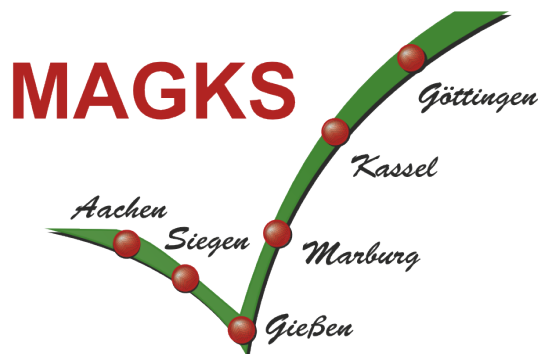




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Does Public Confidence in Universities Shape Higher Education Participation?

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Does Public Confidence in Universities Shape Higher Education Participation?

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Abstract

This study examines the relationship between public confidence in universities and the gross tertiary enrolment ratio, while controlling for other determinants of higher education enrolment. Using recent data from 63 countries and employing multiple estimation methods (OLS and GLS), we find robust evidence that tertiary enrolment is significantly lower in societies where public confidence in universities is weak. This result holds across age groups and genders. The implications of these findings are significant for universities and education policy.

Keywords: Confidence in Universities; Institutions; Tertiary Education Enrolment; Trust

JEL Classification Codes: H52, I23

1. Introduction

Gallup Polling in 2023 reported that Americans' confidence in higher education had fallen significantly in the previous five-year period. Only 36% of respondents expressed a "great deal" or "quite a lot" of confidence in higher education institutions, down from 48% in 2018 and 57% in 2015 (Gallup, 2023). A broader review of global trends shows that the US is not alone: countries such as Jordan and Morocco have also experienced declines. However, the pattern is not uniform. In some countries, confidence in universities has risen (e.g., Ecuador, Pakistan, Russia, Uruguay), while in others it has remained largely stable (e.g., Japan, Zimbabwe).¹

Educators and policymakers alike have not only speculated about the cause of this decline in confidence, but also about its implications. In particular, could a decline in the public's confidence in institutions of higher education have ongoing consequences for the demand for tertiary education and ultimately enrolment? Shifts in confidence have coincided with changes in enrolment. In the US, for example, the gross tertiary enrolment ratio fell from 93.3% in 2011 to 86.8% in 2022. Similar declines are observed in South Korea and Jordan. By contrast, enrolment ratios rose markedly in some countries (e.g., Chile, Uruguay) and remained largely stable in others (e.g., Japan, Nigeria).²

The purpose of this study is to investigate the relationship between public confidence in universities and enrolment in higher education institutions. If declining confidence leads to lower enrolment, this will mark a reversal of a long-standing global trend: over the past forty years, participation in higher education has expanded significantly. As reported by UNESCO (2022), the number of tertiary education students across the globe has more than doubled over the last two decades. This growth, which has outpaced both population increases and gross domestic product (GDP) growth, has been described by Marginson (2016) as a global shift toward High Participation Systems (HPS) in higher education. According to the World Bank (2025), tertiary education plays a central role in fostering growth, reducing poverty, and strengthening societies by creating a skilled workforce, raising productivity, and improving

¹ See the World Values Survey (WVS) Wave 6 (2010-2014) and WVS 7 (2017-2022) for the relevant data on confidence in universities within those countries. It is worth noting that data from the WVS have been extensively utilized in both sociology and economics (e.g., Abdelhadi & England, 2019; Stolz et al., 2023).

² Data on the gross enrolment ratio within each of these countries is sourced from Euromonitor International (2023).

health, civic participation, and tax revenues. Tertiary education delivers the highest earnings premium across all education levels, with graduates earning on average 17% more, compared to 10% for primary and 7% for secondary education. In Sub-Saharan Africa, the payoff is even larger, with tertiary graduates enjoying an estimated 21% increase in earnings (Montenegro and Patrinos, 2014).

Using recent data from 60 countries, this paper presents what is, to the best of our knowledge, the first empirical analysis of the relationship between public confidence in higher education institutions and university enrolment rates. Furthermore, we aim to determine whether this relationship reflects changes in confidence across a country's institutions more broadly or is specific to universities. It is possible, for example, that declining confidence in all public institutions drives changes in tertiary enrolment, rather than a university-specific effect. Therefore, we develop a specification that includes variables to control for public confidence in other institutions. Furthermore, our analysis includes control variables for range of factors that may also impact enrolments, such as the costs of finance through interest rates.

