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Student Well-being Factors: A Multilevel Analysis of PISA 2015 International Data

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Abstract:

Purpose: *The aim of this paper is to determine whether student well-being is correlated mainly with individual, school- or system-level factors. Paper aims to fill gap in understanding wellbeing by developing a model of student subjective well-being that separates relations at different levels and controls for a variety of personal and education-related factors.*
Design/Methodology/Approach: *We develop a multilevel model to explain variation at the individual and school level in student subjective life satisfaction. We use newly constructed variables that are strongly associated with student well-being. We estimate variance components at the student and school level.*
Findings: *The results show that individual factors play the most important role in explaining wellbeing - positive relationships with parents and peers are crucial.*
Practical Implications: *Improving discipline, limiting bullying and test-related anxiety might have positive impact on student life satisfaction, but the results suggest that individual and family factors, which are usually beyond education policy, play much more important role in this area.*
Originality/Value: *Well-being is one of the key issues in education and it refers to the psychological, cognitive, social and physical factors to live a fulfilling life. At the same time this issue is extremely hard to measure and uncover. This paper proposes a new look at the student well-being data from PISA 2015.*

Keywords: *PISA, multilevel analysis, wellbeing.*

JEL Codes: *I20, I30.*

Paper type: *Research article.*

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1. Introduction

The PISA 2015 assessment focused on the science skills of 15-year-olds, but it also measured student well-being. For the first time, one of the PISA report volumes was devoted to student well-being and included numerous statistics describing student opinions and attitudes related to perceptions of relationships in their schools and feelings towards other students and school in general (OECD, 2017). The original OECD report, however, is mostly descriptive and analyses only selected data. Some data were not thoroughly analyzed; for example, an index reflecting student perception of bullying was not constructed due to non-systematic patterns of item responses across countries. Also, data on student truancy were analyzed item by item only without more in-depth regression analysis. Thus, although the main results were already published, this first international study of student achievement and well-being still provides multiple opportunities for more advanced statistical analysis.

In this paper, we develop a complex multilevel model to decompose effects into individual and school level. We also explore new variables estimated from the PISA datasets that were not used in the original OECD analysis. New bullying and truancy indices are estimated using IRT models after excluding countries that do not meet basic modeling requirements. This way, we open new possibilities to analyze the data with multilevel and regression models and obtain new insights into the relationship between student well-being, compositional school effects, and individual effects of critical variables measured in PISA. The multilevel model is used to analyze how student well-being is related to student-level and school-level factors. Several PISA questions measure relative student well-being in the context of their schools, but OECD reports the results as an objective internationally-comparable measure. Initial analysis of such items suggests that international comparisons are necessarily biased in this case. Simple analysis (e.g., comparisons of averages across countries) neglects students' natural reference, which is their peer group. The multilevel model decomposes relationships into within and between school effects. Our analysis shows how the results change depending on how the reference group is defined.

The paper explains how well-being variables differ across schools and countries related to other indicators, including student socioeconomic background, attitudes, and behavior. We mainly focus on the relationship between well-being, socioeconomic status, gender, student truancy, and perceived school discipline. We also explore how student achievement is related to student subjective perception of well-being.

2. How to Measure Student Subjective Well-being?

PISA 2015 states that student well-being “refers to the psychological, cognitive, social and physical functioning and capabilities that students need to live a happy and fulfilling life" (OECD, 2017, p. 61). Thus, well-being is defined as a multidimensional concept and PISA offers several indicators to capture different aspects of student well-being. However, the main scale on which countries are compared is related to a simple measurement of subjective student well-being on a scale from 0 to 10 using the question "Overall, how satisfied are you with your life as a whole these days?". While the OECD reports claims that its goal is not to rank countries according to this or other well-being measures, such rankings are provided in the report and were widely disseminated by global and national media. Media provided global rankings of student "happiness" (for example see Morrison, 2017) and national media reported, for example, that "UK Teenagers Are Among The Most Unhappy In The World, PISA Data Reveals" (Gray, 2017). In countries like Finland, the results sparked a lively debate about student happiness and the role of schools in shaping it.

The subjective measure of well-being based on a simple question and a numerical response scale is widely used by researchers and in policy-oriented surveys. Research shows that is provides reasonable measure of subjective well-being and the results usually correlate as expected with other measures of well-being, which are more complex and which, for example, provide objective measures of health or economic situation (Layard, 2010). Literature on this topic mainly confronts hard measures of financial or economic well-being with subjective measures arguing that the latter better reflect how policy affects people's lifes. However, PISA is the first application of this approach to measure student subjective well-being in an international perspective. Thus, while the research with adolescents demonstrates that this type of questions function similarly well as when applied to adults, it is still an open question whether this approach produces reliable comparisons between countries.

OECD used the same question and measurement scale for the most recent PISA 2018 study and argues that student reponses correlate with other dimensions of well-being measured in this study (e.g., physical well-being) or attitudes and emotions (e.g. anxiety). Thus, the collected data demonstrate that the measures of student life satisfaction are related to other well-being measures at the individual level. However, the latest OECD report states that "As did PISA 2015, PISA 2018 finds that the average student in OECD countries is largely satisfied with life (…). However, PISA 2018 data reveal large between-country differences in students' life satisfaction." (OECD, 2019, p. 155). While the report provides some caution that "To some extent, these dissimilarities may reflect the cultural differences with which students respond to survey questions.", it also states that "PISA reveals not just large differences between countries and cultures but, as discussed below, also within them, when considering different social and demographic groups." (OECD, 2019, p. 155). The OECD report then focuses on comparisons between countries and sepearately analyses how different student and school characteristics, within countries, are correlated with subjective well-being. The report does not provide a detailed analysis of how much of the variation in student subjective well-being is associated with between country differences, before and after taking into account different individual factors. Thus, it does not discuss whether student well-being is correlated mainly with individual, school- or system-level factors.

