

# Teacher Satisfaction in High Poverty Schools: Searching for Policy Relevant Interventions in Estonia, Georgia, and Latvia

**William C. Smith, Anna M. Persson**

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## **William C. Smith**

Senior Project Officer—Research, Global Education Monitoring Report, UNESCO. Address: Global Education Monitoring Report, UNESCO, 7 Place de Fontenoy, 75007 Paris, France. Email: [mrsmithatmckay@yahoo.com](mailto:mrsmithatmckay@yahoo.com)

## **Anna M. Persson**

Ph.D. Candidate, The Pennsylvania State University. Address: Curriculum and Supervision, The Pennsylvania State University, University Park, PA, USA 16801. Email: [anna.persson720@gmail.com](mailto:anna.persson720@gmail.com)

**Abstract.** Provided the shared post-soviet context and the rapidly declining school age population, this comparative study of teachers in Estonia, Georgia, and Latvia can shed light on alternative approaches to increased teacher satisfaction for countries in similar contexts that are unable to make across the board increases in teacher salary. The focus on high poverty schools is essential in these countries as the changing demographics and present school funding mechanisms disproportionately affect rural schools which are often high poverty. This study addresses two pressing research questions, exploring each

independently for Estonia, Georgia, and Latvia: 1) How does teacher satisfaction and other teacher characteristics differ by school poverty level? 2) What policy relevant factors are related to increased satisfaction for teachers in high poverty schools? Data from the 2013 Teaching and Learning International Survey (TALIS) were used in this study. Given the dichotomous measures of the outcome variable (teacher satisfaction), hierarchical generalized linear modeling (HGLM) was the primary method of analysis. Although the policy implementation and internalization process is challenging, this study indicates that simplistic, externally driven policy solutions, such as introducing induction programs or changing the contract status of teachers, are not as effective in increasing teacher satisfaction as investments that contribute to a positive school climate where teachers feel valued and included as professionals.

**Keywords:** teachers, high poverty schools, teacher satisfaction, school climate, autonomy, induction programs, Estonia, Georgia, Latvia.

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Teachers in high poverty schools are less satisfied with their current employment than their counterparts in medium and low poverty schools, fuelling teacher turnover that can plague students already facing the challenges of high poverty schooling. Teacher satisfaction and retention are directly related and can shape school culture

and student outcomes as the mood of those less satisfied can spread throughout the school. In an attempt to ensure a proportionate distribution of experienced and high quality teachers across schools, some interventions have attempted to financially entice teachers to take positions in more difficult-to-staff schools. These interventions have not always been successful and do not ensure that teachers that take advantage of the incentive are the strongest teachers. Policies that focus on retaining rather than attracting teachers promote an approach of continuous professional development and interact with all of the teachers in the school, not just the novices. These in-service support policies can make a significant difference in teacher satisfaction and the corresponding school culture.

Research on teacher satisfaction in post-soviet countries is sparse and reveals mixed levels of satisfaction, with some teachers reporting satisfaction with their job while others are entirely dissatisfied. Often focusing on teacher salaries or remuneration, few studies explore alternative factors affecting teacher satisfaction. By taking into account the shared post-soviet context and the rapidly declining school age population, this comparative study of teachers in Estonia, Georgia and Latvia sheds light on alternative approaches to increased teacher satisfaction in countries with similar contexts that are unable to make across-the-board increases in teacher salaries. The focus on high poverty schools is essential in these countries as the changing demographics and present school funding mechanisms disproportionately affect rural schools which are often high poverty. Although, to our knowledge, this study is the first piece of research explicitly comparing teachers' satisfaction across poverty levels in these nations, research of other countries' contexts suggest high poverty schools face unique challenges in teacher satisfaction and retention. This study addresses two pressing research questions, exploring each independently for Estonia, Georgia, and Latvia: (1) How do teacher satisfaction and other teacher characteristics differ in regards to school poverty level? And (2) What policy-relevant factors are related to increased satisfaction for teachers in high poverty schools?

This article is composed of five main sections. First, the literature review describes why high poverty schools are an important area for study and summarizes pertinent literature on teacher satisfaction and its corresponding factors. The second section describes the post-soviet context of Estonia, Georgia, and Latvia, detailing the key education reforms and demographic shifts over the past twenty-five years. The data and methods section then introduces the data set used for this study, the 2013 Teaching and Learning International Survey (TALIS), as well as the variables used to capture teacher satisfaction and the Hierarchical Linear Generalized Model (HGLM) used in the analysis. Results compare teacher satisfaction in high, medium, and low poverty schools in each country and illustrate the relationship between potential policy interventions and teacher satisfaction in high

poverty schools. Finally, the discussion section summarizes the main findings and provides policy suggestions and areas for future research.

## **1. Literature Review**

Research comparing high poverty schools and teacher satisfaction is absent in Estonia, Georgia, Latvia and Post-Soviet countries in general; however, studies exploring other countries' contexts suggest that high poverty schools have unique characteristics that must be understood when attempting to support teachers. High poverty schools are inherently inequitable due to, among other factors, less satisfied and inadequately prepared teachers, greater concentrations of high needs student populations, and fewer overall resources resulting in severe consequences for students [Moore, 2012; Moore Johnson et al., 2004]. These high needs student populations include minorities, culturally and linguistically diverse learners (CLDLs), students from low-income homes, and students otherwise considered at risk [Darling-Hammond, 2006, 2004; Peske, Haycock, 2006]. High poverty schools, and consequently their students, are more likely to have inexperienced, uncertified, poorly educated, and underperforming teachers than low poverty schools [Eisenschmidt, 2011; Moore Johnson et al., 2004]. This lack of quality teachers for poor, CLDLs and minority students prohibits them from adequate academic achievement [Moore Johnson et al., 2004; Peske, Haycock, 2006].

### **1.1. Why Focus on High Poverty Schools?**

Teachers strongly influence student learning [Darling-Hammond, 2006, 2004; Moore Johnson 2004] and perhaps the most egregious disparity is that poor, CLDL, minority and at risk students rarely have access to effective and quality teachers. Student achievement is more of an outcome of "well-prepared, expert, experienced" [Darling-Hammond, 2010. P. 17] teachers than of any other school resource. This is especially true for students living in low-income communities [Darling-Hammond, 2004; Moore Johnson et al., 2004]. A teacher's effectiveness is contingent on their academic background, teaching experience and preparation, content knowledge, and certification status [Darling-Hammond, 2010; Peske, Haycock, 2006, Murnane, Steele, 2007]. High poverty schools have fewer qualified and quality teachers due to, among other reasons, the higher cost in hiring [Darling-Hammond, 2006], lower teacher satisfaction [Moore Johnson, 2006], and higher teacher attrition [Darling-Hammond, 2004; Murnane, Steele, 2007]. The issue of unqualified teachers is present in Estonia and Georgia [Iris, Turk, 2012; Ingvarson et al, 2013]. Iris & Turk [2012] report that less than 50% of the teachers in high poverty (rural) schools are qualified to teach in Estonia.

