equitable access lies solely in tuition rates. Whereas public providers are required to set fees within the limit established by the government, private providers set their own tuition rates. For comparison, whereas public HEIs were not allowed to charge more than $1347 per year in 2009, one of the most prestigious private universities charged $8922 per year (NAEC, 2009a). The amount of the maximum grant was $898 in 2005-2008 and $1347 in 2009 (NAEC, 2006, 2007a, 2008, 2009b). Since admissions and per student public grant distribution mechanisms are identical for public and private HEIs in the Georgian context, in the present study no special attention is paid to the ownership type of HEIs. Instead, I focus on tuition amounts at different HEIs for specific programmes of study. Tuition amount, as explained in this paragraph, is the only difference between private and public providers when it comes to access.

I recorded another applicant story in Khulo, the very district mentioned by the Deputy Minister in the interview quote. This applicant gained access to a HEI in a big city [Batumi] which is closer than Tbilisi to her village. She said that she had a great desire to study in a more prestigious HEI in Tbilisi but knew that her family would not

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[5] In most of the OECD countries, private HEIs are allowed to establish admissions criteria on their own. In some cases, private HEIs need to align these criteria with national requirements, as it happens in China, Korea, New Zealand, Poland, Portugal and Switzerland or follow government regulations and supplement them with their own criteria, as is the case in certain fields of study in Norway (OECD, 2008).

have been able to afford the costs associated with the residence in the capital, therefore, she did not even name any more prestigious HEIs on her application (Khulo 1, 2010).

In those cases when applicants from interviewed families named relatively prestigious HEIs in Tbilisi, they hoped to find shelter with relatives residing in the capital (Chiatura 2, 2010; Chiatura 3, 2010; Oni 1, 2010).

The choices of HEI and programme combinations are made at the time of applying to HE, before the applicants sit the UNEs. Such an early timing of decision-making, as it emerged from the interviews, puts marginal applicants at a disadvantage. Rural families talked about the difficulty of making the right prognosis of the applicant UNE achievement, the trend of naming low calibre HEIs as more "realistic" options and missing chances of entering prestigious ones. In the existing reality of having to make choices upfront, the interviewed families talked about a number of factors they consider in this process: HEI location (distance to home, cost of living, attractiveness), cost of studies, prestige, and availability of the desired programme. Except a single applicant (Khoni 4, 2010), all others in the interviewed families discussed their choices with one or more parties: family members, private tutors, school teachers, and classmates.

The head of NAEC maintains that an annual examinations booklet they produce contains all the necessary information and suggestions for applicants. She says her office arranges meetings all over the country to interact with applicants and answer their questions (Head of NAEC, 2010).  Interestingly, none of the families I talked with mentioned NAEC staff visits and meetings with them as a source of information. Most of them did, however, mention the annually updated UNE booklet.

Interviews with rural families revealed that in the families where mother had higher education, she has been the largest influence on applicant's choice-making. This has been true for all the three families in my sample where mothers happened to have HE (Khulo 2, 2010; Oni 3, 2010; Oni 4, 2010). Young people from these three families were successful in gaining admission to HE. This finding is not surprising considering the vast literature on the importance of mother's education on children's educational aspirations, achievement, and attainment.

Interestingly, one of the successful applicants' mother maintained that school teachers rather than the family can be the best source of information / suggestions related to HEI / programme choices (Khulo 2, 2010). Being a teacher herself, she insisted that schools are the only educational and cultural centres in villages and,

therefore, the best sources of advice related to HE. The only piece of information not available to a teacher, she said, is the financial status of the family; pupils should be open about their family finances if they want a workable advice from a teacher (Khulo 2, 2010). A student from another family who was taught by this teacher admits that the school provided the best possible support to her; she remembers that the entire class would sit together, work on choices and then agree them with teachers (Khulo 1, 2010). These were the two families which talked about the role of teachers in HE choice-making positively and seemed to present exceptional rather than ordinary cases of support.

