What is the Relationship between University's Financial Resources and Student Perception of Institutional Attractiveness?

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Abstract

We examine how pay and staffing conditions relate to the attractiveness of public-university faculties in Czechia. Using harmonised faculty-level administrative data for 2017–2024, we fit a covariance-based structural equation model (CB-SEM) with four latent constructs: structural conditions, research drive (including a time trend), wages and student interest. Student interest is positively associated with structural conditions and with research drive. The relationship between wages and student interest is not statistically significant once the other constructs are included. Research drive is also related to wages and structural conditions. Taken together, the results suggest that teaching capacity and research visibility are the main factors associated with faculties' attractiveness, while wage policy appears, if at all, related through those channels rather than directly. These insights can inform discussions of public funding formulas and institutional staffing strategies by emphasising teaching capacity and research visibility rather than undifferentiated wage increases.

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CB-SEM, higher education institutions, institutional attractiveness, administrative data, academic staff workload, faculty-level funding	*https://doi.org/10.54694/stat.2025.44*	*I22, I23, J24, C39*

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INTRODUCTION

This article investigates how the economic and personnel conditions of academic staff relate to the attractiveness of faculties of public higher education institutions (HEI) in Czechia. While many international studies address the effects of institutional wealth, governance, or reputation on enrolment patterns, data and funding systems vary widely by country; even within the EU, which compiles statistics across member states, methods rarely transfer. For this reason, our analysis stays within the Czech higher education and relies on faculty-level administrative data for 2017–2024 that support comparable analyses across faculties. We also brought national evidence on university non-completion, showing that institutional support services, the study environment and time or workload pressures are linked to students' decisions to leave or stay. To study these links, we use the covariance-based structural equation modelling (CB-SEM), which evaluates both the indicators for each latent construct and their mutual interlink, including mediation.

1 LITERATURE SURVEY

The relationship between financial resources and institutional performance has been the subject of substantial scholarly attention. Avenali et al. (2024) examine 318 HEIs across five countries and identify total operating expenses and the net value of long-term physical capital as the strongest predictors of success in Shanghai ARWU rankings. Their machine learning approach (XGBoost) and complementary data envelopment analysis (DEA) demonstrate that financial investment efficiency contributes significantly to institutional reputation. Similarly, Mkhitaryan and Želvys (2025) show that top-ranked European universities are more likely to rely on negotiated funding models, in contrast to formula-based mechanisms, suggesting that flexible funding approaches align with high performance. Lassila (2011), using OLS regression on a large U.S. dataset, finds that higher revenue is modestly associated with a larger share of low-income students, but chiefly in private non-profits. This suggests that wealthier institutions have a competitive advantage in supporting financial aid, thereby influencing access. Bulman (2022) further shows that increases in endowment wealth at private U.S. colleges are associated with greater financial aid spending without lowering headline or net tuition. Overall prices stay flat, while selectivity rises and the share of Pell-eligible and underrepresented students drops slightly. Consistently, credit-rating evidence shows that student selectivity (higher SAT/ACT, lower admit rates) and resource strength map closely onto stronger HEI credit ratings, especially among private institutions, underscoring how reputation and resources reinforce each other (Gottesman and Ismailescu, 2020).

Beyond financial capacity, studies have also explored how universities convert resources into educational or reputational outcomes. Dorius et al. (2017) focus on return on investment (ROI) and find that graduation rates dominate; once controls enter, most spending categories – including instruction – yield weak or no effects, and prestige proxies are non-significant. Al-Hosaini et al. (2023) apply a Balanced Scorecard framework and PLS-SEM to show that non-financial institutional strengths, such as internal processes and customer perspective, directly contribute to financial performance in private Yemeni universities. Won and Chelladurai (2016) use SEM to show that intangible resources (reputation, culture) indirectly improve performance in U.S. athletic departments by enabling the accumulation of tangible resources. Similarly, Nafisi et al. (2017), using survey data and SEM, find that quality in educational services, social interaction, and the academic environment all positively influence goal attainment, and also emphasise the role of financing in support of these effects (modelled as direct relations rather than a formal moderation test).

The second body of literature addresses factors that influence the level of how attractive students perceive higher education institutions to be. Yadav et al. (2022), in a PLS-SEM study of Indian private HEIs, find that attractiveness is caused by teaching quality, branding, and research activity. This attractiveness, in turn, enhances institutional sustainability, mediated partly by student belongingness. Nguyen (2023), based on Vietnamese data, similarly highlights curricula and facilities as major determinants of university

choice, with PLS-SEM results confirming their predictive value. Cingillioglu et al. (2022) focus on digital engagement, finding that Facebook shares and comments predict university preference among Australian students, and that this engagement interacts with institutional status indicators like top eight Australian universities membership (Go8) and global ranking. Foster (2024) investigates private HEIs in Jakarta and reveals that segmentation and market positioning strategies are key to attracting students, especially in urban areas.