Students in high poverty schools often have several ineffective teachers throughout their academic years. Consequently, the cumulative effect of ineffective teachers leads to high rates of student remediation, grade retention and student drop-out [Darling-Hammond, 2010,

2004; Peske, Haycock, 2006]. Those who teach without qualification, preparation, and experience tend to burnout faster than other teachers due to not being able to adequately perform their job, contributing to the ever present high numbers of inexperienced teachers in high poverty schools [Darling-Hammond, 2004; Murnane, Steele, 2007; Peske, Haycock, 2006]. Finally, the entire school community faces problems due to the revolving door of new and unprepared teachers [Darling-Hammond, 2004, Darling-Hammond, 2010]. The continual hiring needs and instability create conditions in which the experienced and qualified teachers must contend with an erosion of appropriate professional development, instructional burdens, and draining of financial and human resources. Schools lack of human resources prevents the conditions necessary for a productive learning environment and the ability to support sound educational decision making or collegial learning [Darling-Hammond, 2010, 2004].

A teacher “support gap” exists where new teachers in high poverty schools are less likely than their counterparts in low poverty schools to receive supports to aid in their success [Darling-Hammond, 2010; 2004, Moore Johnson et al., 2004; OECD, 2016]. High poverty schools often do not have established mentoring practices or do not have the experienced and qualified teachers to mentor new teachers [Darling-Hammond, 2004; Moore Johnson et al., 2004]. In fact, there is lower trust among colleagues in high poverty schools [Van Maele, Van Houtte, 2011]. High poverty schools often lack a full curriculum aligned with standards [Moore Johnson et al., 2004]. The official curriculum is a mechanism of support and guidance; however, high poverty schools are more likely than low poverty schools to have prescriptive curricula and requirements of using instructional time on test preparation activities, both of which contribute to teacher attrition [Moore Johnson et al., 2004].

### **1.3. Importance of Teacher Satisfaction**

Teachers’ job satisfaction impacts student achievement [Ronfeldt, Loeb, Wyckoff, 2013]. Job satisfaction is closely tied to teacher turnover [Green, 2014] and students experiencing high teacher turnover score lower on standardized assessments [Ronfeldt, Loeb, Wyckoff, 2013]. The impact of teacher satisfaction and attrition is not limited to the students of dissatisfied or former teachers, teachers who stay and their students also experience negative effects [Guin, 2004; Maslach, Schaufeli, Leiter, 2001; Ronfeldt, Loeb, Wyckoff, 2013].

Job dissatisfaction and turnover impact all students’ learning and teachers’ work environment [Moore Johnson, 2006; Patridge, 2007; Ronfeldt, Loeb, Wyckoff, 2013]. The development and maintenance of social capital are disrupted, including staff collegiality, community and trust [Bryk, Schneider, 2002; Ronfeldt, Loeb, Wyckoff, 2013; Van Maele, Van Houtte, 2011]. Not only are important knowledge and skills associated with school programs, structures and supports affected when teachers leave, but it takes time for new hires to gain the

essential knowledge and skills to navigate the unfamiliar curriculum. In schools with high turnover rates the continual need to 'start over' for new teachers is a burden on financial and human resources. Veteran teachers often suffer from a lack of professional development because of this unceasing cycle of new hires. Not only does veteran teachers' job satisfaction diminish, but their students also lose out on the untapped potential of their teachers [Ronfeldt, Loeb, Wyckoff, 2013]. The progress of school, teacher and student achievement improvements are undermined by resources being diverted into recruitment, hiring, and, hopefully, training new teachers [Moore Johnson, 2006; Ronfeldt, Loeb, Wyckoff, 2013].

**1.4. Key Policies  
Associated with  
Teacher  
Satisfaction**

In addition to the well documented literature linking increased teacher satisfaction with higher teacher salaries [Burns, Darling-Hammond, 2014; Darling-Hammond, 2004; Moore Johnson, 2006], a variety of other policy interventions can play a role in teacher satisfaction. These non-salary interventions are important to explore given the challenging economic climate in many countries and the recognition that teachers, when choosing their occupation, are often more influenced by intrinsic than monetary motivations [Ingersoll, 2002]. The complimentary and synergistic nature of salary and non-salary interventions suggests that, ideally, a more comprehensive approach to teacher satisfaction would be taken.

The contract status of teachers can affect their level of satisfaction. Full time teachers and teachers with a permanent contract are more satisfied with their position than those that work part time or are on a temporary contract [Gujjar, Ahmed, Naoreen, 2009; Kaiser, 2011; Koustelious, 2001; McKenzie et al., 2014]. For example, in Koustelious' [2001] examination of 354 primary and secondary school teachers in Greece, teachers working part time or on temporary contracts were less satisfied with their pay and their school as a whole than those that had secure jobs. Additionally, teachers on permanent contracts in Pakistan were more satisfied with their jobs across a range of dimensions, such as atmosphere, relations with colleagues and job security, as well as overall job satisfaction [Gujjar, Ahmed, Naoreen, 2009]. A more stable contract status may increase the odds that low-income schools retain strong teachers and reduce the high-turnover common in hard-to-staff schools [Burns, Darling-Hammond, 2014; Darling-Hammond, 2004].

Positively affecting teacher satisfaction are support programs for new teachers, such as induction and mentoring [Burns, Darling-Hammond, 2014; Ferguson, Frost, Hall, 2012; OECD, 2005; Patridge, 2007; Van Maele, Van Houtte, 2011]. Induction and mentoring programs help acclimatize novice teachers to the professional practice of a school and results in greater occupational commitment and understanding of shared norms [Burns, Darling-Hammond, 2014; Moore Johnson et al., 2004]. Well-designed programs that incorporate con-

tinual engagement with a highly trained mentor can improve retention rates for new teachers as well as shape their attitudes, feelings of efficacy, and instructional skills [Darling-Hammond, 2010]. Teacher collaboration and mentoring can build collegial relationships and social supports that create positive work environments and contribute to job satisfaction [Patridge, 2007, Burns, Darling-Hammond, 2014, Ferguson, Frost, Hall, 2012]. When exploring longitudinal data of first year public school teachers in the U.S., Kaiser [2011] found that teachers assigned a mentor during their first year were less likely to leave in the first two years (10% left) than those that did not have a mentor (23% left). This pattern is especially troubling in high poverty schools where teachers are less likely to have mentors, and those who do have mentors are less likely to be paired with experienced teachers in the same school, grade or subject, or experience rich two-way discussion [Moore Johnson et al., 2004].

Within the school, how teachers are assigned and engaged can shape their satisfaction. Teachers that teach outside the field that they were trained in or take on assignments that cross multiple fields of study are less satisfied than teachers whose assignments are properly aligned with their preparation [Moore Johnson, 2006]. Additionally, teachers that take on leadership roles and feel like they have input into school decisions are more satisfied than those that feel isolated and voiceless [Bogler, 2005; Burns, Darling-Hammond, 2014]. Limited teacher involvement in school decision-making, in addition to poor work conditions, are the most common reasons for teacher attrition [Burns, Darling-Hammond, 2014; Ferguson, Frost, Hall, 2012; Moore Johnson, 2006].

Engaging teachers can be partially accomplished by principals that distribute leadership across the school or lead through a transformational leadership style [Burns, Darling-Hammond, 2014; Harris, 2008]. In a survey of over 300 teachers from mainly urban schools in Estonia, Heidmets and Liik [2014] found that in schools where principals practiced a transformational leadership style, focused on a culture of removing self-interest for the greater good of the community by emphasizing common goals and targets, teachers were less likely to burnout and felt more secure in their job than in schools where principals had a transactional leadership style where exchanges between teachers and principals were characterized by self-interest. They concluded that “the more transformational style and less transactional style teachers perceive in their school principal’s behavior, the greater their subjective bond with their school and the higher their affective and cognitive identification with the school happened to be, and they also consider leaving the school more unlikely” [P. 47]. Hulpia et al. [2012] came to a similar conclusion in their study of secondary school teachers in Belgium, where cooperative leadership and shared goals led to greater school commitment. Furthermore, teachers recognize and are

attracted to principals that are good instructional leaders and appreciate principals that provide useful feedback [Darling-Hammond, 2010; Moore Johnson et al., 2004; Robinson, Lloyd, Rowe, 2008].