"I asked all my questions related to choices of university programmes to my tutors; I really do not remember such conversations with school teachers at all," remembers a successful applicant (Chiatura 4, 2010). Other subjects had similar recollections, maintaining that school teachers were not informed at all to provide any advice. One of the students recollects:

Teachers at my school did not have answers to my and my classmates' questions. I remember they would respond to our questions; we could not, however, really figure out what they were telling us... I think it was the mistake in choice making that resulted in my failure last year. But I gained experience in the process of selecting programmes of study at the right HEIs and was more successful in making right choices this year! (Chiatura 1, 2010)

An aunt of an unsuccessful applicant says that her nephew did not even ask teachers any questions when making choices as they did not expect that teachers would have any suggestions. People in the rural areas are totally uninformed when it comes to the UNEs, she says (Chiatura 2, 2010). The aunt thinks her nephew should not have selected the business degree at all and should have chosen something less competitive. Even after graduating from a less competitive programme, a person can start his own business, she says. However, the failed applicant does not agree with his aunt; he thinks it was right to put the business programme that he truly desired to study as his first choice. The mother and aunt say that they had no one to ask about the differences between different HEIs and programmes and the expected competition for each of them (Chiatura 2, 2010). This young man did not even have a proper private tutor to ask for an advice. All those interviewees who had private tutors asked them for assistance when making choices.

The former head of the National Curriculum and Assessment Centre admits that sources of information and advice do differ for villagers and city-dwellers:

> Applicants from the capital are definitely privileged in terms of being more informed when it comes to making choices. If they find no other source of information, they can easily visit the NAEC office in Tbilisi and get some advice there. In rural areas, mostly private tutors are providing some support in this respect. (Former Head of NCAC, 2010)

Support from the side of the school is not a big issue from the perspective of the Deputy Minister of Education and Science who is directly responsible for the HE in Georgia; he maintains that the printed booklet annually produced by the NAEC contains all the relevant information: "booklets are distributed to ERCs and then to schools. A person who reads this publication and does not understand what it says shall not try to access HE" (Deputy Minister, 2010). When asked whether schools in Georgia develop pupil literacy to the degree that they can fully understand what the publication says, he responded:

> You know if person cannot understand what s/he reads on paper, HE is not for them. They won't be able to study. Why shall we make them suffer in vain? Imagine that you are sent to a Chinese class without any prior preparation. Will you benefit from it? (Deputy Minister, 2010)

The head of NAEC, however, talks about logistic problems in terms of the booklet delivery to all remote areas. "Unfortunately, there are cases when applicants cannot familiarise themselves with this publication, as it does not reach them. We distribute publications to ERCs who are responsible for the distribution of publication in schools" (Head of NAEC, 2010).

Thus, the NAEC annual informational booklet is designed to be the major source of information when it comes to selecting HEIs and programmes. Also, NAEC employs staff visits to regions as a way to spread the information and provide the necessary support to applicants. Some of the interviewed families seem to have familiarised themselves with the information booklet. However, very few have mentioned that they participated or heard of the NAEC visit to their district. Families, private tutors, and teachers at school seem to be providing some advice to applicants when it comes to HE decision-making. Since most of the interviewed families did not have any family member with HE, the quality of such advice may be questionable. As mentioned above, two

interviewees who attended the same school maintained that the school was supportive. None of the other participants have maintained the same. Finally, private tutors seem to have been the most active providers of necessary advice.

## University Destinations

In this section, I examine associations between applicant residential origin and admission to different types of HEIs. I choose two perspectives when looking at this question. First, how gaining access to the first-choice HEI is related to applicant residential background and second, whether applicants from different residential backgrounds enter HEIs of varying prestige and what implications may stem from this finding. These two perspectives are rooted into different epistemological approaches – whereas the first one focuses on the value inherent in applicants' individual choices, the second is founded on empirical evidence-based judgement regarding relative merits of HEIs and benefits associated with attendance of relatively more prestigious HEIs.

Gaining access to the first-choice HEI may be viewed as important in terms of pursuit of valued freedoms. It links lifetime opportunities with a chance to study at a place of one's priority choice. If there exist differences by residential origin in opportunities of getting admitted to first-choice HEIs, we will maintain that chances of pursuing freedoms differ by applicant residential background.