The purpose of our paper is to fill this gap by developing a model of student subjective well-being that separates relations at different levels and controls for a variety of personal and education-related factors. Similar approaches were applied to different aspects of student well-being and decomposition of results at the student and school level (Govorova *et al.,* 2020). We develop a similar analysis for the subjective well-being measure, but we also add focus on between country comparisons. Comparisons between countries, usually in the form of rankings, are reported in all international assessments and grab attention of the media and policy makers across the world. PISA study has a large impact on policy making and it is a major driver for education reforms (Crato, forthcoming; Volante, 2017). Also, student well-being is increasingly on the agenda of policy makers in education.

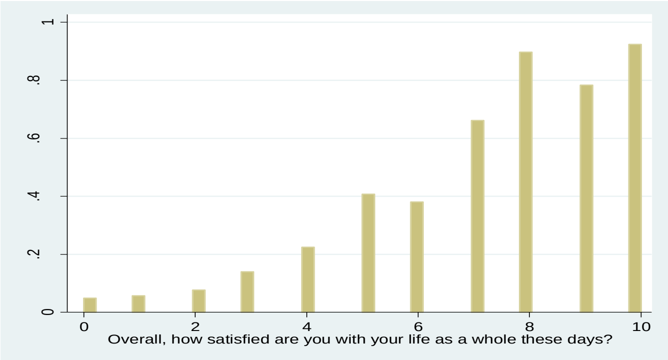
Thus, it is important to provide evidence on whether the measures used in the international studies provide reliable comparisons between countries, and on factors associated with student life satisfaction, especially those that could be affected by education policy or teaching practice.

3. Data

PISA 2015 focuses on science achievement. The results are available as public datasets with microdata at the student and school level. Data on student well-being (life satisfaction and bullying) are available as separate datasets with the information provided for selected countries. We use data for all countries which collected student responses to a question about life satisfaction. In these countries, only computer-based tests were administered. In total, we analyze data from 44 countries and a sample of more than 200 thousand students coming from more than 10 thousand schools.

Student well-being in PISA 2015 was measured using the following question: "Overall, how satisfied are you with your life as a whole these days?". Students responded to this question on a scale from 0 to 10 using a slider. In general, most students ranked themselves above the middle of the scale, with more than half of the responses above 7. As this is the only question in PISA 2015 related to general student well-being (subjective life satisfaction), we will use it as our dependent variable. Figure 1 shows the distribution of this variable using data from all participating countries.

Figure 1. *Histogram of responses to the question about life satisfaction*



Source: *Own study.*

PISA collects extensive data using student, teacher, school, and parent questionnaires. We use these data to select variables related to student well-being and reflect personal, family, and school characteristics. Annex tables provide descriptions of variables used in the analysis and their descriptive statistics. To control for individual differences, we used indicators of student gender, socioeconomic and immigrant background, age and school level (lower secondary compared to the baseline primary level). We also control student science performance (first plausible value in science) and whether they repeated a grade. Student achievement is estimated using so-called plausible values.

In PISA 2015, ten plausible values are provided in the datasets, and for models with student achievement as a dependent variable, it is essential to replicate all analyses ten times and estimate measurement error. However, we use only the first plausible value. It is an unbiased estimate of student achievement and can be used as an independent variable without introducing bias in the regression model.

We included additional variables that are potentially related to student well-being, and which are based on student questionnaire responses. The index of enjoyment of science reflects how students enjoy learning science. Test anxiety and motivation to achieve are measured through questions related to attitudes towards school assessments and the importance of achieving educational goals, respectively. Indices of disciplinary climate and of truancy measure self-perceived student discipline. The sense of belonging reflects student feelings about their school and schoolmates, while the index of bullying provides a measure of physical and psychological bullying. Finally, the index of teacher fairness reflects student-teacher relations in a school, while the index of emotional support reflects student-parents relations.

All indices available in PISA datasets are standardized to have a mean of zero and a standard deviation of 1 on average across OECD countries (weighting each country equally). The index of truancy is not available in the original PISA dataset. We estimated it using the polychoric correlations PCA model (Kolenikov, 2004) based on student responses about skipping classes and being late to school. Similarly, the index of bullying was also constructed for the purposes of this research applyaing a similar PCA model to student responses about different forms of bullying. Finally, also the index of teacher unfairness was estimated using the PCA model to replace the summative index of student responses available in the original datasets.

We recoded missing data for two variables only. We replaced missing data for students repeating a grade with 0 (no repetition) as most students do not repeat a grade. We also replaced the indicator of a school level (ISCED 2 or 3) with a school mean and then, if that was also missing, with a country mean. For all other variables, we dropped observations with missing data. We also dropped data for Italy and Slovenia, because these countries did not provide data on student disciplinary climate and bullying.

4. Methods

We are interested in decomposing variance into student- and school-level components and to see what explanatory variables are associated with student well-being variance at each level. As we use international data, we also have to take into account differences in outcomes across countries. We estimate regression and multilevel regression models to decompose variance and to estimate associations between student subjective life satisfaction and explanatory variables.
The basic two-level multilevel model can be written as:

$$y_{ijk} = \mathbf{X\beta} + v_{jk} + \varepsilon_{ijk}$$

where yisg, is the life satisfaction measure for student i in a school j and in a country k. X is a vector of individual, school and country characteristics and β are fixed coefficients to be estimated. We are interested in estimating the residual variance of εijk and school random effects variance of v_{jk}. As usual, we assume that ε_{ijk}~$N(0,\sigma_\varepsilon^2)$, v_{jk}~$N(0,\sigma_v^2)$, and that random effects are independent.

It is possible to estimate country effects directly using a three-level model with random effects at the country level. One reason for estimating the two-level model only is theoretical - the assumption that country means are randomly distributed is disputable. A second reason is practical. PISA samples in most countries are drawn through a complex sampling scheme where schools are Primary Sampling Units and students are randomly selected within each sampled school. The two-level multilevel model reflects this sampling scheme and allows for using sampling weights that take into account the unequal sampling probability of schools and students within schools. While the inclusion of survey weights in the two-level models is well-understood, it is less obvious how to use weights in a pooled sample of students and schools from different countries. For the two-level model we use student and school weights provided in the PISA datasets to take into account sampling probabilities and to estimate population models. We use survey weights adjustments for the two-level multilevel models as discussed in Rabe-Hesketh and Skrondal (2006).