Using data from the World Values Survey (WVS) Wave 7 and matching it with tertiary enrolment figures, our ordinary least squares (OLS) regression analysis shows that countries with lower public confidence in universities tend to experience declines in overall tertiary enrolment. We then construct a panel data using WVS 6 and WVS 7 and apply a panel data analysis to further investigate the relationships. The results continue to show that lower confidence in universities reduces the gross enrolment in tertiary education. Furthermore, these results remain robust across different age groups as well as different genders.

In the next section, we propose avenues through which confidence might impact the number of student enrolments, both on the demand side from students and also via the politics of public funding for higher education. In section 3, we present our data and the specifications of our empirical models while, in section 4, we discuss the results. We then discuss the implications of these findings, which are relevant both for universities and policymakers.

2. The Theoretical Relationship between Public Confidence and University Enrolments

2.1. Public Confidence in Universities and the Role of Legitimacy

In this section, we develop the conceptual relationship between public confidence in universities and the level of university enrolments. We combine the concept of legitimacy with elements of the established economics literature on demand for higher education and signalling theory, to create an argument for the impact of public confidence upon gross tertiary enrolments. Specifically, our argument is based on the effect of public confidence in universities on tertiary enrolments through two specific causal channels. The first is the role of public confidence in determining the perceived strength of the signal that education (and tertiary qualifications) can deliver, and the potential for students' perception of this signal to change. The second is the impact of public confidence in universities upon government funding of higher education and support for university enrolments. In both cases, we argue that the level of public confidence in universities is one manifestation of their perceived legitimacy in the eyes of the public, and that this can influence both student demand for higher education and also government financial support for universities. We first clarify the importance of legitimacy for universities, then address its impact on the two causal channels introduced above.

Johnson and Peifer (2017) provide a detailed analysis of public confidence in universities within the US, and the relationship between public confidence and the legitimacy concept. Drawing from organizational theorists, they explain that public confidence is a key component in the establishment of the legitimacy of such institutions. If a university is to garner resources such as private and public financial support, then the public must have confidence that these institutions are representative agents for the values and objectives of society more broadly. Furthermore, the widely held belief that an institution does indeed represent the broader goals of society provides a degree of legitimacy that facilitates a level of autonomy for that institution. In contrast, a lack of confidence might be associated with a deficit in legitimacy. In these instances, the demand for more accountability, i.e., the oversight and regulation by another institution with greater perceived legitimacy, such as the state, might be the result, thus weakening internal governance.³

³ Johnson and Peifer (2017) analyse data on public confidence in universities within the US to identify heterogeneity in reported public confidence across the population. Specifically, they find that those with a conservative political preference, some religious individuals, and those individuals who perceive religion and science to be in conflict are more likely to be lacking in confidence in universities.

In the case of the first causal channel we propose in this analysis, we argue that the public confidence in universities, and the associated legitimacy of these institutions, has an influence on the level of student enrolment. Specifically, lack of confidence can undermine the legitimacy of the institution in terms of its perceived capacity to deliver on its public functions and social objectives, which includes increasing the human capital of their students. Accordingly, the belief of prospective students that investment in a university degree will be a positive signal about their own human capital. The role of education as a signal of human capital is well studied, and we connect university confidence in universities to the signalling concept to further clarify this relationship.⁴

2.2. Public Confidence in Universities and the Signal of Education

Research on demand for higher education among prospective students demonstrates that demand is influenced by university reputation, and that reputation has an impact on the signal of graduate capability. In a key study focussing on demand for tertiary education in Canada (Ontario), Mueller and Rockerbie (2005) show that university reputation (through ranking) has a significant impact on student demand for university placement. Most interestingly, real tuition (cost), while often significant in their estimations, is not always a strong indicator of demand and is suggestive of relatively inelastic demand for some types of students. In fact, university reputation and ranking might be a stronger factor influencing student demand than price (tuition fee), the latter of which has delivered mixed results in empirical studies.⁵

Consideration of university reputation among prospective students, as Mueller and Rockerbie's (2005) research detects, is not without foundation when the importance of reputation on graduate outcomes is recognised. Recent research testing the signalling theory of

⁴ The role of education as a signal is well-studied, with early models by Spence (1973) and Stiglitz (1975). Riley (2001) presents a summary of the signalling approach to education in the context of a broader review of the signalling theory.