As explained earlier, the first-choice HEI is usually established after considering a number of constraints besides applicant's personal conditions and professional interests: HEI location (distance to home, cost of living, and attractiveness), cost of studies, and prestige. Access to a relatively prestigious/high quality HEI tends to be associated with better lifetime opportunities in terms of higher probability of graduation, greater access to postgraduate studies, as well as higher wage premium (Brand & Halaby, 2006; Carnevale & Rose, 2003; Chevalier & Conlon, 2003; Monks, 2000; Morley & Aynsley, 2007; Rivera, 2011).

Cross-tabulation analysis was conducted to detect differences in the proportions of students who gain access to their first-choice HEIs by rurality of the area where they graduated from a general school. As seen in Figure 4, there exist some differences in the proportions of students from various geographic backgrounds who entered their first-choice HEIs. These differences range from 45% for students from the capital and big cities to 38% for students from the rest of the country. Thus, higher proportions of the

capital and big city residents gain admission to their priority choice HEIs, as compared to the destinations of residents from other areas.
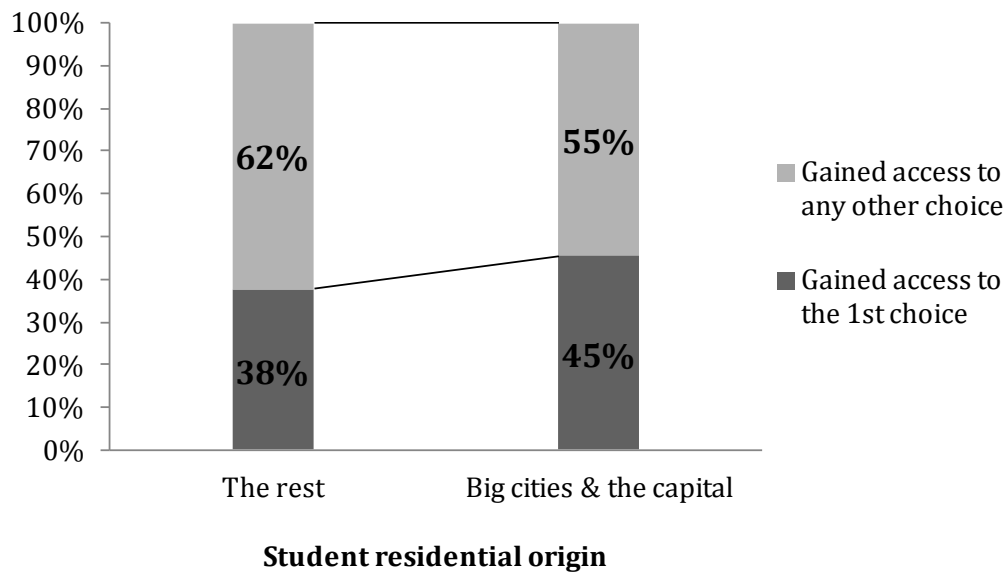


**Figure 4.** Cross Tabulation of Access to the first-Choice HEI and Rurality of Residential Background
*Source*: own calculations based GeoStat (2009a), MES (2009b), NAEC (2009a) data

Much larger differences are observed when examining cross-tabulations of applicant area of origin and prestige of destination HEIs. As seen in Figure 5, across the country, around 21% of applicants end up in the top institutions and another 20% in the lowest quality HEIs. The most prestigious HEIs[6] are the destination for 9% of rural mountainous applicants and 28% of the applicants from the capital. In contrast, Figure 5 shows that the least rigorous HEIs, i.e. those below 20th percentile, are the destinations for only 8% of applicants from Tbilisi and 39% from mountainous villages. Only one-fifth of mountainous village applicants and more than half of entire applicant pool from the capital enter a HEI which is above the 60th percentile according to the cohort academic achievement (Figure 5).