School climates that are positive and unifying engage teachers and reduce teacher attrition [Darling-Hammond, 2004; Menon, Papanastasiou, Zembylas, 2008]. Positive school climates incorporate collaboration among all stakeholders to promote professional learning and work towards shared visions and goals [Burns, Darling-Hammond, 2014; Meyer, Allen, 1997]. Issues in school climate and working conditions contribute to teacher stress and satisfaction. Teacher stress is defined by Kyriacou [2001] as, “the experience by a teacher of unpleasant, negative emotions, such as anger, anxiety, tension, frustration or depression, resulting from some aspect of their work as a teacher” [P. 28]. Negative work stress can lead to depression and anxiety and is highly linked with lower job satisfaction [Ferguson, Frost, Hall, 2012; Green, 2014]. All three, stress, depression, and anxiety, are significant negative predictors of job satisfaction [Ferguson, Frost, Hall, 2012]. Rhodes, Nevill, and Allan [2004], in examining 368 primary and secondary teachers in the UK, found that teachers were more satisfied if they felt like they were surrounded by a friendly staff and worked in a climate of achievement.

Finally, a lack of autonomy provided to teachers can undermine attempts to create a collaborative environment. Zembylas and Papanastasiou [2006] found that limited autonomy was related to dissatisfaction amongst teacher in Cyprus. Other studies have pointed to the importance of teacher control over teaching practices, grading, discipline and homework [Kreis, Brockopp, 1986; Moore, 2012; Pearson, Moomaw, 2005].

## **2. Country Context**

Following the collapse of the Soviet Union in 1991 newly independent post-soviet states went through a chaotic transition period from totalitarian, centralized economies to democratic, market economies. Education during the Soviet era focused on preparing students for industrial jobs [Ruus, Reiska, 2015] and was successful in universalizing access to free education and reducing illiteracy [Andguladze, Mindadze, 2015]. For example, in Estonia during the Soviet era the mandatory years of education rose from seven to nine years and by the late 1980s, 99% of eighteen year olds were on a path that could qualify them for university [Ruus, Reiska, 2015]. The remainder of this section explores the post-Soviet context and the similar educational challenges found in Estonia, Georgia, and Latvia. To conduct a comparative analysis, these countries were chosen as three of the four post-Soviet countries that participated in the 2013 Teaching and Learning International Survey (TALIS). Although the Russian Federation was also included in the TALIS sample, it was excluded from this study as less than 5% of its teachers taught in high poverty schools.

Table 1: Key Education Statistics for Estonia, Georgia, and Latvia

	Spending as % of GDP	Teacher salaries as % of GDP per capita	% of teachers that are female	% of teachers over age 50	Student-teacher ratio	Relative performance on international assessment	Compulsory Schooling
Estonia	5.5%	68%	81%	48%	10 : 1	Above Average	Age 7 to 17
Georgia	2.6%	62%			9 : 1	Well Below Average	Age 7 to 16
Latvia	5.0%	52%	84%	44%	10 : 1 <sup>a</sup>	Near Average	Age 5 to 16
OECD Average	6.1%	125%	67%	34%	14 : 1	Reference Category	

Sources: [Andguladze, Mindadze, 2015; OECD, 2014; Tatto et al., 2012; Zogla, Andersone, Cernova, 2015].

Notes: Empty cells indicate data does not exist or is not applicable. Lower secondary data is used when disaggregated data exist.

<sup>a</sup> Student-teacher ratio for Latvia is from the 2012/2013 school year in urban areas. Rural area student-teacher ratio in Latvia is 7 : 1.

Reforms following the collapse of the Soviet Union have differed across post-soviet states but one of the primary focuses has been in ensuring teachers are able to understand and adapt the classroom to the new goals of education which generally focused on decentralization, democratization, and depoliticization [Silova et al., 2010; Zogla, Andersone, Cernova, 2015]. The post-soviet context and Estonia, Georgia, and Latvia's response to the transition frames education and must be recognized in order to understand the role of teachers in each country.

Similarities in the current state of education across the three countries are detailed in Table 1. Teachers in all countries are underpaid, making well below the national GDP per capita. The teacher workforce in each country is feminized and aging, with nearly 50% of teachers over the age of fifty. The low student-teacher ratios are partially the result of demographic shifts which included significant emigration and reductions in birth rate. For instance, between 2000 and 2011 Latvia lost 9.1% of its total population [OECD, 2014]. The decline of the school age population outpaced the departure of teachers in these countries resulting in the deflated student-teacher ratio [Hazans, 2010]. The shrinking school age population disproportionately impacted rural schools that often closed as a result. In the 2012/2013 school year alone, fifty-eight educational institutions were closed in Latvia and a further eighty-five were merged or reorganized [Zogla, Andersone, Cernova, 2015].

The following sections highlight some of the key differences in post-soviet reforms in Estonia, Georgia, and Latvia. In addition to national education spending and student achievement (illustrated in Table 1 above), this section quickly reviews national education focus, level of autonomy, and teacher status.



**2.1. Estonia** Transition in Estonia started before the collapse of the Soviet Union where there was a push by teachers to establish a new Estonian general curriculum that would virtually eradicate communist ideology and introduce market-based economics. Quickly following the collapse, the Estonian government passed one of its first laws, the 1992 Education Act [Ruus, Reiska, 2015]. Since the Education Act internationalization has consistently been a “guiding principle” to educational development in Estonia [Ibid.]. Over the past twenty years Estonia has worked to integrate itself with the global community, including joining the Bologna Declaration in 1999, the EU in 2004, and the OECD in 2010. The education system in Estonia has evolved into one of the most decentralized systems in Europe with approximately 66% of decisions taking place at the school level [OECD, 2008]. Although minimum teacher salaries are set by the central government, schools have the responsibility of hiring and firing teachers and rationing out monetary resources [Irs, Turk, 2012; OECD, 2014]. The high levels of autonomy are matched with an accountability system that is designed to provide parents, acting as consumers, free school choice and motivate schools to attract students, as funding is linked to each student [Irs, Turk, 2012; OECD, 2014]. Although some steps are taken to ensure teachers are in high needs schools, challenges still remain. For example, even with an incentive of 12,750 EUR over a three year period provided to new teachers willing to work in small towns or rural areas [OECD, 2014], recruiting for rural schools remains a big problem with less than 50% of teachers in rural schools meeting the qualifying standards [Eisenschmidt, 2011; Irs, Turk, 2012].

Past research has found that teachers in Estonia tend to be dissatisfied with their job [Eisenschmidt, 2011]. This is partially attributed to the poor working environment and lack of collegial support [Veisson, Ruus, 2007]. The status of teachers in society appears to be mixed with Ruus and Reiska [2015] claiming that the general public feel “solidarity with the teachers in their dissatisfaction with poor salaries” [P. 248] but the ministry’s 2010 strategic document, *The Five Challenges of Estonian Education*, identifies the relative status of teachers as one of the five strategic pillars to be addressed by 2020. Increasing the status of teachers has been one of the rationales behind the implementation of mandatory induction and in-service training for teachers. Induction, first introduced in 2004, is a one year program with an assigned mentor while teachers are also required to complete 160 hours of in-service training every five years [Eisenschmidt, 2011].