⁵ This relationship between the demand for higher education and tuition fees is further reviewed by Havranek et al., (2018), who conducts a meta-analysis of the relevant literature. Their quantitative analysis of these studies (43 studies in total) demonstrates that while negative estimates (of the elasticity of demand) are prevalent, positive and insignificant estimates are often underreported. When the authors correct this bias in publication reporting, they conclude that the mean demand elasticity is close to zero for these studies. They also note that heterogeneity across the results, including the finding that students at private universities are more likely to demonstrate a larger elasticity, and also male students often demonstrate a larger elasticity than females. In a more recent analysis, Nguyen (2019) investigates the impact of free tuition and on college enrolment in New York. Using difference-in-differences and generalized synthetic control methods to estimate the impact of free tuition on college-level enrolment, Nguyen's analysis demonstrates that the program had a negligible effect on enrolment in New York's colleges and universities. While the author reviews a range of contextual factors that might have undermined the potential take-up in response to zero price, the results provide some additional evidence that price is less important for education demand than might be expected, and that other factors are playing a driving role.

education suggests that university reputation does play a significant role in delivering signals about graduates. The work of Macleod et al. (2017) models a signalling and sorting process and finds that college reputation has a large impact on labor market outcomes and earnings growth, and that this effect is possibly larger than any signal an individual graduate can send outside of college affiliation. Similarly, Barrera-Osorio and Bayona-Rodríguez (2019) exploit rich data on the university entrance and selection process in Colombia to compare the effect of signalling with human capital development. While the more prestigious universities are not more effective in developing human capital, the authors find that these institutions provide a more effective signal to the labor market that increases the probability of employment and earnings growth for graduates.

Building on this research, we argue that prospective student demand for education is impacted by their view of universities' capability to deliver on their public functions, and the signal that universities can produce about them as graduates. Confidence in universities, and the impact of any signal that education can send, is premised upon the legitimacy of these institutions. The studies discussed above, including Macleod et al. (2017), Barrera-Osorio and Bayona-Rodríguez (2019), and Mueller and Rockerbie (2005), each provide some evidence that university reputation can have an impact on signalling and student demand. If prospective students are losing confidence in universities and doubt their legitimacy in delivering on their educative function, they may also lose confidence in the potential signal that they can obtain as a graduate. In other words, the legitimacy of an educational institution determines the credibility of its certifications, such as a degree. Accordingly, decreases in confidence may lead to decreases in enrolment. This is particularly relevant at a country level, i.e., where all universities are affected by a general decrease in public confidence in universities. Accordingly, overall enrolment levels in higher education are likely impacted by any changes in public confidence in universities.

2.3. Public Confidence in Universities and Government Support for Enrolment

The second causal channel we propose is the relationship between the public's confidence in universities and government's willingness to direct funds toward such institutions to support enrolments. Externalities are the common justification for government spending on education and embody the standard public economics argument in favour of such funding. However, the government funding of education does not occur without the influence of politics; there is evidence that public choice arguments, which are used to understand how the self-interest of

agents (voters, elected officials, bureaucrats) influences public sector allocations, might also apply to tertiary education funding. A loss of public confidence in universities and one that undermines the legitimacy of these institutions in the mind of population will naturally lead to a reluctance in government alignment (through policy commitments) with such institutions. With competing interests lobbying for public funding and such commitments linked to likely votes and voting blocks, government has little interest in allocating scarce funds to universities if such institutions are not presently well-received in the public mind. Additionally, if the government witnesses a reduction in public confidence in these institutions, a focus on re-election may cause them to withdraw support from universities.