Our main model is the two-level model, but we also estimate a model with country fixed effects. We compare results across two-level models with and without country effects to shed a light on how variation in student life satisfaction differs across countries and whether it affects variance at the individual and school level.

In the multilevel models, estimates depend on how the variables are centered or whether variance estimates at a value of zero of explanatory variables have a meaningful interpration (Hox, 2010). In education research the typical approach is to center variables around school means. In our case, the original variables are on different measurement scales with different meaning assigned to a value of 0. For example, student age of 0 is meaningless, while most IRT-derived indices have a mean equal to zero for OECD countries when weighting countries equally. To make results comparable across variables and models, we re-standardize all explanatory variables to have mean 0 and standard deviation 1 in our sample of countries, including only cases with non-missing data on all indicators, and weighting observations with the original student weight.

Moreover, for the multilevel models, we include separate student- and school-level variables for a set of predictors. For these variables, we create school-level variables with a school average of a student-level indicator. Then, we recalculate student-level variables by centering them around school means. Both sets of variables are used in the multilevel model to decompose their associations with life satisfaction measure into within- and between-school associations.

5. Results

The life satisfaction measure is on the ordinal scale. Thus, first we test if different regression models that recognize or not the ordinal structure of our outcome variable produce different results. We estimate the ordered logit regression that directly models the ordinal nature of the life satisfaction measure in PISA. We compare these results with linear regression, two-level multilevel regression with the same set of variables, and with logit models that use life satisfaction measure recoded at different thresholds into 0/1 categories. Table 1 compares the results from these different models. While linear regression coefficients and logit or ordered logit coefficients are not directly comparable, one can notice the estimates fo various indicators are in similar relative order in their strength of association with the life satisfaction index. Thus, one can conclude that in relative terms, using linear regression or ordered logit model gives the same conclusion regarding the direction and relative strength of association with the student well-being measure.

Results presented in Table 1 suggest that while all explanatory variables seem to be strongly associated with life satisfaction measure, there is large portion of the unexplained variance in each model. In linear regression 20% of variance in life satisfaction is explained, while in ordered logit it goes down to 6% only.

Across all predictors, which are standardized to have the same mean and standard deviation, parents emotional support has the strongest association with life satisfaction. Thus, a signel predictor reflecting relationships in student family is associated with variation in student well-being more strongly that any other school-related variable. Individual characteristics are less important (age, socioeconomic status, migrant background, grade repetition) except gender with female students reporting lower life satisfaction on average.

Interestingly, higher student science performance is associated with lower overall life satisfaction. Less surprisingly, enjoyment of learning science and strong achieving motivation are associated positively. Across other school-related variables, discipline is also associated with life satisfaction (good disciplinary climate and smaller truancy). Students with a stronger sense of belonging report in general higher life satisfaction, while those exposed to bullying, teacher unfairness, and test anxiety report lower life satisfaction levels.

Table 1. *Comparison of different regression models with the same set of explanatory variables.*

Variable	linear regression	logit1	logit2	logit3	ordered logit
ISCED3 (compared to ISCED2)	-0.05***	-0.11***	-0.10***	-0.06***	-0.10***
student age	0.01**	0.02***	0.02***	0.02**	0.02***
migrant background	-0.03***	-0.07***	-0.08***	-0.07***	-0.06***
Female	-0.09***	-0.20***	-0.17***	-0.23***	-0.20***
repeated a grade	-0.03***	-0.06***	-0.04***	-0.01*	-0.05***
SES (ESCS index)	0.03***	0.07***	0.04***	0.00	0.05***
science performance	-0.14***	-0.31***	-0.49***	-0.74***	-0.38***
enjoyment of science	0.06***	0.13***	0.14***	0.17***	0.14***
school disciplinary climate	0.04***	0.07***	0.06***	0.05***	0.07***
Truancy	-0.02***	-0.04***	-0.02**	0.00	-0.04***
sense of belonging to school	0.12***	0.27***	0.22***	0.16***	0.24***
Bullying	-0.09***	-0.16***	-0.15***	-0.14***	-0.18***
teacher unfairness	-0.07***	-0.14***	-0.12***	-0.11***	-0.13***
achieving motivation	0.03***	0.09***	0.15***	0.20***	0.10***
test anxiety	-0.13***	-0.31***	-0.30***	-0.30***	-0.30***
parents emotional support	0.25***	0.51***	0.48***	0.42***	0.52***
R2 (linear regression) or pseudo R2	0.20	0.12	0.11	0.12	0.06
N	226 916				

Note: *All models regressed on standardized variables without survey weights; for logit models 1, 2, and 3, threshold for the base group was life satisfaction below 8, 9 and 10, respectively.*

Source: *Own study.*

Interestingly, higher student science performance is associated with lower overall life satisfaction. Less surprisingly, enjoyment of learning science and strong achieving motivation are associated positively. Across other school-related variables, discipline is also associated with life satisfaction (good disciplinary climate and smaller truancy). Students with a stronger sense of belonging report in general higher life satisfaction, while those exposed to bullying, teacher unfairness, and test anxiety report lower life satisfaction levels.

Thus, from regression analysis, we learned that nearly all indicators are associated with student life satisfaction as expected. The negative relationship with science achievement is the only exception. Now we will move to multilevel models to assess variance components and to decompose association between student and school levels. The results are presented in Table 2.