**2.2. Georgia** The post-soviet transition in Georgia was marked by economic and political upheaval. Civil war immediately after the collapse was accompanied by a sharp economic downturn with GDP decreasing by 75%. Education was hit particularly hard as government spending on education was reduced by 95% between 1989 and 1996. The void of public spending was partially filled by households whose spending in 2011

made up 30% of all education expenditure. The move towards privatization was encouraged by the 2004 change in the financing model to one where funding follows the student in the form of a voucher. Some of the autonomy provided in 2004, however, was rolled back in 2010 as Georgia started to recentralize. This included the Ministry of Education and Science assuming authority to hire and fire school head teachers and reducing the decision making authority of local school's Board of Trustees [Andguladze, Mindadze, 2015].

Past research indicates that equity concerns are not as present in Georgia. Enrollment rate differences between poor and non-poor populations, urban and rural populations, and across ethnic groups are minimal throughout compulsory education [Ibid.]. This may be due, in part, to the salary supplements provided to strengthen and attract teachers to schools at higher elevations and to work with large minority language populations [Andguladze, Mindadze, 2015; Public Policy Research and Training Center, 2014].

Teacher salary and status is low in Georgia. According to the national report provided for the 2008 Teacher Education and Development Study in Mathematics (TEDS-M): "teaching is one of the least desired professions in Georgia. The ongoing depreciation of the profession includes decreased salaries as well as the decreased social status of teaching. While teaching was one of the most respected professions in the Soviet times, it became less appreciated when teachers appeared to be unprepared for the transition period faced by the country" [Tatto et al., 2012. P. 43]. Teacher salaries are three times below the desired level reported by teachers [Ingvarson et al., 2013]. However, despite the low salary there is little teacher turnover [Public Policy Research and Training Center, 2014]. This is potentially due to the overall high unemployment rate preventing teachers from gambling that they will find another job [Andguladze, Mindadze, 2015].

- 2.3. Latvia** Similar to Estonia, the post-soviet era in Latvia has included greater autonomy and decentralization, as well as an emphasis on internationalization. At the turn of the 21st century the government's *Concept of Educational Development (2002–2005)* emphasized alignment across educational actors and with international standards, including the European Commission and the UNESCO program Education for All. This trend continued in the education quality assurance plan for 2007 to 2013 which pushed for comparisons with internationally comparable education indicators [Zogla, Andersone, Cernova, 2015]. In 2009 the funding mechanism for education shifted from input based to a per-pupil model. This 'money follows the student' model, however, has been damaging, especially for rural schools [Hazans, 2010]. As Zogla, Andersone & Cernova [2015] pointed out, the model created an "unequal distribution of salaries for the same load and further negatively impacted the proportion of teachers and learners in different regions" [P. 444]. The potential negative consequences of this mod-

el, however, may be mitigated by the increased autonomy allocated to local authorities who, in addition to hiring and firing teachers [OECD, 2014], have the ability to transfer funds to smaller schools in their jurisdiction [Hazans, 2010].

Teachers in Latvia, in general, feel satisfied with their job and believe they are making a positive contribution to society [Geske, Ozola, 2015; Persevica, 2011]. The public perceptions of teachers in the country, conversely, are low with parents at times considering “teachers as service personnel whom they can teach or scold” [ESF, 2007. P. 4]. Contributing to the low status of teachers is the low wage and flat pay scale [OECD, 2014; Zogla, Andersone, Cernova, 2015] as well as the lack of induction or teacher practicum requirements once initial pre-service training is completed [OECD, 2014].

### **3. Data and Methods**

Data from the 2013 Teaching and Learning International Survey (TALIS) were used in this study. TALIS is a cross-national survey of teachers and school environments, focusing primarily on lower secondary education. The 2013 TALIS collected information from thirty-seven countries or participating economies through teacher and principal questionnaires. The stratified samples are nationally representative of teachers nested in schools. Data from participating post-soviet countries were included in this study. To ensure adequate statistical power when exploring high poverty schools, countries with less than 5% of their teachers working in high poverty schools were omitted from the analysis. From these limitations data from Estonia, Georgia, and Latvia were used in the study. Analyses were conducted separately, by country, with regression coefficients compared to examine between country differences.

#### **3.1. Identifying High Poverty Schools**

The identification of high poverty schools follows the approach of the OECD (2016) who used principal responses to questions asking them to identify the broad percentage of students in their school that come from socioeconomically disadvantaged homes. Schools with less than 11% of students coming from socioeconomically disadvantaged homes are considered low poverty schools. Schools with 11% to 30% of students coming from socioeconomically disadvantaged homes are considered medium poverty schools and schools with greater than 30% of students identified as socioeconomically disadvantaged are considered high poverty schools. The majority of this analysis focuses on teachers in high poverty schools. Descriptive statistics for teachers in Estonia, Georgia, and Latvia, by school poverty level, can be found in Appendix A, B, and C, respectively.

#### **3.2. Outcome Variables**

To examine teacher satisfaction, teacher responses to three statements, specific to their current place of employment, are used as outcome variables in this study: (1) “I would like to change to another

school if that were possible”; (2) “I enjoy working at this school”; and (3) “I would recommend my school as a good place to work”. Statements are reverse coded as needed so that a score of 1 indicates dissatisfaction with their current place of employment.

### 3.3. Predictor Variables

Predictor variables in this study are drawn from previous research and include actionable policy levers that education leaders could incorporate in their attempts to improve teacher satisfaction. They include variables at both the teacher and school level. To capture the importance of contract status in job satisfaction included measures to identify part time status (part time = 1, full time = 0) and whether the teacher is on a permanent contract (permanent contract = 1, fixed term contract = 0). Participation in induction and mentoring programs may also influence job satisfaction, especially for novice teachers. Differences in participation in a formal induction program are included in this study (yes = 1, no = 0). However, as the percentage of teachers participating as a mentor or mentee in Estonia, Georgia, and Latvia was marginal, participation in a mentoring program is not included. Teaching outside of their trained field is captured by the creation of a teacher mismatch variable. Teachers teaching a subject in the current year that they do not have formal education or training for are considered mismatched. The final teacher level predictor variables identifies teachers’ perceptions of whether the school provides staff opportunities to actively participate in school decisions (agree or strongly agree = 1, disagree or strongly disagree = 0).

At the school level included predictor variables identify the principal’s experience and whether teachers are provided autonomy. The principal’s experience is divided into their experience at the school and their experience as a teacher. Autonomy provided is a composite variable taken from the OECD thematic report on teacher professionalism (OECD, 2015). The composite has a range from 0 (no autonomy provided) to 5 (full autonomy) and consists of five areas of autonomy: curriculum choices, learning materials, course content, assessment policies, and discipline policies.

### 3.4. Control Variables

Three<sup>1</sup> control variables are included at the teacher level: sex, years of experience, and participation in teacher training. The teacher’s sex is coded 1 for female and 0 for male. Years of experience is a continuous variable that captures the years the teacher has spent at their current school. Participation in a teacher training program is self reported and coded 1 for yes and 0 for no.