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[6] Calculations conducted for the purposes of this research showed that the most prestigous HEIs were: Free University (before 2007 known as the European School of Management ESM-Tbilisi and Tbilisi Institute of Asia and Africa), Diplomatic Academy of Georgia, AIETI Medical School, Caucasus University, Georgian-American University, Ivane Javakhishvili Tbilisi State University.
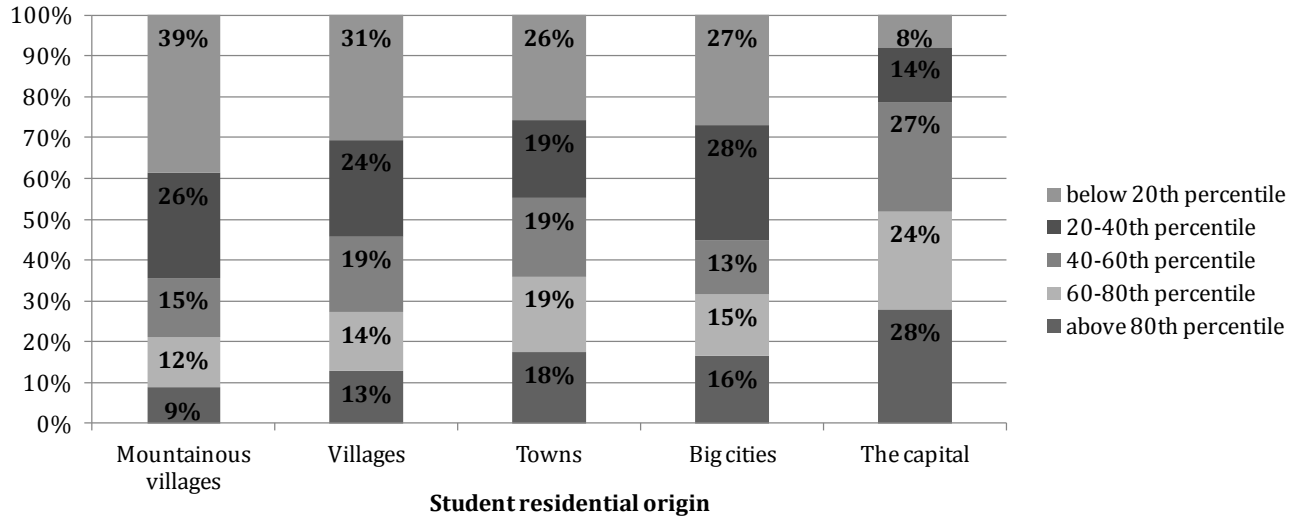
Figure 5. Destination HEI prestige categories by applicant area of origin
*Source*: own calculations based GeoStat (2009a), MES (2009b), NAEC (2009a) data

Multinomial logistic regression was conducted to estimate the degree to which the admission to HEIs of different prestige is predicted by applicant area of origin. Multinomial logistic regression allows predicting a categorical dependent variable with more than two levels. Backward stepwise regression is used to estimate relative contributions of different variables in explaining prestigiousness of HEI where applicants with different characteristics end up. Population groups admitted to the least prestigious (HEIs below 20th percentile), second least prestigious (20-40th percentiles), medium prestige (40-60th percentiles) and second most prestigious (60-80th percentiles) were compared to those who gained admission to the most prestigious HEIs (above 80th percentile). Multinomial logistic regression estimates the probability of membership in each category of the dependent variable. So, in our five category case, the focus is on the probability of being admitted to the least prestigious, second least prestigious, medium prestige and second most prestigious HEIs vs. gaining admission to the most prestigious ones. Table 4 presents the odds ratios for the contrasts by HEI prestige categories. Overall, the full model fits the data well. The change in the likelihood ratio test is significant ($\chi^2$=6.50, *p*=.000), which indicates that our final model is significantly better than the intercept-only model. As indicated by the Nagelkerke pseudo $R^2$, the association is very strong ($R^2$=.727).