Table 2. *Multilevel models explaining variation in student self-reported general life satisfaction.*

	Model 1	Model 2	Model 3
Dependent variable: Overall, how satisfied are you with your life as a whole these days?			
Student level (school mean centered)			
ISCED3 (base=ISCED2)		-0.05***	-0.01
Age		0.00	-0.01**
Migrant status		-0.01	-0.01
Female		-0.09***	-0.09***
Grade Repetition		-0.03***	-0.02***
Economic, social and cultural status		0.05***	0.05***
Science performance (first PV)		-0.11***	-0.11***
Enjoyment of science		0.04***	0.04***
Disciplinary climate in science classes		0.05***	0.05***
Truancy		-0.04***	-0.04***
Bullying		-0.11***	-0.11***
Sense of Belonging to School		0.12***	0.12***
Teacher unfairness		-0.06***	-0.06***
Achieving motivation		0.04***	0.04***
Test Anxiety		-0.12***	-0.12***
Parents emotional support		0.24***	0.24***
School level (school mean)			
Economic, social and cultural status		0.04**	-0.03*
Science performance (first PV)		-0.22***	-0.11***
Enjoyment of science		0.17***	0.06**
Disciplinary climate in science classes		0.12***	0.06**
Truancy		0.00	-0.04*
Bullying		0.00	-0.10***
Sense of Belonging to School		0.02	0.09***

Teacher unfairness		-0.11***	0.00
Achieving motivation		-0.08***	0.04
Test Anxiety		-0.14***	-0.16***
Parents emotional support		0.31***	0.29***
Constant	0.08***	0.03***	-0.02
Country fixed effects			YES
School level variance	0.074	0.046	0.013
% of school variance explained		38%	82%
Student level variance	0.939	0.772	0.771
% of student variance explained		18%	18%
Intraclass correlation	0.073	0.056	0.017
Log pseudolikelihood	-6600.4	-6124.3	-6066.0
N of schools	10056	10056	10056
N of students	226916	226916	226916

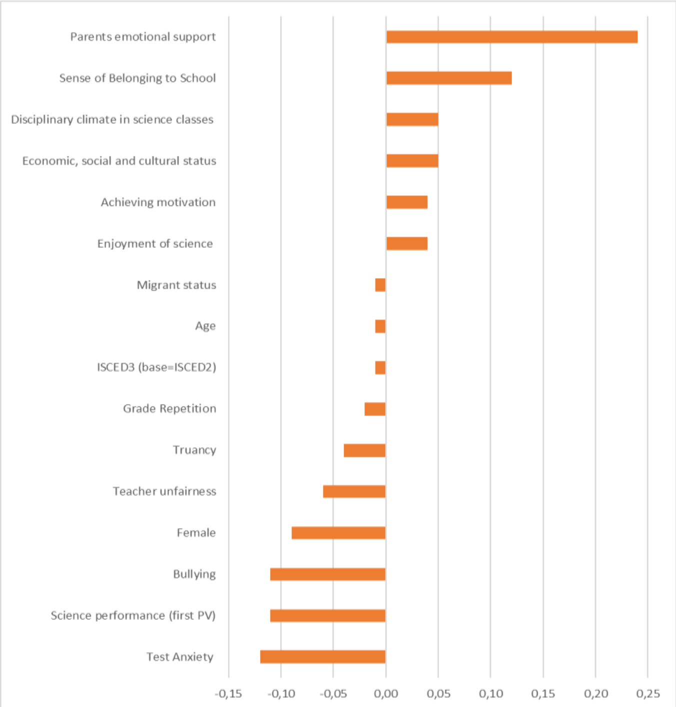
Note: ** p<0.05, ** p<0.01, *** p<0.001*
Source: *Own study.*

First, we compare variance components. Variance is decomposed into student and school level. Model 1 provides estimates of variance components without any covariates. Intraclass coefficient shows that only 7% of the total variance is associated with schools. Thus, that indicator alone suggests differences in student life satisfaction are mostly at the individual level.

Second, we compare the empty model (Model 1) to models with covariates. In Model 2 we add a set of covariates at the student and school level. In Model 3 we also add country fixed effects to exclude between-country differences in life satisfaction. Model 2 explains 38% of the school level variance, while Model 3 explains 82% of the school level variance. Thus, after adding country fixed effects only a small portion of between-school variance in student life satisfaction remains unexplained. At the student level, Model 2 explains 18% of the variance and that remains unchanged with country fixed effects added. Thus, individual differences in life satisfaction are not related to between-country differences, but most of the school-level variation is related to differences between school across countries.

Several explanatory variables are estimated at the student level only. Age, being in an upper secondary school (ISCED3), and migrant status, have an only small association with life satisfaction. Grade repetition is negatively but weakly associated with life satisfaction. The largest difference is between males and females, with girls reporting life satisfaction lower by around 1/10 of standard deviation.

Figure 1. *Standardized coefficients for student-level within-school association with life satisfaction.*



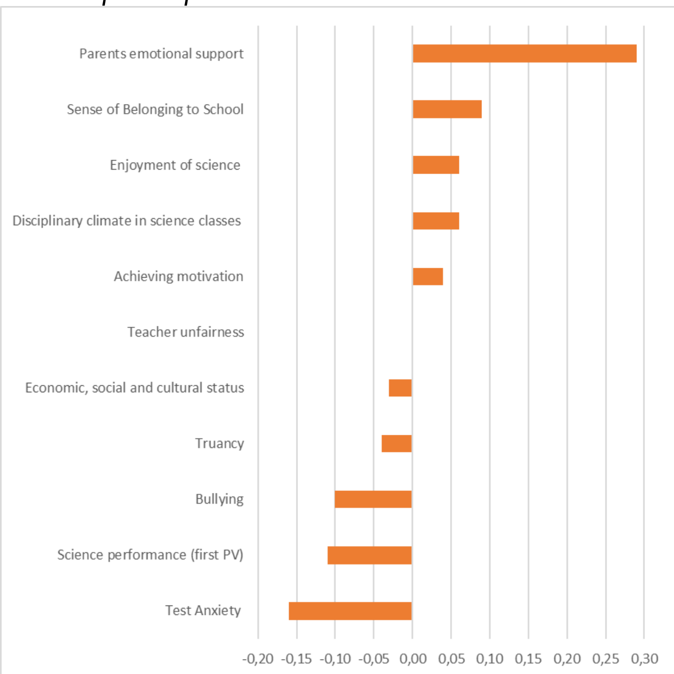
Source: *Own study.*

Student socioeconomic background is measured by the PISA index of economic, social and cultural status. It is a complex, IRT-derived index, which is based on parents occupational status and education level, but also responses to questions about home possessions (consumption goods, cultural goods, and educational resources). In our model, its association with life satisfaction is rather weak. At the individual level, the increase of one standard deviation in socioeconomic status is associated with an increase of 1/20 of standard deviation in life satisfaction. At the school level association is weak and insignificant at the 1% level.