Research demonstrates that government spending on education is indeed influenced by political factors. The original “balance wheel” hypothesis (Howey 1999) that presented funding for education as a balancing item in state budgets has been confirmed by Delaney and Doyle (2011), who test the theory over twenty years of data and identify a robust result in its favour. Furthermore, in the US, state allocation of funds to higher education has been identified as impacted by party affiliation (Hill and Jones, 2017). Similarly, Beland and Oloomi (2017) analyse gubernatorial election results for a period of 50 years (from 1960 to 2012) and find that although the political party of governors does not appear to influence total spending, it is a significant determinant on the allocation of funds to specific portfolios, including education. Similar results are obtained by De Benedicis-Kessner and Warshaw (2016), who identify the party affiliation of Governors as impacting the allocation of state funds in the US. Taken together, these studies confirm that state spending on education can be discretionary and subject to at least some elements of political influence. Government support for university enrolment, and the ongoing Higher Participations System identified by Marginson (2016), is still subject to political interest.

2.4. An Empirical Model of Public Confidence in Universities and Student Enrolments

Moving from this conceptual relationship to an empirical model that can be tested is challenging, particularly in a global context. Most studies of student demand for education are country specific. The unique nature of each education market (or rationing mechanism), in addition to the heterogeneity of systems of higher education finance, means that international comparisons are not straightforward. Furthermore, as noted by Mieller and Rockerbie (2014), most studies that estimate demand for post-secondary education use enrolment data, a calculation that accurately captures student demand only if all student applicants are admitted.

While this is the case in some countries, it is not in others, such as Canada and Australia. Therefore, we employ the gross enrolment percentage as one way to measure cross-country education enrolments.

Importantly, this variable is not strictly a demand function for post-secondary education. Due to the range of factors that contribute to enrolment numbers in any given year, it would be more appropriate to consider a given country's enrolment rate the sum of that nation's commitment to post-secondary education, which includes student demand, governmental support for enrolments, and institutional supply. The first two of these factors (student demand and government support) are those that we argue are directly impacted by changes in public confidence in higher education, as outlined above. Therefore, this variable offers one avenue for a cross-country comparison of the factors we would like to address, inclusive of confidence in universities within a country. In the next section, we present our data sources, variables, and our model specification.

3. Data and Model Specification

To test our hypothesis, we use two sets of data: cross-sectional and panel. In the cross-sectional data, we include 63 countries for which information on confidence in universities is available in the World Value Survey (WVS) 7, which was collected over the period of 2017-2022. The data are available at WVS (2025). The list of countries are Andorra, Argentina, Armenia, Australia, Bangladesh, Bolivia, Brazil, Canada, Chile, China, Colombia, Cyprus, Czech, Ecuador, Egypt, Ethiopia, Germany, Greece, Guatemala, Indonesia, Iran, Iraq, Ireland, Japan, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Lebanon, Libya, Macau, Malaysia, Maldives, Mexico, Mongolia, Morocco, Myanmar, Netherlands, New Zealand, Nicaragua, Nigeria, Pakistan, Peru, Philippines, Puerto Rico, Romania, Russia, Serbia, Singapore, Slovakia, South Korea, Taiwan, Tajikistan, Thailand, Tunisia, Turkey, Ukraine, United Kingdom, United States, Uruguay, Venezuela, Vietnam, and Zimbabwe. The summary statistics of all variables and data sources are provided in Table A1 in Appendix.

In the panel data, we include those countries which have data on confidence in universities in both WVS 6 and WVS 7. This reduces our sample countries to 39 but it increases the total observations to 78 and we exploit the benefits of panel data by controlling for unobserved factors. The list of country in our panel data are Argentina, Armenia, Australia,

Brazil, Canada, Chile, China, Colombia, Cyprus, Ecuador, Egypt, Germany, Greece, Iraq, Ireland, Japan, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Libya, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Pakistan, Peru, Philippines, Romania, Russia, Singapore, South Korea, Taiwan, Thailand, Tunisia, Turkey, Ukraine, United States, Uruguay, and Zimbabwe.