**Table 4.** *Multinomial Regression Modelling of the Destination HEI prestige*

| Predictors | Least prestigious (below 20th percentile) compared to most prestigious (above 80th percentile) | | Second least prestigious (20-40th percentile) compared to most prestigious (above 80th percentile) | | medium prestige (40-60th percentile) compared to the most prestigious (above 80th percentile) | | second most prestigious (60-80th percentile) compared to most prestigious (above 80th percentile) | |
|---|---|---|---|---|---|---|---|---|
| | B | Exp(B) | B | Exp(B) | B | Exp(B) | B | Exp(B) |
| Intercept | 6.61*** | | 5.165*** | | 4.407*** | | 2.186*** | |
| Public school | 0.13 | 1.139 | 0.147* | 1.158 | 0.195*** | 1.216 | 0.079 | 1.082 |
| Mountainous villages | 2.03*** | 7.647 | 1.140*** | 3.126 | 0.540*** | 1.715 | 0.640*** | 1.896 |
| Villages | 1.97*** | 7.18 | 0.986*** | 2.68 | 0.471*** | 1.602 | 0.454*** | 1.574 |
| Towns | 1.41*** | 4.104 | 0.556*** | 1.744 | 0.201*** | 1.222 | 0.204*** | 1.227 |
| Big cities | 1.36*** | 3.912 | 0.600*** | 1.823 | 0.007 | 1.007 | 0.191*** | 1.21 |
| Males | 0.76*** | 2.145 | 0.891*** | 2.437 | 0.975*** | 2.65 | 0.267*** | 1.306 |
| Exam Year 2006 | 1.57*** | 4.794 | 0.935*** | 2.548 | 1.238*** | 3.448 | 1.048*** | 2.851 |
| Exam Year 2007 | 1.01*** | 2.74 | 0.983*** | 2.672 | -0.275*** | 0.76 | 1.426*** | 4.162 |
| Exam Year 2008 | 0.13 | 1.14 | 0.128* | 1.137 | -0.412*** | 0.663 | 0.597*** | 1.817 |
| Georgian speakers | -0.18 | 0.836 | -0.238 | 0.788 | -0.522*** | 0.593 | -0.235* | 0.791 |
| 1st choice HEI prestige below 20th percentile | 9.40*** | 12043 | 5.85*** | 345 | 4.59*** | 98.3 | 3.66*** | 38.89 |
| 1st choice HEI prestige 20-40th percentile | 6.42*** | 611 | 7.44*** | 1696 | 3.66*** | 38.8 | 3.80*** | 44.78 |
| 1st choice HEI prestige 40-60th percentile | 4.14*** | 63 | 3.85*** | 47 | 5.02*** | 150.9 | 2.95*** | 19.06 |
| 1st choice HEI prestige 60-80th percentile | 3.04*** | 21 | 2.94*** | 19 | 2.62*** | 13.7 | 4.08*** | 59.24 |
| GAT | -0.184*** | 0.832 | -0.13*** | 0.88 | -0.1*** | 0.908 | -0.07*** | 0.94 |

* p<.05, ** p<.01, *** p<.001

*Interpretation note*: odds of gaining admission to a HEI in the given category of prestige, as compared to the most prestigious ones, are equal if Exp(b) is 1.00, greater if it is more than 1, and less if it is less than 1. For example, applicants from mountainous villages are more likely to end up at a least prestigious HEI than a most prestigious one.

*Source*: own calculations based on GeoStat (2009a), MES (2009b), NAEC (2009a) data

PASW statistics 18 reports both the logistic coefficient (b) and the exponentiated logistic coefficient (Exp(b)). The logistic coefficient is useful in determining the direction of the relationship. The exponentiated coefficient indicates the expected change in the odds of gaining admission to HEI of the indicated prestige ranking vs. the most prestigious, per unit change in an explanatory variable, ceteris paribus.

As seen in Table 4, there are very large differences in the odds of gaining access to the most prestigious HEIs for rural and urban applicants. Applicants from rural areas are approximately 7 times more likely to gain access to one of the least rather than the most prestigious HEI than applicants from the capital. Even applicants from towns and big cities were around 4 times more likely than Tbilisi residents to gain access to a HEI in the least prestigious rather than in the most prestigious quintile of HEIs.