Interestingly, science performance is negatively associated with life satisfaction. At the individual level, an increase in science performance of one standard deviation is associated with a decrease of 1/10 of standard deviation in life satisfaction, and this result is unaffected by inclusion of country fixed effects. Thus, it is not related to differences between countries in both performance and reported life satisfaction. At the school level, an increase of one standard deviation in science performance is associated with lower life satisfaction by around 1/5 of standard deviation, but it diminishes to 1/10 of standard deviation after controlling for between-country differences. The results suggest that better science performance could come at the cost of lower life satisfaction, while a purely correlational nature of this association should be recognized. On the other hand, enjoyment of learning science is positively associated with life satisfaction both at the individual and school level, so learning science in a way that is more fun to students might mitigate the negative association with performance.

A set of variables is related to school disciplinary climate and bullying. The better disciplinary climate in science classes (as reported by students), lower truancy, and lower exposure to bullying are all associated with improved life satisfaction, both at the individual and school level. These variables remain strongly associated with life satisfaction after the inclusion of country fixed effects, so they are robust to between countries cultural differences. A more disciplined climate and limitation of bullying seem like the most important factors for student life satisfaction.

Figure 2. *Standardized coefficients for school-mean compositional variables association with life satisfaction*



Source: *Own study.*

A higher sense of belonging to a school and lower perceived teacher unfairness are associated with higher life satisfaction at the individual level, while at the school level association for both indicators depends whether country fixed effects are included or not. School average sense of belonging is positively associated after the inclusion of country fixed effects, while the association with school average teacher unfairness disappears after controlling for between-country differences.

Students who are strongly motivated for achievement are also reporting slightly higher life satisfaction and that relationship holds only at the individual level, with school average effect disappearing after controlling for between-country differences. The last two variables are strong and consistent predictors of student life satisfaction: test anxiety is negatively associated both at the individual and school level, while parental emotional support is the strongest predictor of life satisfaction with students reporting one standard deviation stronger support from parents also report ¼ standard deviation higher life satisfaction. Moreover, an increase in school average of parents emotional support is associated with improvement of 1/3 standard deviation in life satisfaction. The last finding is interesting as it suggests that differences in parental emotional support across schools are strongly associated with life satisfaction, even after controlling for between-country differences. That might show self-selection to schools by students and parents or compositional effects of school relationships between students, parents, and teachers. It also shows that even at the between-school level the strongest predictor of life satisfaction is related to student family.

6. Discussion

This paper proposes a new look at the student well-being data from PISA 2015. We develop a multilevel model to explain variation at the individual and school level in student subjective life satisfaction. We use newly constructed variables that are strongly associated with student well-being. We estimate variance components at the student and school level. We also estimate models with country fixed effects included to see how estimates change when between-country differences in life satisfaction are controlled for. Based on the results, we draw conclusions related to the measurement of student well-being but also for education policy and practice.

Results presented in this paper demonstrate that most of the variation in PISA life satisfaction measure is at the individual level. Schools play a minor role in shaping student life satisfaction and most differences between schools in this regard are related to family compositional effects or country effects, and not to the effects of important educational factors or practices. Thus, one can question the usefulness of such measures for an educational study with ambitions to inform policymakers and school practitioners. A more sophisticated approach is needed that distinguishes between different factors associated with student well-being that are related to existing policies and practice. PISA provides various measures in different dimensions of student well-being. Especially those related to cognitive well-being provide useful insights into differences between schools, but even in this case contribution of schools to student well-being is limited (Govorova et al., 2020). Thus, the results of this and other studies pose a question whether student well-being can be indeed shaped by education or school-level policy.

The measurement of student well-being in PISA needs development, especially in the measures of life satisfaction. Using a simple ranking question where students estimate their life satisfaction on a scale from 0 to 10 is an approach that lacks sophistication and can provide hard-to-interpret comparisons, especially in an international context. On the most basic level, most students select top categories and responses do not provide sufficient variability to perform a more sophisticated statistical analysis. Besides, student response styles can profoundly affect the outcome, especially with known differences in response patterns between gender and countries. Thus, while similar questions are widely used in national studies within similar cultures, it is questionable whether they provide a reliable instrument for cross-country comparisons.

While our model was able to explain most of the variation at the school level, there is remaining variation at the student level that is not explained by any of the student characteristics collected in PISA. That suggests that PISA 2015 instruments are subject to considerable measurement error and the background data collected in the study are not sufficient to understand factors associated with student well-being. Further advancements in defining, measuring and relating student well-being to policy and practice are necessary.

The multilevel model we employed to decompose variance and estimate associations at the student and school level with life satisfaction shows that the most important are factors at the individual level. Among them, the strongest association is observed with emotional parent support. Second is the sense of belonging, which summarizes student feelings about a connection to his or her peers. These two factors show that relationships with parents and peers are the most important factors associated with student life satisfaction. Not surprisingly, bullying is an important negative factor associated with lower student life satisfaction. However, equally strongly and negatively associated with life satisfaction are science performance and test anxiety. Overambitious students who are not supported in lowering their stress are also those who report lower life satisfaction.