Our dependent variable is enrolment in tertiary education for each individual country. We use gross enrolment ratios at tertiary level of education as a measure of this variable. The variable is defined as follows: “Number of students enrolled in a tertiary level of education, regardless of age, expressed as a percentage of the official school-age population corresponding to the tertiary level of education.” Due to the relative simplicity of the variable and its consistency across countries, this variable provides an opportunity for international comparison. It should be noted that, although the variable is a proportion, it is possible for a country’s recorded value to be above 100%. Within some countries, the number of tertiary enrolments by students outside the age group that has traditionally enrolled in higher education can be significant, and this can cause the value of this ratio to climb above 100%. Data for this variable are collected from *Euromonitor International* (2023) database.⁶

The primary explanatory variable of interest is lack of confidence in universities, which we extract from the WVS. In the sixth and seventh waves of the surveys (WVS6: 2010-2014 and WVS7:2017-2022), respondents were asked about their level of confidence in universities. The question in the survey reads as follows: “*I am going to name a number of organizations. For each one [Universities], could you tell me how much confidence you have in them.* The possible options are: (a) *a great deal of confidence*, (b) *quite a lot of confidence*, (c) *not very much confidence* or (d) *none at all*. In our analyses, we use the percentage of respondents to the survey in each country who mentioned that they don’t have any confidence in universities at all. The highest percentage of respondents who registered a lack of confidence in universities (in WVS7) was observed in Iraq (29.9%) and Jordan (25.9%) whereas the percentage was lowest in China (0.5%), Vietnam (0.7%), and Malaysia (0.7%).

In our estimations, we include a range of control variables that represent other possible determinants of gross enrolment ratios at tertiary level of education. One of the key control variables is the level of confidence registered by respondents in all institutions, excluding

⁶ Euromonitor International collects education data from various sources including UNESCO, Eurostat, OECD, and national statistics.

universities. Gallup (2023a,b) argues that the potential drivers of low confidence in higher education in the US include an overall decline in confidence in all types of institutions, changing political ideologies, and the rising costs of postsecondary education. Therefore, we include the mean value of confidence in all institutions mentioned in the WVS6 and WVS7 (e.g., police, civil services, government, political parties, labour union, armed forces, major companies, press, banks) except confidence in universities. Including this variable works to distinguish between low confidence in universities and confidence in the broad set of institutions within a country.

As noted in our review of literature above, the impact of fees and costs on enrolment in higher education appears to be ambiguous. The meta-analysis by Havranek et al. (2018) reviews the literature on the impact of fees on enrolment, concluding that the mean demand elasticity for these studies is close to zero and that tuition fee does not exert a large influence on enrolment. A specific study focussing on the relationship between socioeconomic status and tertiary enrolment (Declercq & Verboven, 2015) similarly finds that acquired ability and preferences have a larger impact than cost in explaining the lower enrolment among disadvantaged students. Their analysis is particularly valuable in highlighting that, while a uniform tuition fee increase does demonstrate an impact on socially disadvantaged students, it has a relatively small impact on total enrolment. As we are focusing on total enrolment (within a country) as our dependent variable, these studies suggest that fees and costs are unlikely to have an impact. Nevertheless, as a means to control for the broad costs of finance, we include an interest rate variable in the analysis, which is also consistent with Mueller and Rockerbie (2005). We use lending interest rate (%) average for the period of 2017-2022. The data for this variable are obtained from the World Bank and national statistical sources.

While there is ambiguity regarding the impact of fees on tertiary enrolments, we also include an additional variable that controls for inequality of access to education at the household level. The characteristics of a prospective student's household impact school enrolment at the tertiary level is complex and is confounded by a range of unobservable factors. While liquidity constraints at the household level may have a stronger impact at the primary level,⁷ we note that it can also extend to tertiary enrolment. Vandenberghe (2007) has identified

⁷ Using a natural experimental approach, Grimm (2011) investigates the context of Sub-Saharan Africa, and Burkina Faso in particular, to find that family income has a significant impact on the income elasticity of school enrolment of boys and girls six to thirteen years old.

variation in tertiary education attendance in Europe and tried to disentangle income effect from factors including parental characteristics and a young person's own characteristics. Using families with several children in an effort to correct for unobservable time-invariant family fixed-effects, Vandenberghe finds heterogeneous results across Europe, with some countries demonstrating no effect at all (Belgium and Germany), some small positive effects (Poland), medium-sized positive effects (UK), and large positive impacts (Hungary). As a check on this country-level impact, we use median disposable income per household (in USD, Fixed 2022 ex rates) averaged for the period of 2017-2022 as a proxy for household income. Data for this variable is collected from Euromonitor International (2023). As a robustness check, we replace median disposable income per household with GDP per capita, PPP (constant 2017 international \$), averaged for the period of 2017-2022. Data for these variables is obtained from the World Bank.