Observing the Table 4 from left to right, with the prestige of HEI groups increasing, the differences between the capital and the rest of rurality categories as well as the most prestigious and the other groups tend to decrease. Even when we compare the second most prestigious group to the most prestigious one, we see that mountainous village residents are almost twice as likely to gain admission to the second best instead of the most prestigious HEIs, in contrast to the applicants from the capital.

When controlling for an array of other factors enlisted in Table 4, females, Georgian speakers, and private school graduates are significantly more likely to gain access to the most prestigious HEIs than males, language minorities, and public school graduates. Males are, on average, twice as likely as females to gain access to any prestige group but the best one. The differences by school ownership type and language-minority status are not as large and consistently significant as the differences by rurality or gender.

It is not unusual that there is a consistently significant relationship between the prestige level of applicants' first-choice HEI and the prestige level of HEI where they ended up. Applicants tend to end up at a HEI which is in the same prestige category or lower than their first-choice HEI (Table 4). Some of the Exp(B) coefficients are wildly large. This may due to a combination of the strong relationship between first-choice HEI and the destination HEI variables; and the fact that the first-choice HEI variable is categorical itself (Starkweather & Herrington, 2010).

Applicants with higher GAT scores tend to have higher odds of gaining access to the most prestigious HEIs. It can be observed in Table 4 that the odds decrease as we compare the least prestigious quintile to the quintiles with higher prestige. In other words, one score difference in GAT, as it would be expected, makes less of a difference when we compare more prestigious quintiles to the group of the most prestigious HEIs.

As explained by Chankseliani (2011), by design, the entirely automated HE admissions process in Georgia consists of the following three main procedural

components: test scores obtained in HE entrance examinations, choices of HEIs/programmes of study applicants make before sitting examinations, and the number of available places at HEIs/programmes of study available for upcoming academic year. In the multinomial logistic regression model predicting the destination HEI prestige (Table 4), I control for differences by exam year, partially account for applicant choices of HEIs (first-choice HEI) and variation in their test-scores (GAT). Therefore, it can be suggested that differences by demographic variables as well as rurality may be reflecting the uncontrolled variation in the compulsory test scores and/or full array of HEI choices.

## Discussion and Conclusion

It has been revealed that HE applicants who have not graduated from a secondary school in the capital tend to consistently name the least and the second least prestigious HEIs as their first choice most frequently. Multinomial logistic regression analysis of HE applicant first- choice HEIs, their general aptitude and residential origin showed that of two applicants with the same measured general aptitude, an applicant from a mountainous village is approximately 12 times more likely to apply to a least rather than a most prestigious HEI than an applicant from the capital.

Qualitative evidence and existing international scholarship were analysed to explicate some aspects of the complex process of HE choice-making. Applicants and their families seem to be considering a number of factors like HEI location (distance to home, cost of living, attractiveness), cost of studies, prestige, and availability of the desired programme when applying to tertiary education and selecting HEIs.

Large differences were observed in applicant chances to enter prestigious HEIs by their residential origin. When controlling for prestige of first-choice HEIs, applicant measured aptitude and an array of other variables, those from rural locations tend to have significantly lower odds of gaining admission to more prestigious HEIs. Keeping in mind the limits of the multinomial logistic modelling exercise, applicants from mountainous villages are almost 8 times more likely to gain access to a least rather than the most prestigious HEI than applicants from the capital. Applicants from villages are about 7 times more likely to end up at a least prestigious rather than one of the most prestigious HEIs, compared to applicants from Tbilisi.

## About the Author

Dr. Maia Chankseliani is an international development professional with a doctorate from Cambridge University (UK) and a master's from Harvard University (USA). With ten years of experience in educational research, policy-making, teaching and leadership, she brings in technical expertise in quantitative and qualitative research as well as exceptional interpersonal and leadership skills. Her jobs with public, non-profit, and private organizations have involved design, implementation, and evaluation of various policies and programmes directed towards better quality and more equitable education provision in Georgia and internationally. Dr. Chankseliani served as a policy-maker at the Ministry of Education and Science of Georgia. At different times, she has undertaken consultancy assignments with the World Bank Institute, Cantabrigia Advisors, Education Development Center, International Initiative to End Child Labor, Public Policy and Management Institute.