Attractiveness also intersects with broader structural factors shaping student access. Hervás et al. (2020) show that social perceptions, including perceived employability, and individual/institutional factors, such as geographic accessibility, drive student demand for public universities in Spain. Giambona et al. (2017) employ a spatial modelling approach to show that students prefer territories with better living standards, academic services, and labour market prospects. Wörner (2011) uses Gini-type concentration measures to show that a small set of prestigious Chilean universities captures a disproportionate share of high--performing students, evidencing reputational sorting in student inflows. These findings resonate with broader concerns about stratification. For instance, Lassila (2011) and Bulman (2022) provide evidence that financial aid can mitigate, but not eliminate, enrolment disparities for low-income students. Bulman especially highlights how increases in financial resources are more likely to benefit higher-income applicants, reinforcing exclusivity. Giambona et al. (2017) confirm that socio-economic conditions of the region significantly influence student migration in Italy, with more affluent regions attracting more students.

These dynamics often reproduce social inequalities unless explicitly corrected. Dorius et al. (2017) show that institutional ROI is positively associated with the share of STEM degrees and negatively associated with private status and female student share, indicating deep demographic inequalities in outcomes. These studies demonstrate that financial and institutional characteristics often compound rather than reduce inequalities in access and returns. The growth of the use of structural equation modelling (SEM) and partial least squares SEM (PLS-SEM) across contexts underscores its utility in modelling these complex relationships. Yadav et al. (2022), Nguyen (2023) and Foster (2024) apply PLS-SEM to student perception and university attractiveness, highlighting indirect and mediating effects. Won and Chelladurai (2016), Nafisi et al. (2017), and Angulo-Ruiz and Pergelova (2013) use SEM to explore institutional commitment, service quality, and competitive advantage.

Huang (2021) applies PLS-SEM in a blended learning context and finds that perceived usefulness and motivation significantly predict learning satisfaction. Hervás et al. (2020) and Cingillioglu et al. (2022) use SEM for modelling student decision-making and digital engagement. This literature collectively demonstrates SEM's capacity to capture complex interdependencies relevant to university growth, offering a robust analytical framework for future research on how financial resources, attractiveness, and enrolment interact.

A complementary stream of Czech research has focused on the reasons for non-completion of university studies. A study commissioned by the Ministry of Education (Vlk et al., 2017) focuses on synthesising evidence on three salient groups of causes (academic preparedness, socio-economic disadvantage, and motivational/personal factors) while also highlighting institutional shortcomings (e.g., academic support, feedback, staff–student connection). Among the most frequently cited causes are weak academic performance, mismatched expectations about the study field, and a lack of time due to working duties. These issues are especially pronounced in certain fields, most notably technical disciplines, and are often associated with workload pressures (e.g., non-university work duties), as well as institutional support gaps. Institutional shortcomings, such as poor academic support, inadequate feedback, and a lack of connection with teaching staff, also play a significant role. This indicates that study failure in Czechia is not solely an individual issue, but reflects structural conditions that may undermine long-term institutional attractiveness.

In summary, prior studies indicate that financial resources, institutional characteristics and territorial context jointly shape university performance and student demand. Studies on endowments, revenues and funding models document how wealth and flexible funding reinforce institutional reputation and selectivity, often in ways that reproduce social inequalities rather than mitigating them. A second strand highlights how perceived quality, branding, facilities and digital engagement contribute to institutional attractiveness, again interacting with broader socio-economic and spatial factors. At the same time, the growing use of SEM and PLS-SEM demonstrates the value of modelling indirect, mediating and contextual effects in this domain. Czech research on non-completion further indicates that structural and institutional conditions are central to student success, but it does not explicitly connect detailed staffing, financial and research conditions to student interest within a single causal framework. Existing evidence suggests that comparable studies combining SEM with faculty-level data from Czech public universities have not yet been established in the literature.

2 METHODS AND DATA

2.1 Data Sources

The analysis is based on harmonised administrative data from multiple official sources provided by the Ministry of Education, Youth and Sports (MEYS) and the Government Office of the Czech Republic (GOV Office). All variables relate to public higher education institutions (HEIs) at the faculty level in Czechia between 2017 and 2024. State HEIs, such as the University of Defence, and private HEIs were excluded due to different rules, methods and funding sources, and limited data availability. We also excluded university-wide units that offer study programmes independently of faculty structures, except non-university colleges that are not divided into faculties. These units either provide programmes outside specific faculties (e.g., they are part of non-faculty institutes) or belong to institutional types that do not implement a faculty structure. Data from university-wide units were excluded due to administrative and data collection inconsistencies across the public HEIs in Czechia. After data cleaning and preparation, we worked with a data sample of 1 233 observations out of 157 faculties of public HEIs, with no missing values. All variables were normalised before calculations.