### 3.5. Analytic Strategy

Given the dichotomous measures of the outcome variable (teacher satisfaction), hierarchical generalized linear modeling (HGLM) was

<sup>1</sup> School type (private or public) was not included as a control variable as no high poverty schools in the three countries under investigation are private.

the primary method of analysis used in this study. HGLM acknowledges the nested, or hierarchical, nature of data [Raudenbush, Bryk, 2002], adjusting the standard error as necessary and making it the appropriate method for this study where teachers are nested in schools. Prior to model specification, cases with missing data in the outcome variables were deleted and missing data in predictor and control variables was replaced using school mean substitution. The `xtmelogit` command in Stata version 12 was used for the analysis. The complete two-level random intercept model is illustrated below.

Model 1 outlines the teacher level with teacher level control variables and pertinent policy predictor variables used to predict teacher dissatisfaction for each teacher  $i$  in school  $j$ . The teacher level error term is represented by  $v$ .

$$\text{Model 1} \quad \text{Teacher Dissatisfaction}_{ij} = \beta_{0j} + \beta_{1j}(\text{Female}) + \beta_{2j}(\text{Years of Experience}) + \beta_{3j}(\text{Teacher Training}) + \beta_{4j}(\text{Teacher Predictor Variable}) + v_{0j}.$$

Model 2 outlines the school level with school level predictor variables used to predict the intercept ( $\beta_{0j}$ ) of Model 1. The school level error term is represented by  $\epsilon$ .

$$\text{Model 2} \quad \beta_{0j} = \gamma_{00} + \beta_{10}(\text{School Predictor Variable}) + \epsilon_{ij}.$$

The complete model substitutes Model 2 into Model 1. Note that in the analysis a single teacher level predictor or school level predictor was included, in addition to teacher level controls. The complete model below demonstrates the model used with a teacher predictor variable. In the complete model we see that teacher dissatisfaction is predicted by the primary variable of interest (Teacher Predictor Variable) while controlling for female, years of education, and whether the teacher has completed teacher training. To explore the differential effects of all teacher and school level predictor variables, results compare the corresponding coefficient ( $\beta_{4j}$ ).

$$\text{Complete Model} \quad \text{Teacher Dissatisfaction}_{ij} = \gamma_{00} + \beta_{1j}(\text{Female}) + \beta_{2j}(\text{Years of Experience}) + \beta_{3j}(\text{Teacher Training}) + \beta_{4j}(\text{Teacher Predictor Variable}) + v_{0j} + \epsilon_{ij}.$$

**4. Results** Across all three countries, teachers in high poverty schools are less satisfied with their job. Figure 1 illustrates that teachers in high poverty schools in Estonia and Latvia are more likely to want to change the school they work in, relative to their peers in low poverty schools. In both countries more than one in five teachers in high poverty schools would change schools if given the chance. A similar trend, with a greater percentage of unsatisfied teachers in high poverty schools, is found in Georgia, although the differences by school poverty level are not significant.

Figure 1: **Percentage of teachers who would like to change schools by country and school poverty level.**

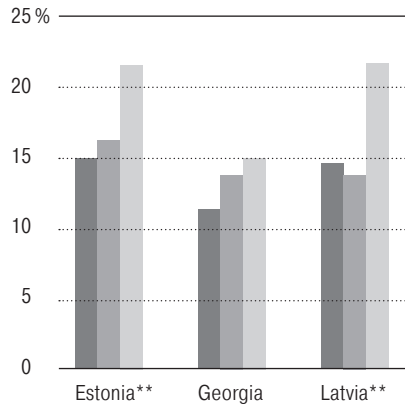


Figure 2: **Percentage of teachers who do not enjoy working at their school by country and school poverty level.**

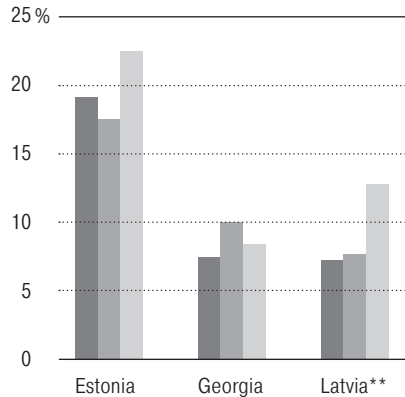
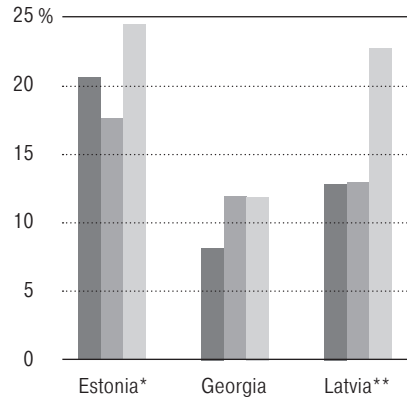


Figure 3: **Percentage of teachers who do not recommend working at their school by country and school poverty level.**



\*  $p < .10$   
 \*\*  $p < .05$

■ Low poverty  
 ■ Medium poverty  
 ■ High poverty

Figures 2 and 3 indicate that Estonia has a greater percentage of teachers across all school poverty levels that do not enjoy working at their school and would not recommend their school as a good place to work. The greatest differences between teacher satisfaction in high and low poverty schools are present in Latvia. Compared to teachers in low poverty schools, nearly two times as many teachers in high poverty schools in Latvia do not enjoy working at their school (low = 7.2%, high = 12.8%) and would not recommend their school as a good place to work (low = 12.8%, high = 22.7%). Teacher satisfaction in Georgia

Table 2: High poverty teacher profiles

Estonia	Georgia	Latvia
<ul style="list-style-type: none"> <li>• Want to change schools</li> <li>• Does not recommend their school as a good place to work</li> <li>• Work part time</li> <li>• Participated in induction program</li> <li>• Feel staff can participate in school decision making</li> </ul>		<ul style="list-style-type: none"> <li>• Want to change schools</li> <li>• Does not enjoy working at their school</li> <li>• Does not recommend their school as a good place to work</li> <li>• Work part time</li> <li>• Less experience at their school</li> </ul>

Table 3: High poverty school profiles

Estonia	Georgia	Latvia
<ul style="list-style-type: none"> <li>• Public school</li> <li>• Older principal</li> <li>• Principal with more experience as a principal</li> <li>• Principal with more experience as a teacher</li> </ul>	<ul style="list-style-type: none"> <li>• Female principal</li> <li>• Public school</li> <li>• Younger principal</li> <li>• Principal with less experience as a principal</li> <li>• Principal with more experience as a teacher</li> <li>• Provide teachers with greater autonomy</li> </ul>	<ul style="list-style-type: none"> <li>• Male principal</li> <li>• Public school</li> <li>• Principal with less experience as a principal</li> <li>• Provide teachers with greater autonomy</li> </ul>

does not significantly differ across school poverty levels, suggesting that teachers in low, medium and high poverty contexts in Georgia are, on average, equally satisfied.

Bivariate analyses were then conducted to identify teacher and school characteristics more common in high poverty schools. One way ANOVAs and chi-square tests revealed teacher and school profiles for high poverty schools in each country. Only significant differences between high poverty and low poverty schools ( $p < .05$ ) are included in the profiles. Full analyses are available from the authors upon request.

High poverty teacher profiles (see Table 2) indicate that, in addition to differences in teacher satisfaction, teachers in Estonia are more likely to work part time, have participated in an induction program, and feel staff can participate in school decision making. In Latvia, additional characteristics of teachers in high poverty schools include less overall experience at the school and a greater likelihood of working part time.