The effects at the school level are much weaker and associated with only small part of variation in student life satisfaction (around 7% of the total variation). Even at this level, the strongest is the association with school average emotional parent support, which is a family-related compositional effect. Less surprising is that higher sense of belonging at the school level is also associated with better average life satisfaction among students. However, the effect is weaker at the school level than at the student level suggesting that individual factors play here a more important role than the school compositional effects. Negative associations at the school level mimic those at the individual level. Higher science performance, text anxiety, and occurrence of bullying are all associated with lower student life satisfaction. In this case, the findings confirm intuitions that test-related stress and bullying are one of the most detrimental factors to student well-being and should be addressed by policy and changes in school practice. However, even in this case the associations are related to only a small proportion of student life satisfaction variance.

The results are correlational and show how student and school level compositional effects are associated with student life satisfaction across 44 countries and in a sample representative to a population of more than 13 million of 15-year-olds. The results suggest that individual factors play the most important role. Positive relationships with parents and peers are crucial for student well-being. It is hard to address these factors through school-level policies and creating rankings of countries in reported life satisfaction seem to be misleading as it suggests that country-level education policies might provide a way to improve student life satisfaction. Improving discipline, limiting bullying and test-related anxiety might have positive impact on student life satisfaction, but the results suggest that individual and family factors, which are usually beyond education policy, play much more important role in this area.

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ANNEX with descriptive statistics:

		life satisfaction	escs	science score	science enjoyment	discipinary climate	truancy	sense of belonging	bullying	unfair teacher	motivation to achieve	text anxiety	parents emotional support
ARE	mean	-0.01	0.82	-0.29	0.31	-0.06	-0.04	0.05	0.21	0.25	0.63	0.02	0.07

	SD	1.06	0.63	0.98	1.02	1.03	0.94	0.89	1.2	1.14	0.99	0.95	0.92
	min	1.15	3.03	2.87	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.23	-3.4	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
AUT	mean	0.07	0.53	0.34	-0.42	0.11	-0.34	0.63	-0.02	0.18	-0.58	-0.33	0.32
	SD	0.93	0.72	0.92	1.19	1.11	0.86	1.27	0.93	1.04	1.04	1.05	0.93
	min	1.15	3.01	3.95	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.22	-2.71	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
BEL	mean	0.05	0.53	0.3	-0.02	-0.33	-0.23	0.14	0	0.09	-0.56	-0.21	0.01
	SD	0.83	0.77	0.88	1.06	1.08	0.85	0.87	0.89	0.97	0.91	1.05	0.97
	min	1.15	2.29	2.82	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.67	-2.25	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
BGR	mean	0.02	0.41	-0.1	0.1	-0.29	0.47	-0.19	0.17	0.31	-0.31	-0.26	0.09
	SD	1.07	0.8	0.96	0.95	1	1.22	0.97	1.12	1.04	1.02	1.08	0.96
	min	1.15	2.64	3.25	1.88	1.8	3.66	2.74	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.09	-3.34	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
BRA	mean	0.08	-0.29	-0.53	0.05	-0.32	0.28	0.05	-0.1	-0.13	-0.1	0.44	0.05
	SD	1.01	0.99	0.89	0.91	0.98	1.03	1.03	0.95	0.91	0.83	0.86	0.96
	min	1.15	2.69	2.67	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.84	-3.54	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
CHE	mean	0.17	0.53	0.36	-0.16	-0.06	-0.27	0.5	0	0.04	-0.75	-0.67	0.31
	SD	0.84	0.78	0.97	1.1	1.06	0.9	1.07	0.9	0.97	0.95	0.99	0.93
	min	1.15	2.43	2.96	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.65	-2.65	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
CHL	mean	-0.01	0	-0.23	-0.11	-0.23	-0.07	0.1	0	-0.18	0.06	-0.12	0.04
	SD	1.01	0.94	0.85	1.04	0.89	0.83	1.04	0.92	0.83	0.98	0.97	1.13
	min	1.15	3.02	2.54	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.46	-2.98	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
COL	mean	0.23	-0.45	-0.58	0.11	-0.07	0.24	-0.17	0.04	-0.14	0.26	0.36	0.03
	SD	1.01	0.97	0.79	0.92	0.89	0.98	1.04	0.94	0.93	0.79	0.79	1.03

	min	1.15	2.28	2.68	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.84	-3.31	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
CRI	mean	0.37	-0.28	-0.56	0.15	0.02	0.3	-0.01	0.01	-0.28	0.27	0.43	0.43
	SD	0.91	0.99	0.71	1.01	0.95	1.01	1.25	0.96	0.84	0.86	0.93	0.96
	min	1.15	2.72	1.96	1.88	1.8	3.66	2.8	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.08	-3.02	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
CZE	mean	-0.12	0.23	0.24	-0.51	-0.35	-0.32	-0.12	0.16	0.04	-0.56	-0.41	-0.3
	SD	0.98	0.67	0.93	0.94	1.05	0.77	0.8	1.08	0.98	0.85	0.93	0.93
	min	1.15	3.37	3.05	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.23	-2.64	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
DEU	mean	-0.04	0.53	0.5	-0.34	-0.08	-0.37	0.42	-0.06	0.13	-0.68	-0.57	0.2
	SD	0.95	0.8	0.95	1.17	0.95	0.8	1.08	0.86	0.96	0.97	1	0.98
	min	1.15	2.77	3.37	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.48	-3.15	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
DOM	mean	0.51	-0.27	-1.28	0.34	-0.07	0.4	-0.17	0.13	-0.11	0.1	0.25	-0.05
	SD	0.94	0.92	0.72	1.04	1.01	1.01	1.27	1.09	0.96	0.94	0.96	1.19
	min	1.15	2.25	1.65	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.3	-3.38	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
ESP	mean	0.05	-0.03	0.22	-0.03	-0.2	-0.01	0.62	-0.13	-0.05	-0.4	0.21	0.12
	SD	0.87	1.02	0.88	1.06	0.97	0.96	1.18	0.86	0.95	0.97	0.9	1.01
	min	1.15	3.02	2.76	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.39	-2.79	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
EST	mean	0.06	0.41	0.6	-0.03	-0.16	-0.02	0.06	0.05	0.34	-0.3	-0.42	-0.28
	SD	0.92	0.66	0.87	0.98	0.93	1	0.87	0.99	1.05	0.91	0.97	0.99
	min	1.15	2.7	3.37	1.88	1.8	3.66	2.75	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.33	-2.17	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
FIN	mean	0.24	0.6	0.58	-0.27	-0.23	0.21	0.22	0	0	-0.94	-0.64	0
	SD	0.79	0.64	0.94	0.96	0.89	1.01	1	0.97	1.03	0.96	0.91	1.02
	min	1.15	2.65	3.76	1.88	1.8	3.66	2.76	4.56	3.56	1.69	2.49	1.14