The first dataset, obtained from MEYS's Integrated Student Information System (SIMS), includes student enrolment data such as recalculated enrolment data, numbers of newly admitted students, total student counts, numbers of graduates, and study-programme information at the faculty level. Each study programme is assigned a coefficient of economic demands (CED). The average faculty-level CED is the ratio of the normative number of student enrolments to the recalculated number of student enrolments at a given faculty. The normative number is calculated as a weighted average of the recalculated number of student enrolments across the faculty's study programmes, with weights given by the coefficients of economic demands (CEDs) assigned to each study programme.

$$normative\ number\ of\ student\ enrolments = recalculated\ number\ of\ student\ enrolments * CED \quad (1)$$

The second dataset, also from MEYS, relates to higher education funding and includes data about academic, research and other staff and their wage resources. Data on research staff were excluded, as they lie outside the scope of this study. The category of other employees was also excluded from the analysis due to inconsistencies in their classification across faculties or university-wide units within the structure of individual public universities. The dataset includes information on average monthly salaries, total wage expenditures and numbers of academic staff in full-time equivalents disaggregated by rank: research, development and innovation (RDI) teaching staff, professors, associate professors, assistant professors, assistants and lecturers. The reported values are aggregated regardless of the source of funding (MEYS including supplementary activities, EU structural funds and other sources). In practice, an employee's position may be financed through various sources. For example,

a single full-time equivalent (FTE) position may consist of 0.1 full-time position at the department, 0.4 full-time position on a National Recovery Plan (NRP) project and 0.5 full-time position on a Grant Agency of the Czech Science Foundation (GACR) grant. Compared to the enrolment dataset, this personnel dataset covers significantly more units within public HEIs, such as research institutes, university-wide units, centres and publishing houses, because all of these parts of public HEIs employ staff, even though not all of them enrol students in study programmes outside the faculty structure.

Institutional location was incorporated via the binary variable "metropolis", which categorises HEIs as metropolitan (Prague or Brno) or regional. Data were obtained from MEYS's Register of Higher Education Institutions and Study Programs Offered (REGVSSP).

To capture academic hierarchy and roles within faculties, academic staff were grouped into two composite categories. The first group includes professors and associate professors, who are typically involved in administrative responsibilities related to teaching such as guaranteeing courses or study programmes, or chairing final examination committees. The second group includes all other academic ranks (RDI staff, assistant professors, assistants, lecturers), who might have fewer administrative roles and can focus more on teaching.

We also incorporated data on completed grants from the Research, Development and Innovation Information System (IS VaVaI) provided by the GOV Office. We treat the number of completed grants as a proxy for faculty-level research quality at the Czech public HEIs. For this research, we considered two types of project-funding providers: the Czech Science Foundation (GACR), the Technology Agency of the Czech Republic (TACR). The data was filtered as "completed grants" and consists of successfully completed and discontinued (prematurely terminated) multi-year projects. Discontinued projects represent only a negligible proportion (under 1%) of the considered grants during the period under review. Both variables are strong indicators of research prestige as they are highly competitive and strictly peer--reviewed funding schemes, the selection process is very strict and failure to complete the grant could put the research institute at high reputational risk.

Table 1 Descriptive statistics and key information about the variables

Variable	Abbrev.	Unit	Mean	Median	SD
Average monthly wages of academic staff	avg_m_w_AcadS	CZK	58 207.42	53 357.62	29 603.93
Average monthly wages of professors and associate professors	avg_m_w_P_AP	CZK	82 872.19	68 961.92	152 992.95
Average monthly wages of other academic staff	avg_m_w_other	CZK	48 733.06	46 202.03	20 290.52
Number of projects provided by the Czech Science Foundation	GACR	–	1.37	0.00	3.97
Number of projects provided by the Technology Agency of the Czech Republic	TACR	–	0.75	0.00	2.01
Average number of lecturers	avg_amount_lecturers	FTE	5.17	0.87	10.29
Normative number of student enrolments	normative	–	2 828.12	2 437.57	2 057.44
Number of graduates	grad	–	370.14	279.00	314.12
Total student counts	total_stud	–	1 808.83	1 452.00	1 455.65
Number of newly admitted students	new_stud	–	323.27	271.00	241.97
Year	year	–	–	–	–
Metropolis	metropolis	0/1 type	–	–	–