As also discussed in the review above, the government plays a role in the tertiary enrolment levels for a country. While previous studies have delivered mixed results when reporting government expenditure on education and tertiary enrolment, Bala and Dierk (2024) addressed this comprehensively through an application of a large panel of countries to systematic review of literature and weaknesses. Across their panel of 149 countries (from 1997 to 2018), they find public spending on tertiary education has a significant positive impact on tertiary enrolment. Accordingly, we include government expenditure per student, tertiary (% of GDP per capita), whenever the latest year is available in the World Bank database. Government expenditure per student is the average general government expenditure (current, capital, and transfers) per student in the given level of education, expressed as a percentage of GDP per capita. Finally, as an effort to control for the impact of economy-wide activities and growth rates,⁸ we include GDP per capita growth (annual %) averaged for the period of 2017-22 from the World Bank as a measure of economic activities in our sample countries.

Our baseline empirical model (1) is specified as follows:

$$Enrolment_i = \beta_0 + \beta_1 Lack\ of\ Confidence_i + \beta_2 Control_i + e_i \quad (2)$$

where *Enrolment* is gross enrolment ratios at tertiary level of education in country *i*, *Lack of Confidence* is lack of public confidence in universities, *Control* represents the control variables,

⁸ For example, recent studies by Wang (2021) and Feldmann (2025) have focussed on the role of Foreign Direct Investment (FDI) on tertiary enrolments, to detect evidence that FDI can indeed stimulate tertiary enrolment associated with requirements of employment at international firms.

and e is an error term. We estimate the equation (1) by the ordinary least squares (OLS) estimation method with robust standard errors.

4. Estimation results

4.1 Main analyses

Table 1 presents the results of our main estimations using cross-sectional data. The key finding is that a strong lack of public confidence in universities is negatively associated with gross enrolment ratios at the tertiary level. The coefficient for '*Lack of confidence in universities*' is negative and statistically significant across all specifications (columns 1 to 12 of Table 1), supporting our central hypothesis and the primary motivation of this study.

The estimation results also indicate that gross enrolment ratios at the tertiary level tend to be lower in countries where the public expresses high confidence in all other institutions (columns 1-12 of Table 1). In other words, higher education enrolment may increase when public confidence in non-university institutions is lower. This suggests that individuals are capable of differentiating between higher education institutions and broader social or governmental institutions.

The regression results also indicate that both indicators of household income—the logarithm of median disposable income per household and the logarithm of GDP per capita (PPP)—are positively and significantly associated with gross enrolment ratios at the tertiary level (columns 6, 8, 9, 10, 11, and 12). This is a noteworthy finding, as it confirms that the income elasticity of higher education is significant, even if it varies across countries, as previously found by Vandenberghe (2007).

Table 1. Results of OLS estimations: cross-sectional data

<i>Explanatory variables</i>	<i>Dependent variable: Gross enrolment ratios at tertiary level of education</i>											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Lack of confidence in universities	-.011** (.004)	-.030*** (.006)	-.031*** (.006)	-.029*** (.006)	-.025*** (.007)	-.021*** (.005)	-.024*** (.007)	-.019*** (.006)	-.018** (.008)	-.017* (.009)	-.018** (.008)	-.013** (.005)
Confidence in all institutions (excluding universities)		-.645*** (.132)	-.623*** (.133)	-.620*** (.136)	-.582*** (.143)	-.496*** (.142)	-.542*** (.143)	-.460*** (.169)	-.450** (.207)	-.452** (.210)	-.450** (.207)	-.328** (.128)
GDP per capita growth			-.008 (.011)				-.010 (.010)			.005 (.017)		
Lending interest rate				-.004 (.003)			-.003 (.002)	.002 (.003)	.0009 (.004)	.001 (.004)	.0009 (.004)	
Government expenditure per student, tertiary (% of GDP per capita)					-.002*** (.0008)		-.002*** (.0007)		-.001 (.0007)	-.001 (.0007)	-.001* (.0007)	
Log (Median disposable income per household)						.268*** (.067)		.299*** (.077)	.227*** (.105)	.231** (.108)	.227** (.105)	
Log (GDP per capita, PPP)												.452*** (.067)
Number of observations	63	63	61	62	52	51	51	51	42	42	42	60
F	6.79	12.94	8.16	8.13	8.58	20.28	5.27	22.12	11.19	9.14	11.19	34.88
Prob > F	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R-squared	0.06	0.30	0.31	0.31	0.37	0.49	0.38	0.49	0.48	0.48	0.48	0.61

Notes: ***p < 0.01, **p < 0.05, *p < 0.10. Robust standard errors are in parentheses. Constant term was included (not reported).