	max	-3.22	-3.19	-2.82	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
FRA	mean	0.13	0.32	0.36	-0.18	-0.39	-0.18	0.09	-0.1	0.1	-0.53	-0.29	0.11
	SD	0.81	0.66	0.93	1.07	0.98	0.93	0.79	0.87	0.97	0.94	1.06	0.97
	min	1.15	2.79	3.06	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.35	-2.7	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
GBR	mean	-0.16	0.58	0.43	-0.02	-0.19	-0.1	0.03	0.2	0.28	0.28	0.07	0.14
	SD	0.99	0.73	0.97	1.01	1.04	0.91	0.92	1.14	1.11	0.97	1.01	0.99
	min	1.15	3.77	3.84	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.66	-2.99	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
GRC	mean	-0.18	0.33	-0.17	-0.04	-0.34	0.17	0.24	-0.18	0.03	-0.35	-0.3	0.06
	SD	0.97	0.81	0.91	1.07	0.87	1.04	0.97	0.87	0.92	0.89	0.9	0.92
	min	1.15	3.18	2.75	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.61	-3.01	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
HKG	mean	-0.35	-0.05	0.54	0.28	0.23	-0.64	-0.21	0.28	0.23	-0.04	0.12	-0.6
	SD	0.87	0.82	0.82	0.94	0.95	0.56	0.72	1.23	1.06	0.99	1.04	0.84
	min	1.15	2.94	3.56	1.88	1.8	3.66	2.74	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-5.72	-2.51	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
HRV	mean	0.23	0.19	0.04	-0.26	-0.16	-0.24	0.19	-0.09	0.04	-0.52	-0.18	0.19
	SD	0.88	0.71	0.87	1.03	0.9	0.88	0.96	0.9	0.92	0.91	0.94	0.91
	min	1.15	2.9	2.91	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.49	-2.43	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
HUN	mean	-0.1	0.19	0.07	-0.41	-0.2	-0.39	0.2	-0.02	0.32	-0.61	-0.3	0.09
	SD	0.99	0.81	0.93	1.03	1.01	0.8	1.03	0.97	1.06	0.9	0.99	0.94
	min	1.15	2.5	2.85	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-5.49	-3.34	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
IRL	mean	-0.01	0.53	0.3	0.08	-0.03	-0.23	0.11	-0.04	0.11	0.18	-0.06	0.3
	SD	0.92	0.72	0.87	1.03	1.05	0.83	0.96	0.92	1.02	0.96	0.92	0.93
	min	1.15	2.63	3.43	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-1.98	-2.95	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1

ISL	mean	0.2	1	-0.01	-0.03	-0.12	-0.28	0.34	-0.21	-0.29	0.17	-0.33	0.29
	SD	0.94	0.61	0.9	1.21	0.98	0.82	1.31	0.84	0.93	1.06	1.2	1.02
	min	1.15	2.91	2.97	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-1.81	-2.71	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
KOR	mean	-0.43	0.22	0.41	-0.29	0.51	-0.73	0.28	-0.39	-0.38	0.12	-0.07	-0.1
	SD	1.02	0.58	0.94	1.13	0.94	0.43	0.9	0.6	0.83	1.03	0.97	0.97
	min	1.15	2.09	3.15	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-1.83	-2.98	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
LTU	mean	0.22	0.31	0.03	0.17	-0.07	0.08	-0.13	-0.06	0.25	-0.23	-0.24	0.18
	SD	0.91	0.74	0.89	1.12	1.09	1.05	1.16	0.97	1.06	1.08	1.16	1.01
	min	1.15	2.96	3.03	1.88	1.8	3.66	2.74	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.13	-2.83	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
LUX	mean	0.01	0.52	0.18	-0.04	-0.23	-0.2	0.3	-0.12	0.16	-0.45	-0.38	0.18
	SD	0.94	0.93	0.98	1.16	1.12	0.91	1.08	0.9	1.04	1.05	1.09	1.02
	min	1.15	3.6	3.18	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.3	-2.93	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
LVA	mean	0.01	0	0.13	-0.1	-0.3	0.15	-0.09	0.44	0.27	-0.3	-0.33	-0.32
	SD	0.86	0.79	0.82	0.92	0.93	1.04	0.87	1.17	0.98	0.97	0.91	1.02
	min	1.15	3.39	2.68	1.88	1.8	3.66	2.74	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.55	-2.67	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
MAC	mean	-0.33	-0.12	0.5	0.04	0.04	-0.54	-0.29	0.24	0.18	-0.82	0.18	-0.67
	SD	0.92	0.74	0.82	0.91	0.78	0.63	0.63	1.13	0.99	0.86	1.04	0.87
	min	1.15	2.13	3.12	1.88	1.8	3.66	2.74	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.29	-2.24	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
MEX	mean	0.4	-0.63	-0.63	0.21	-0.09	-0.05	-0.02	0.06	-0.3	0	0.06	0.03
	SD	0.86	1.04	0.72	0.92	0.92	0.91	1.11	1.04	0.86	0.87	0.99	1.18
	min	1.15	2.24	1.82	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-4.51	-3.3	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1