Table 3 identifies high poverty school profiles. In contrast to the non-existent statistical differences between teachers in high poverty and low poverty schools in Georgia, school level characteristics reveal several interesting differences. Specifically, high poverty schools in Georgia are more likely to have a female principal, a principal that is

**Table 4: Association between teacher control variables and whether teachers want to change schools**

	Estonia	Georgia	Latvia
Female	.830	2.739*	1.320
Years of Experience at School	.980	.999	1.006
Participated in Teacher Training	7.966**	.700	1.269
Constant	.053	.063	.144
Random Effects			
Residual	.572	1.425	.679
Model Fit Statistics			
AIC	344.10	230.85	361.12
BIC	363.14	249.04	380.40

Notes: Odds Ratios provided. Smaller AIC and BIC values indicate better model fit. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

younger, with more experience as a teacher and less experience as a principal. High poverty schools in Latvia are also more likely to be run by less experienced principals while high poverty schools in Estonia have principals with more experience both as a teacher and a principal. High poverty schools in both Georgia and Latvia are more likely to provide their teachers with greater autonomy.

To explore which factors predict teacher satisfaction in high poverty schools, separate HGLMs are conducted by country. Samples for this analysis are restricted to teachers in high poverty schools. Coefficients can therefore be compared across countries and interpreted as the mean association between the given predictor or control variable and the identified teacher satisfaction variable. Negative coefficients in all tables and figures indicate a reduction in teacher dissatisfaction.

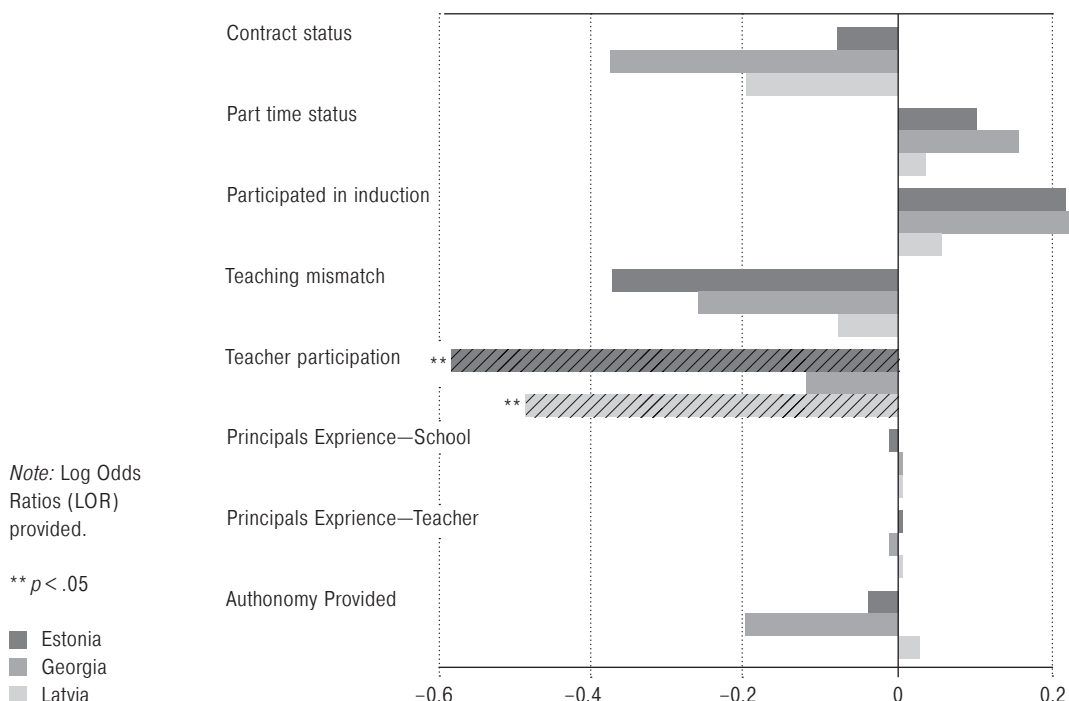
#### 4.1. Factors Associated with Teacher Dissatisfaction

Table 4 provides the odds ratio for the two level HGLM predicting whether the teacher would like to change schools. The model includes only the teacher level control variables, with the school level error term included at the second level. Results indicate that the odds of female teachers in high poverty schools in Georgia wanting to change schools is 2.739 times greater than their peers in low poverty schools ( $p < .10$ ). In Estonia, teachers in high poverty schools that have participated in teacher training are more likely to want to change schools (OR = 7.966,  $p < .05$ ). Years of experience at the school is not significantly associated with teachers' desire to change schools in any country.

Adding teacher and school level predictor variables independently to the model containing control variables revealed that the vast major-



Figure 4: **Association between teachers desire to change schools and select predictor variables**



ity of predictor variables were not associated with a teacher’s desire to change schools. As illustrated in figure 4, only the teacher’s perception of participation in Estonia and Latvia was significantly related to their desire to change schools. Results indicate that, for Estonia, the odds that teachers in high poverty schools that feel they have an opportunity to actively participate in school decisions would want to change schools is approximately 0.26 times the odds of those that do not feel teachers have the opportunity. In Latvia the odds for teachers in high poverty schools were 0.32 times that of teachers in low poverty schools, indicating that in both countries teachers that feel they can participate in school decision making are more satisfied and less likely to want to leave.

Table 5 provides the odds ratio for whether the teacher does not enjoy working at their school and teacher control variables. Of the control variables, years of experience at the current school is the only variable associated with teacher enjoyment. Although only significant in for teachers in high poverty schools in Latvia ( $p < .10$ ), the odds ratios below one suggests that teachers with more experience at the school tend to enjoy working at their school more. The direction of

**Table 5: Association between teacher control variables and whether teachers do not enjoy working at their school**

	Estonia	Georgia	Latvia
Female	1.157	.557	1.294
Years of Experience at School	.983	.997	.966*
Participated in Teacher Training	2.216	1.288	.589
Constant	.148	.101	.261
Random Effects			
Residual	.484	.620	.627
Model Fit Statistics			
AIC	359.80	167.76	270.15
BIC	378.81	186.03	289.43

Notes: Odds Ratios provided. Smaller AIC and BIC values indicate better model fit. \* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

this relationship, however, cannot be determined as those that do not enjoy working at their school may be more likely to leave their school.

Figure 5 indicates that a greater number of predictor variables are associated with teacher enjoyment. Teachers' perception that staff are included in decision making is related to greater enjoyment of their job in all three countries. Additionally, in Latvia teachers in high poverty school on a permanent contract are more likely to enjoy their job than their peers on fixed term contracts. In Estonia, teachers teaching out of their field (teaching mismatch) are less likely to enjoy their job while teachers in high poverty schools that provide greater autonomy are more likely to enjoy their job.

Table 6 provides the odds ratio for whether the teacher does not recommend working at their school and teacher control variables. Once again there are few relationships between the control variables and the included teacher satisfaction variable. The only significant result comes from Georgia where female teachers in high poverty schools are less likely to recommend working at their school than their male peers.