Although the evidence is not robust across all specifications, we find some indication that gross enrolment ratios at the tertiary level tend to be lower in countries with higher government expenditure per student in the tertiary sector. This may be explained by a crowding-out effect, whereby increased public funding potentially displaces private investment in higher education. Finally, our results indicate that gross enrolment ratios at the tertiary level are not significantly associated with economic growth (measured by GDP per capita growth) or lending interest rates. Overall, the model is fit persuasive and there are no multicollinearity issues, as the variance inflation factor (VIF) for the explanatory variables is below five in all estimations.

4.2 Disaggregated analysis by gender and age

Table 2 presents the estimation results for the sub-samples based on gender (male and female) and age groups (up to 29, 30–49, and 50 and above). The coefficient for '*Lack of confidence in universities*' remains negative and statistically significant in columns 1 to 5 of Table 2. This indicates that the negative relationship between a strong lack of confidence in universities and tertiary education enrolment persists across various sub-groups.

Table 2. OLS regression for sub-groups: cross-sectional data

<i>Dependent variable: Gross enrolment ratios at tertiary level of education</i>					
	(1)	(2)	(3)	(4)	(5)
Lack of confidence in universities _ Male	-.016*** (.005)				
Lack of confidence in universities _ Female		-.021*** (.006)			
Lack of confidence in universities _ Age group, up to 29			-.015*** (.005)		
Lack of confidence in universities _ Age group, 30-49				-.020*** (.006)	
Lack of confidence in universities _ Age group, 50 and above					-.019*** (.007)
Control variables	Included	Included	Included	Included	Included
Number of observations	51	51	51	51	51
F	23.16***	21.59***	21.15***	21.91***	21.60***
R-squared	0.48	0.50	0.47	.50	0.49

Notes: ***p < 0.01, **p < 0.05, *p < 0.10. Robust standard errors are in parentheses. Constant term was included (not reported).

4.3 Panel data regression

Finally, we conduct a basic panel regression using data from WVS6 and WVS7, employing panel random effect generalized least squares (GLS) method. The dependent, explanatory, and control variables are the same as those used in the cross-sectional regressions. To construct the panel data and

align it with the WVS6 and WVS7 measures of confidence in universities, we calculate the average of each variable for the periods 2010–2014 (corresponding to WVS6) and 2017–2022 (corresponding to WVS7). As shown in Table 3 and consistent with our cross-sectional regression results, we find that tertiary education enrolment is significantly lower in countries where a larger proportion of the public lacks confidence in universities.

Table 3. Results of panel random-effects GLS

Dependent variable: Gross enrolment ratios at tertiary level of education		
	Random effect GLS	
	(1)	(2)
Lack of confidence in universities	-.004** (.002)	-.004* (.002)
Year fixed effect	Included	Included
Control variables		Included
Number of observations	78	72
Number of countries	39	36
Wald chi2	17.32***	18.33***
Overall R-sq	0.09	0.06
Hausman test (Prob>chi2)	0.182	8.41

Notes: ***p < 0.01, **p < 0.05, *p < 0.10. Robust standard errors are in parentheses. Constant was included.

5. Discussion and Conclusions

Variations in public confidence in universities have attracted considerable attention in recent years and remain the focus of ongoing surveys and regular polling. This paper has examined the relationship between public confidence in universities and higher education enrolment, using data from over 60 countries. We find that a strong lack of confidence in universities is associated with lower gross enrolment in tertiary education. This result is robust across various estimation methods.

The implications of this are significant for universities and we highlight two specific issues here. The first is rather obvious: the extent to which this decrease in confidence in universities will continue and its potential to continue undermining tertiary enrolment rates. We need to further understand the reasons for this decline in confidence and identify the ways that universities can reassure the public, particularly potential students, that what they offer to society is of value. With the current changes in data availability (the advent of so-called big data), growth of e-commerce, and now the widespread introduction of artificial intelligence, universities need to present themselves as more clearly able to provide education that is helpful in a rapidly changing labor market. Those universities that can adjust will likely garner

increased respect and confidence from the public, and sustained student interest through enrolment will see them continue to prosper.