Source: Own construction, MEYS, GOV Office

2.2 Methodology

2.2.1 Model construction

We specified the model deductively, starting from a theory-led view of how Czech faculties convert resources into reputation, teaching capacity, and student demand. Four latent constructs were defined and measured from harmonised administrative indicators for 2017–2024: structural conditions of teaching, research drive (including a time trend), wages (economic conditions of academic staff), and student interest (attractiveness/retention). This mapping reflects the idea that students respond to a bundle of capacity, location and perceived quality, while institutions' financial and reputational positions feed back into staffing and wages. Evidence that financial and reputational strength shape student markets and selection comes from multiple contexts: endowment growth and prestige dynamics in the U.S., where wealthier institutions spend more and become more selective, shifting composition rather than scale (Bulman, 2022; Gottesman and Ismailescu, 2020), territorial context and services shaping attractiveness in Italy (Giambona et al., 2017), and prestige-driven sorting of high-performing students in Chile (Wörner 2011).

Because staff pay can affect recruitment/retention and role mix yet trade off with headcount, we model wages and structural conditions separately. Finally, given wide structural changes over 2017–2024, the research-drive construct includes the calendar year to absorb shared period dynamics while GACR/TACR grants proxy faculty-level research intensity.

The CB-SEM measurement model is assessed using standardized factor loadings and SEM-consistent diagnostics. Convergent validity is evaluated based on the magnitude and statistical significance of the loadings alongside the Average Variance Extracted (AVE). Internal consistency is estimated via composite reliability indices; Cronbach's alpha is excluded as its assumptions are incompatible with the heterogeneous administrative indicators employed. Discriminant validity is examined using the Fornell-Larcker criterion, complemented by the Heterotrait-Monotrait ratio (HTMT) for sensitivity analysis. Finally, reliability metrics for the "research drive" construct are interpreted strictly as diagnostic evidence rather than as absolute pass-fail thresholds since we work with time series.

2.2.2 Variables

The empirical model incorporates four latent constructs. All latent constructs were selected to investigate the relationship between research, financial and structural conditions of academic staff and students' willingness to enrol, continue and graduate from the faculty of public HEI in Czechia.

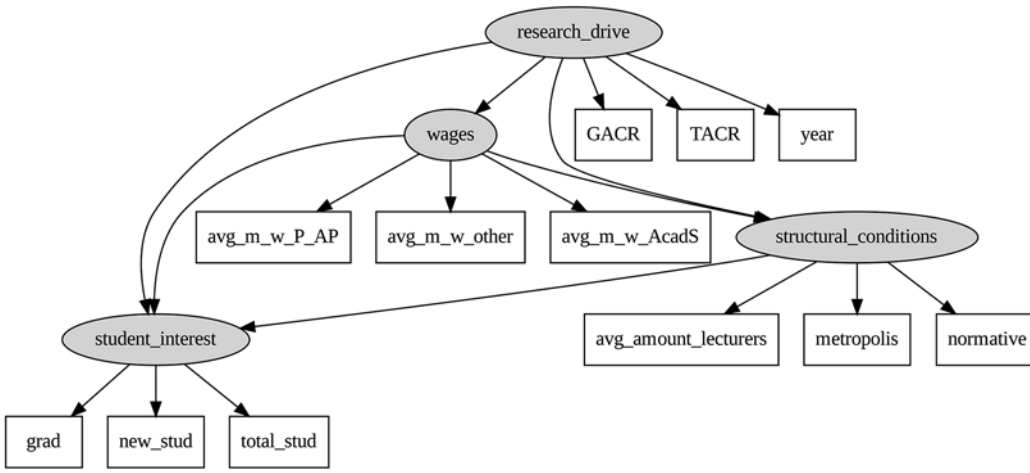
The first latent variable, "structural conditions", might be considered as a proxy of the faculty size and location. The variable shows the size of the faculty through the number of lecturers in full-time equivalents as a primarily teaching academic employee (avg_amount_lecturers) and the normative number of student enrolments as the amount of public funding a faculty receives per student, adjusted for programme cost and type (normative). These two variables are supposed to show the number of teaching personnel and the money the faculty has to provide education. We also include a binary location indicator (metropolis) to distinguish faculties of HEIs in two largest cities in Czechia (Prague and Brno) from regional faculties as a proxy of students' willingness to move to bigger cities, for example, to increase future job opportunities.