Similar to previous teacher satisfaction variables, teachers' perception of participation in decision making is also related to the increased likelihood that they would recommend their school as a place to work (see Figure 6). Surprisingly, teachers that teach out of their field in Latvia are more likely to recommend their school to others. Autonomy provided to teachers is related to whether the teacher would recommend the school in Estonia, with more autonomy associated with a greater likelihood to recommend. Finally, principals' experi-

Figure 5: **Association between teachers who do not enjoy working at their school and select predictor variables**

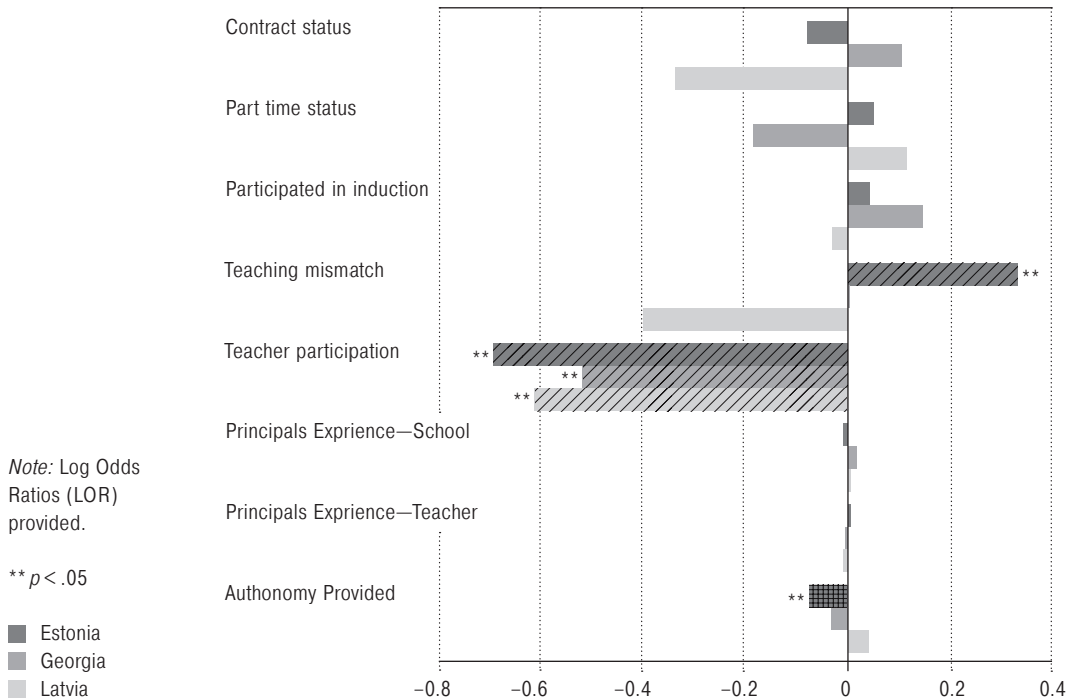
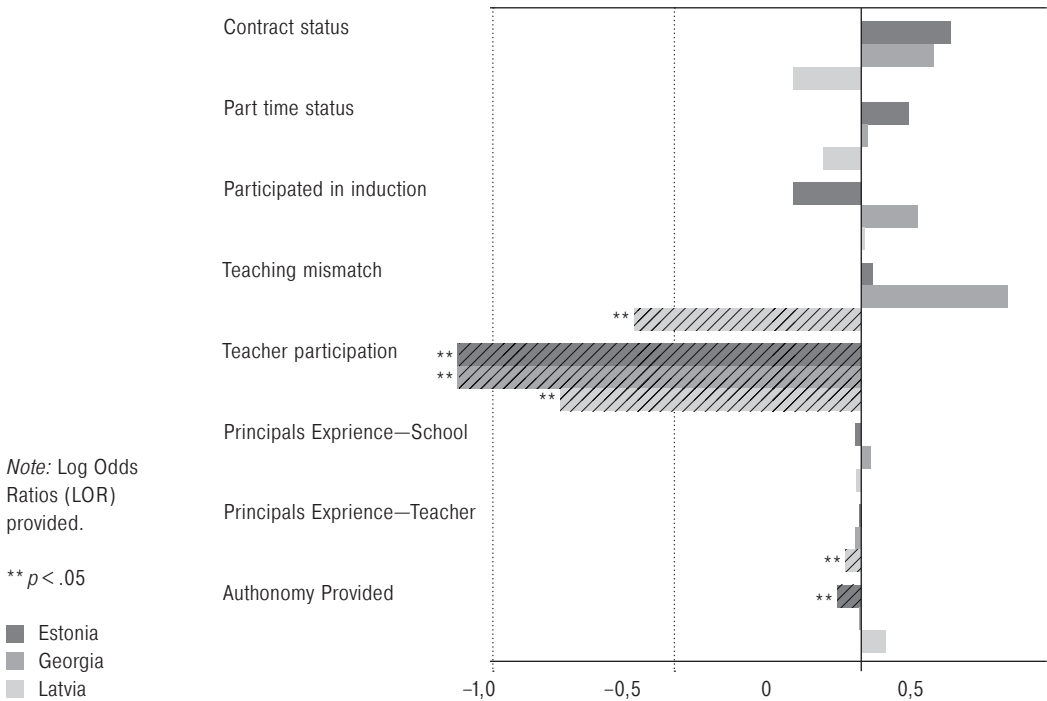


Table 6: **Association between teacher control variables and whether teachers do not recommend working at their school**

	Estonia	Georgia	Latvia
Female	1.018	.455*	.933
Years of Experience at School	.990	.978	.992
Participated in Teacher Training	1.526	1.380	1.362
Constant	.256	.256	.230
Random Effects			
Residual	.001	.312	.785
Model Fit Statistics			
AIC	381.50	214.37	373.01
BIC	400.51	232.70	392.30

Notes: Odds Ratios provided. Smaller AIC and BIC values indicate better model fit. \*  $p < .10$ ; \*\*  $p < .05$ ; \*\*\*  $p < .01$ .

Figure 6: **Association between teachers who do not recommend working at their school and select predictor variables**



ence as teachers is associated with teachers being more likely to recommend their school in Estonia and Georgia. In Estonia, the odds of a teacher not recommending their school for teachers in schools with principals that have one standard deviation more experience as a teacher is 0.77 times that of their peers with principals with the mean years of experience as a teacher. In Georgia, the difference is more substantial with the odds of a teacher with a more experienced principal 0.57 times that of their peers.

**6. Discussion**

Teachers in high poverty schools are less satisfied with their job than their peers in relatively lower poverty schools. Although the trend was present in all countries, it was most pronounced in Latvia where nearly two times as many teachers in high poverty schools responded that do not enjoy working at their school or would not recommend their school, compared to teachers in low poverty schools. Teachers in high poverty schools in Estonia are also more likely to work part time, have participated in an induction program, and feel like staff can participate in decision making. In Latvia, teachers in high poverty schools are more likely work part time and have less experience at their school.

The lack of significant differences between teachers at high poverty schools and low poverty schools in Georgia reinforces the minimal differences found in past research between high and low needs schools throughout compulsory schooling in the country. Furthermore, the situation in Georgia may be partially explained by the country's recentralization, which has limited between-school heterogeneity [Andguladze, Mindadze, 2015].

Given the demographic composition and post-Soviet context of Estonia, Georgia, and Latvia, the low satisfaction of teachers may not result in teacher attrition [Public Policy Research and Training Center, 2014]. A declining student age population and economic challenges have led to school closures, reducing the teacher-student ratio and leaving those in the profession, often thankful for their position. This is especially true in Georgia, where teaching, as a low status position, is met by drastically underfunded public education. With unemployment hovering around 30% [Andguladze, Mindadze, 2015] and declining opportunities elsewhere in education, it is perhaps wise for teachers to maintain their position, no matter how satisfying.