MNE	mean	0.17	0.24	-0.54	-0.09	-0.02	0.84	0.05	-0.18	-0.11	-0.42	-0.09	0.05
	SD	1.05	0.7	0.83	1.05	1.04	1.22	0.94	0.9	0.94	1	1.07	0.88
	min	1.15	3.14	2.23	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.49	-2.99	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
NLD	mean	0.2	0.54	0.4	-0.57	-0.23	-0.26	0.27	-0.26	-0.23	-0.75	-0.76	0.09
	SD	0.66	0.64	1	1.01	0.81	0.8	0.89	0.71	0.88	0.76	0.9	0.9
	min	1.15	2.29	3.46	1.88	1.8	3.66	2.74	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.03	-2.63	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
PER	mean	0.07	-0.41	-0.69	0.19	0.03	0.34	-0.04	-0.05	0.05	0.12	-0.05	-0.21
	SD	1.01	1.01	0.73	0.89	0.87	1.04	0.83	0.9	0.89	0.81	0.74	0.97
	min	1.15	2.85	2.2	1.88	1.8	3.66	2.75	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.86	-2.93	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
POL	mean	-0.08	0.03	0.24	-0.19	-0.15	0.2	-0.13	0.09	0.13	-0.72	-0.32	-0.34
	SD	1	0.7	0.89	0.94	0.94	1.17	0.97	1.04	1.05	0.88	0.99	0.95
	min	1.15	2.57	3.32	1.88	1.8	3.66	2.74	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.49	-2.75	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
PRT	mean	0.02	0.02	0.27	0.3	-0.05	-0.03	0.25	-0.2	0.16	-0.08	0.31	0.33
	SD	0.85	0.99	0.98	0.92	1.01	0.99	1.01	0.87	1.04	0.94	0.99	0.9
	min	1.15	3.01	3.04	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.78	-2.9	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
QAT	mean	0.03	0.89	-0.4	0.2	-0.14	0.16	0.08	0.19	0.25	0.62	0.03	0.11
	SD	1.08	0.64	0.97	1.05	1.03	1.04	1.03	1.19	1.13	1.02	0.98	1
	min	1.15	2.84	2.9	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.55	-3.37	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
QCH	mean	-0.22	-0.53	0.44	0.17	0.17	-0.49	-0.2	0.09	0.01	-0.14	0.04	-0.2
	SD	1	0.96	1.03	0.86	0.94	0.63	0.78	1.03	0.97	0.9	0.93	0.87
	min	1.15	3.47	3.55	1.88	1.8	3.66	2.8	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.39	-2.84	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
RUS	mean	0.17	0.42	0.13	-0.18	0.24	0.19	-0.25	0.08	0.3	-0.36	-0.25	-0.32

	SD	0.98	0.63	0.83	0.9	1.03	1.1	0.82	1	1.03	0.92	0.91	0.92
	min	1.15	2.93	2.71	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.14	-2.76	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
SVK	mean	0.05	0.34	-0.04	-0.41	-0.22	0.44	-0.14	0.07	0.17	-0.56	-0.38	-0.22
	SD	0.97	0.75	0.92	0.98	1.02	1.21	0.86	1.06	1.02	0.92	0.95	1
	min	1.15	2.55	3.2	1.88	1.8	3.66	2.79	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-4.03	-2.48	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
TAP	mean	-0.32	0.2	0.58	-0.24	0.06	-0.51	0.14	-0.31	-0.4	-0.27	0.22	-0.38
	SD	0.91	0.71	0.99	0.98	0.91	0.67	0.97	0.71	0.79	0.93	0.96	0.92
	min	1.15	3.25	3.86	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.12	-2.92	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1
THA	mean	0.17	-0.66	-0.51	0.22	0.24	0.05	-0.22	0.18	0.19	0	-0.07	-0.18
	SD	0.9	0.96	0.8	0.7	0.85	0.98	0.67	1.25	1.19	0.79	0.84	0.78
	min	1.15	2.45	2.56	1.88	1.8	3.66	2.75	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.43	-3.12	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
TUN	mean	-0.17	-0.3	-0.85	0.37	-0.54	0.48	-0.04	0.28	0.16	0.5	-0.11	-0.01
	SD	1.21	1.02	0.67	0.91	0.86	1.15	0.76	1.15	0.98	0.9	0.99	0.91
	min	1.15	2.37	1.55	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.36	-3.1	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
TUR	mean	-0.54	-0.82	-0.49	-0.03	-0.24	0.46	-0.3	-0.13	0.17	0.43	0.15	-0.19
	SD	1.26	1	0.79	1.13	0.97	1.23	1.15	1	1.08	1.05	1.09	1.07
	min	1.15	2.25	2.28	1.88	1.8	3.66	2.74	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-3.94	-2.85	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
URY	mean	0.17	-0.21	-0.24	-0.24	-0.22	0.49	0.07	-0.03	-0.17	-0.3	0.28	0.16
	SD	0.95	0.95	0.84	1.02	0.98	1.1	1.13	1	0.83	0.91	0.88	0.99
	min	1.15	2.71	2.33	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.7	-2.69	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
USA	mean	0	0.5	0.25	0.04	0.19	0.11	0.05	0.05	0	0.44	0.01	0.23
	SD	0.95	0.85	0.96	1.03	1.03	0.99	1.04	1.04	1.02	0.99	1.05	0.98

	min	1.15	2.92	3.8	1.88	1.8	3.66	2.77	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-2.6	-2.81	-2.26	-2.62	-0.9	-3.07	-0.66	-0.99	-3.56	-2.83	-3.1
Total	mean	0	0	0	0	0	0	0	0	0	0	0	0
	SD	1	1	1	1	1	1	1	1	1	1	1	1
	min	1.15	3.77	3.95	1.88	1.8	3.66	2.8	4.56	3.56	1.69	2.49	1.14
	max	-3.22	-5.72	-3.54	-2.26	-2.62	-0.9	-3.09	-0.66	-0.99	-3.56	-2.83	-3.1