Dr. Chankseliani's primary area of expertise is post-secondary education - workforce development/employability, higher education access, adult education and training. She has been engaged with primary and secondary education-related projects on child labour in Ghana, public-private partnerships in Africa, teacher educators' professional development in Pakistan, civic education in Georgia, creative partnerships in England, and gender equality in Mozambique. She has also worked on issues of labour market research in Georgia and civil service modernization in Kazakhstan.

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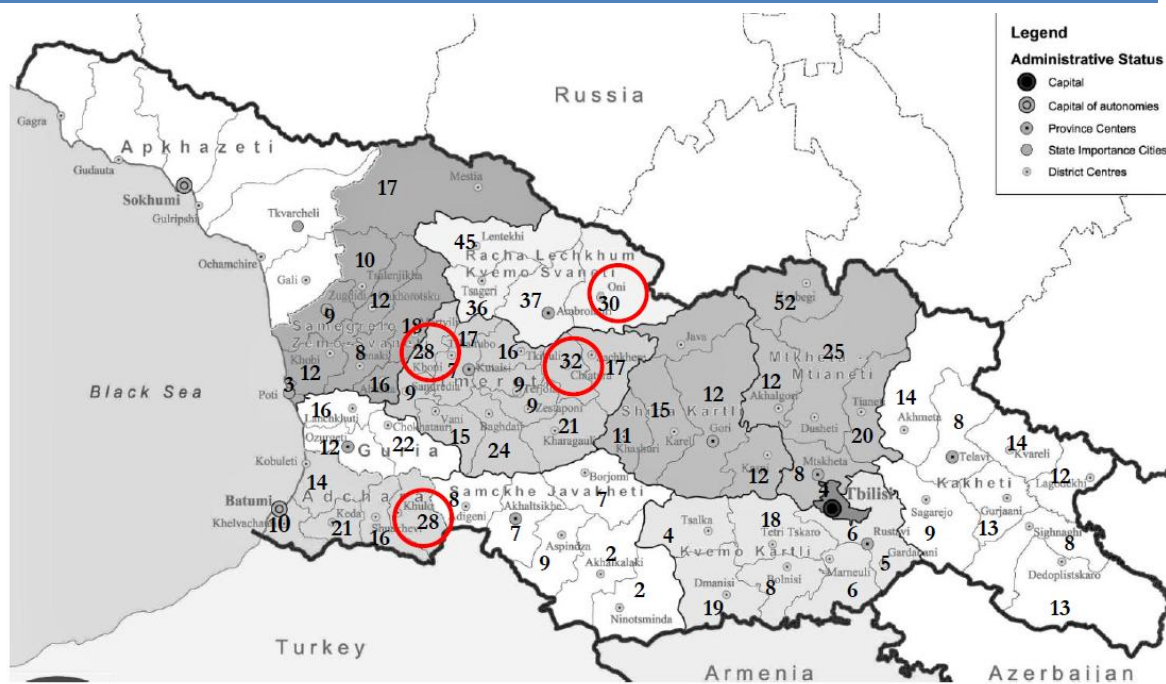
## Annex 1. HEI distribution in Georgia