Yet, teacher satisfaction should be a focal point of education policy even if dissatisfied teachers are unlikely to leave. Increased teacher satisfaction has been linked to increased student achievement [Ronfeldt, Loeb, Wyckoff, 2013] and improved school climate [Darling-Hammond, 2004; Menon, Papanastasiou, Zembylas, 2008]. Results indicate that the most consistent and often the only policy-relevant factor in teacher satisfaction in Estonia, Georgia, and Latvia is a teacher's perception that staff can be involved in school decision making. For all outcome variables (except whether the teacher would like to change schools in Georgia) teachers in high poverty schools that feel staff can participate, are more satisfied than those that do not feel that opportunity is available. This is in line with the research of Hulpia et al. [2012] who found that "teachers who believe they have a voice in school decision making, report feeling more committed to the school than do their colleagues who state that they do not have opportunities to participate in school decision making" [P. 1769]. Other areas significantly related to greater teacher satisfaction include permanent contract status (in Latvia), teaching in their field of study (in Estonia), increasing autonomy provided to teachers (in Estonia), and increasing principals experience as a teacher (in Estonia and Georgia). The latter factor may indicate that principals with more experience as a teacher are more likely to include teachers in a collective school environment, practicing a transformational leadership style that is associated with decreased teacher burnout [Heidmets, Liik, 2014].

The factors associated with teacher satisfaction illustrate the complexity and challenges of incorporating education policy into the school climate. Similar to the OECD's [2016] study, which found that Latvia offered more equitable support for high needs schools but the support did not translate into an increased likelihood of teacher satis-

faction; results indicate that merely providing opportunities for teachers is not enough to ensure satisfaction. For instance, although both providing autonomy to teachers in high poverty schools and having teachers perceive participation in decision making are related to increased teacher satisfaction in Georgia, the magnitude of the effect size differs drastically with teacher perception far outweighing the effect of increased autonomy provided. Additionally, the non-significant relationship between autonomy provided and teacher satisfaction in Latvia and Estonia indicates that the challenge lies not in providing the opportunity but in having the opportunity to be meaningfully incorporated into the school climate. Future research should focus on how school policies transition from making responsibility available to making it meaningfully felt by teachers.

Finally, results support the previous work of Persevic [2011], who found that internal factors are more important for teacher satisfaction than external factors. Similar to the literature that emphasizes the importance of school climate [Darling-Hammond, 2004; Menon, Papanastasiou, Zembylas, 2008], increasing teacher satisfaction in Estonia, Georgia, and Latvia requires a collaborative process where teachers feel included as vital members of the school community and recognize their role as important contributors in school decisions. Although the policy implementation and internalization process is challenging, this study indicates that simplistic, externally driven policy solutions, such as introducing induction programs or changing the contract status of teachers, are not as effective in increasing teacher satisfaction as investments that contribute to a positive school climate where teachers feel valued and included as professionals.

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**Appendix A:  
Descriptive  
Statistics for  
Estonia**

*Notes:* Standard deviations provided in parentheses.

	Poverty		
	Low	Medium	High
Number of Teachers	1435	1305	350
Percent of Teachers	46.44%	42.23%	11.32%
Would Change Jobs if they Could	15.01%	16.22%	21.53%
Does Not Enjoy Working at their School	19.14%	17.52%	22.55%
Does Not Recommend Working at their School	20.61%	17.68%	24.63%
Female	82.65%	83.22%	84.00%
Years Experience at the School	13.66 (10.60)	14.76 (11.26)	13.68 (11.12)
Completed Teacher Training	94.69%	94.29%	92.20%
On a Permanent Contract	84.48%	84.99%	80.69%
Working Part-time	36.48%	34.52%	47.56%
Participated in Induction	17.02%	18.85%	22.74%
Teaching Mismatch	6.08%	6.16%	8.16%
Teachers Perception of Participation	80.44%	85.15%	87.13%
Private School	8.64%	1.84%	0.00%
Female Principal	63.28%	53.70%	64.57%
Principal's Years of Experience as a Principal	11.12 (8.41)	13.68 (9.70)	14.39 (11.28)
Principal's Years of Experience at the School	8.58 (7.70)	12.02 (9.41)	10.49 (9.66)
Principal's Years of Experience as a Teacher	19.90 (10.48)	24.30 (11.58)	25.11 (11.61)
Amount of Autonomy Provided to Teachers	3.93 (1.47)	4.26 (1.03)	3.91 (1.66)

**Appendix B:  
Descriptive  
Statistics for  
Georgia**

	Poverty		
	Low	Medium	High
Number of Teachers	1504	611	344
Percentage of Teachers	61.16%	24.85%	13.99%
Would Change Jobs if they Could	11.33%	13.72%	14.92%
Does Not Enjoy Working at their School	7.43%	10.00%	8.49%
Does Not Recommend Working at their School	8.03%	11.80%	11.80%
Female	81.12%	86.91%	81.40%
Years Experience at the School	17.50 (12.79)	18.91 (11.88)	18.26 (12.39)
Completed Teacher Training	90.15%	92.40%	91.15%
On a Permanent Contract	16.39%	17.12%	15.09%
Working Part-time	54.55%	54.87%	60.59%
Participated in Induction	14.90%	14.29%	13.33%
Teaching Mismatch	7.50%	6.69%	5.3%
Teachers Perception of Participation	91.40%	92.16%	92.64%
Private School	17.29%	0.00%	0.00%
Female Principal	55.85%	72.88%	76.16%
Principal's Years of Experience as a Principal	9.84 (8.31)	9.74 (8.30)	7.93 (4.73)
Principal's Years of Experience at the School	8.57 (6.71)	7.61 (6.08)	8.94 (9.11)
Principal's Years of Experience as a Teacher	22.91 (10.66)	22.81 (10.01)	24.01 (10.96)
Amount of Autonomy Provided to Teachers	.74 (1.07)	1.13 (1.30)	1.32 (1.35)

**Appendix C:  
Descriptive  
Statistics for  
Latvia**

	Poverty		
	Low	Medium	High
Number of Teachers	928	553	310
Percent of Teachers	51.81%	30.88%	17.31%
Would Change Jobs if they Could	14.64%	13.75%	21.65%
Does Not Enjoy Working at their School	7.16%	7.77%	12.78%
Does Not Recommend Working at their School	12.81%	12.94%	22.73%
Female	88.80%	87.50%	87.32%
Years Experience at the School	15.54 (10.31)	16.42 (10.54)	14.03 (10.64)
Completed Teacher Training	91.18%	90.35%	90.68%
On a Permanent Contract	92.70%	93.51%	90.70%
Working Part-time	14.58%	19.40%	20.85%
Participated in Induction	36.63%	37.38%	38.87%
Teaching Mismatch	8.73%	9.42%	10.95%
Teachers Perception of Participation	84.86%	84.79%	84.90%
Private School	1.82%	3.01%	0.00%
Female Principal	75.89%	52.12%	80.56%
Principal's Years of Experience as a Principal	12.93 (9.15)	17.27 (7.83)	11.67 (7.47)
Principal's Years of Experience at the School	12.16 (9.73)	13.26 (8.59)	12.66 (6.91)
Principal's Years of Experience as a Teacher	26.00 (10.99)	28.17 (12.00)	26.74 (10.30)
Amount of Autonomy Provided to Teachers	3.29 (1.69)	3.06 (1.71)	3.63 (1.23)