The second implication is one of political economy. If governments are influenced by the changing public perception of universities, it could impact their own policy platforms as well. Governments may turn to vocational training, particularly outside of those educational areas not aligned with a profession. Lawyers and doctors still require a “sheepskin” to practice, but for those areas of study and intellectual disciplines that provide broad-based skills that for sectors where employment does not demand a mandatory degree, there may be a challenge to retain legislative enthusiasm within competitive budget environments. For those that interpret education as a purely private good, this will feed demands for less government funding of higher education and a reallocation of funds away from public universities.

There are a number of potential extensions for our study. In particular, two avenues strike us as being particularly useful. First, to continue analysis of the global scale, an update of our model with data over longer time-period is naturally desirable. Whether this relationship continues reflects both public confidence itself along with the changing labor market, which is likely to change significantly over the next few years. Second, while the global analysis is helpful in identifying broad trends, the heterogeneity in higher education models means that future studies should aim to be country-specific. Further comparison of a country’s confidence in higher education, relative to other institutions, could become important in considering the impact on tertiary enrolments in the future.

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Appendix

Table A1. Variable description and descriptive statistics (used in main analysis)

Variables	Description	Data source	Mean	Std.dev.	Min	Max
Gross enrolment ratios at tertiary level of education	Number of students enrolled in a tertiary level of education, regardless of age, expressed as a percentage of the official school-age population corresponding to the tertiary level of education. We use the average value of this variable over the period 2017–2022.	Euromonitor International	0.58	0.29	0.08	1.42
Lack of confidence in universities	Percentage of respondents in each country from the WVS7 survey who reported having no confidence in universities at all.	WVS7	7.82	6.29	0.50	29.90
Lack of confidence in universities _Male	Percentage of male respondents in each country from the WVS7 survey who reported having no confidence in universities at all.	WVS7	8.09	6.62	0.60	30.90
Lack of confidence in universities _Female	Percentage of female respondents in each country from the WVS7 survey who reported having no confidence in universities at all.	WVS7	7.52	6.22	0.40	28.90
Lack of confidence in universities _Age group, up to 29	Percentage of respondents aged up to 29 in each country from the WVS7 survey who reported having no confidence in universities at all.	WVS7	8.35	6.62	0.00	32.80
Lack of confidence in universities _Age group, 30–49	Percentage of respondents aged 30–49 in each country from the WVS7 survey who reported having no confidence in universities at all.	WVS7	7.89	6.42	0.40	27.70
Lack of confidence in universities _Age group, 50 and above	Percentage of respondents aged 50 and above in each country from the WVS7 survey who reported having no confidence in universities at all.	WVS7	7.66	6.54	0.40	29.10

Confidence in all institutions (excluding universities)	The mean value of confidence in all institutions (excluding universities) mentioned in the WVS7.	WVS7	2.44	0.29	1.95	3.12
GDP per capita growth	Annual percentage growth rate of GDP per capita based on constant local currency. We use the average value of this variable over the period 2017–2022.	World Bank	1.50	2.58	-9.55	7.90
Lending interest rate	Lending interest rate (%). Lending rate is the bank rate that usually meets the short- and medium-term financing needs of the private sector. We use the average value of this variable over the period 2017–2022, or data from the latest available year when the full period is not available.	World Bank	9.64	8.94	0.99	43.28
Government expenditure per student, tertiary (% of GDP per capita)	Government expenditure per student is the average general government expenditure (current, capital, and transfers) per student in the given level of education, expressed as a percentage of GDP per capita. We use data from the latest available year.	World Bank	33.22	40.28	4.90	266.23
Median disposable income per household	Median Disposable Income per Household (USD, Fixed 2022 exchange rates) We use the average value of this variable over the period 2017–2022.	Euromonitor International	23,522.18	23,222.56	2,005.47	106,009.70
GDP per capita, PPP	GDP per capita based on purchasing power parity (PPP) - constant 2017 international \$. We use the average value of this variable over the period 2017–2022.	World Bank	24,610.32	22,178.84	2,197.25	100,459.50