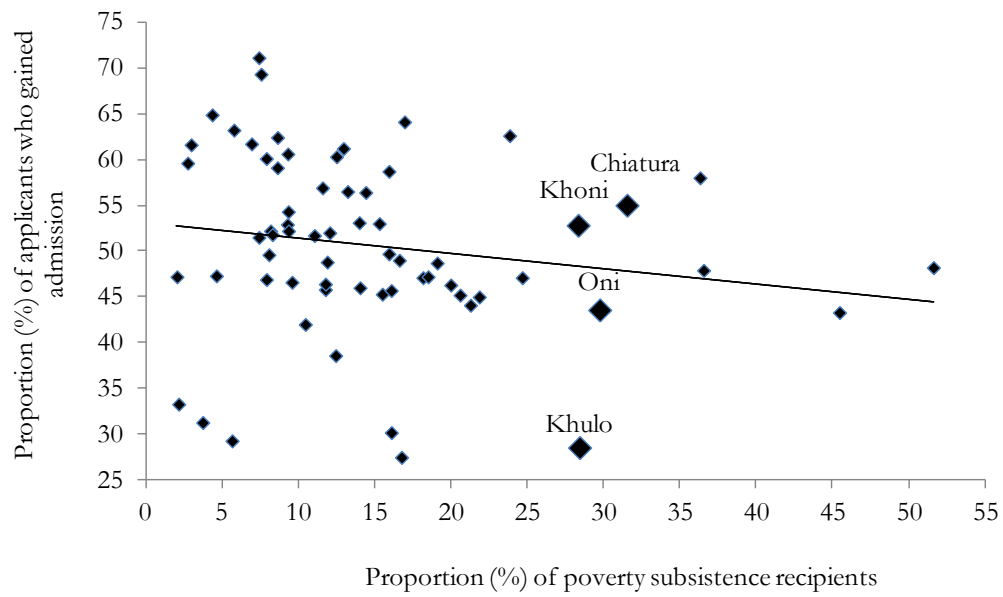*Source*: own calculations based on the data from Geoland (2008), NAEC (2007b)

*Source*: based on the analysis of SSA (2009) data

*Source*: own calculations based on GeoStat, 2009a; NAEC, 2009a; SSA, 2009 data

## Annex 4. Categorisation of urban areas: the capital, big cities and towns

| Name of the urban area | Population | Code |
|---|---|---|
| Tbilisi | 1106.7 | 5 |
| Kutaisi | 188.6 | 4 |
| Batumi | 122.5 | 4 |
| Rustavi | 117.4 | 4 |
| Zugdidi | 72.3 | 4 |
| Gori | 50.8 | 4 |
| Poti | 47.5 | 4 |
| Samtredia | 29.6 | 3 |
| Khashuri | 28.3 | 3 |
| Senaki | 28.1 | 3 |
| Zestaphoni | 24.5 | 3 |
| Marneuli | 22 | 3 |
| Telavi | 20.1 | 3 |
| Akhaltsikhe | 19.2 | 3 |
| Kobuleti | 18.9 | 3 |
| Ozurgeti | 18.3 | 3 |
| Tskaltubo | 16.8 | 3 |
| Kaspi | 15.3 | 3 |
| Gardabani | 14.1 | 3 |
| Tkibuli | 13.8 | 3 |
| Chiatura | 13.8 | 3 |
| Borjomi | 13.6 | 3 |
| sagarejo | 11.5 | 3 |
| Bolnisi | 11.3 | 3 |
| Khoni | 11 | 3 |
| Gurdjaani | 9.5 | 3 |
| Akhalkalaki | 9.4 | 3 |
| Tsalendjikha | 9.3 | 3 |

| | | |
|---|---|---|
| Kvareli | 8.6 | 3 |
| Akhmeta | 8.4 | 3 |
| Mtskheta | 7.8 | 3 |
| Kareli | 7.6 | 3 |
| Lagodekhi | 7.5 | 3 |
| Lanchkhuti | 7.5 | 3 |
| Dedoplis Tskaro | 7.3 | 3 |
| Dusheti | 7.1 | 3 |
| Sachkhere | 6.9 | 3 |
| Abasha | 6.3 | 3 |
| Terdjola | 6.1 | 3 |
| Ninotsminda | 6.1 | 3 |
| Tsnori | 6.1 | 3 |
| Khobi | 5.8 | 3 |
| Martvili | 5.6 | 3 |
| Vale | 5 | 3 |
| Bagdati | 4.8 | 3 |
| Djvari | 4.8 | 3 |
| Vani | 4.6 | 3 |
| Tetri Tskaro | 3.8 | 3 |
| Dmanisi | 3.6 | 3 |
| Oni | 3 | 3 |
| Ambrolauri | 2.4 | 3 |
| Signagi | 2.3 | 3 |
| Tsalka | 2 | 3 |
| Tsageri | 1.8 | 3 |

*Source*: GeoStat (2009a, pp. 36–37)