The second latent variable, "research drive", should represent the prestige of the university in terms of research quality in Czechia and the trend in data. The GACR and TACR variables represent the number of completed grants per faculty of HEIs as an indicator of high-quality and prestigious research. The variable year helps us show the trend in our data.

"Wages" capture the economic conditions facing academic personnel and the ability of faculties to attract and retain staff. "Wages" consists of various variables referring to weighted average monthly salaries: academic staff in total (avg_m_w_AcadS), professors and associate professors (avg_m_w_P_AP) and all other academic ranks, such as RDI staff, assistant professors, assistants, lecturers (avg_m_w_other).

The last latent variable "student interest" is captured through newly enrolled students (new_stud), the total number of students (total_stud) and the number of graduates (grad). "Student interest" is a proxy of the faculty attractiveness and should provide answers to questions such as the ability of the faculty to attract and keep students and give them the appropriate conditions to successfully graduate from the faculty.

Figure 1 Proposed model structure



Source: Own construction

Based on the literature, Czech public data structures, and our construct definitions, we posit the following directional expectations. Student interest should be positively associated with structural conditions and with research drive, which includes the time trend. The direct effect of wages on student interest is expected to be small and positive, and may be non-significant. Research drive is expected to be positively associated with wages. By contrast, the effects of research drive on structural conditions and of wages on structural conditions are theoretically ambiguous: research-intensive units may either expand staffing and infrastructure or maintain lean teaching footprints, and higher salaries can facilitate recruitment yet crowd out headcount. Because the research drive combines competitive grant activity (GACR/TACR) with the time trend (year), these relations should be interpreted as the joint influence of research intensity and system dynamics.

2.2.3 Used statistical methods

Covariance-based structural equation modelling (CB-SEM) is the classic SEM framework developed the 1960s and formalised in the social sciences in 1975 by Duncan (1975). This method is mainly connected with software solutions due to the complexity of this model. One of the first popular solutions was by Karl Jöreskog (LISREL software – Jöreskog and Van Thillo, 1972). In our paper, we are using the widely applied SEMOPY (Igolkina and Meshcheryakov, 2020) package in Python, which outperforms other available software in terms of estimation quality.

CB-SEM estimates model parameters so that the model-implied covariance matrix reproduces the observed covariance matrix as closely as possible, enabling rigorous tests of both the measurement and structural parts of a theory. Model adequacy is judged with well-established global fit indices – e.g., the Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), and the RMSEA – which collectively evaluate how well the overall theoretical structure captures the data's dependence patterns. This tradition

underpins mainstream SEM texts and software and remains the dominant approach for theory testing in the social sciences. (Bentler, 1990; Igolkina and Meshcheryakov, 2020).

Why CB-SEM is a strong choice for our study (vs. PLS-SEM), when the goal is to evaluate a new, theory-driven model – including its latent constructs, cross-construct paths, and the global plausibility of the entire system – CB-SEM is preferable because it provides unbiased, consistent parameter estimates under correct specification, formal global fit testing and nested-model comparisons, and rich diagnostics for the measurement model.

In contrast, variance-based PLS-SEM is optimised for prediction, handles small samples and complex composites well, but historically lacked consistent estimation for reflective constructs (addressed by PLSc) and does not emphasise global theory fit in the same way; leading PLS guidance itself recommends CB-SEM when the research objective is theory confirmation rather than prediction. Given our reflective constructs and confirmatory aims, CB-SEM is the appropriate, widely recommended choice for creating new theoretical models and testing the theories behind them (Hair et al., 2022).

3. RESULTS

Based on the CB-SEM output, student interest is significantly and positively related to structural conditions ($\beta = 1.44$, SE = 0.16, z = 9.13, $p < .001$) and to research drive ($\beta = 2.27$, SE = 0.63, z = 3.58, $p < .001$). In contrast, the direct association between wages and student interest is null ($\beta = -0.01$, SE = 0.03, z = −0.31, $p = .76$). Upstream, research drive is significantly (negatively) associated with structural conditions ($\beta = -2.58$, SE = 0.41, z = −6.29, $p < .001$) and with wages ($\beta = -0.69$, SE = 0.18, z = −3.76, $p < .001$). In contrast, wages do not predict structural conditions ($\beta = -0.01$, SE = 0.03, z = −0.24, $p = .81$). Taken together, the only statistically meaningful correlates of student interest in this specification are structural capacity and research drive, with wages operating – if at all – indirectly and without a detectable direct path to demand.

Table 2 Statistics summary of the structural model

Right latent variable		Left latent variable	Estimate	Std. error	z-value	P-value
Structural conditions	->	Student interest	1.44	0.16	9.13	0.00
Research drive	->	Student interest	2.27	0.63	3.58	0.00
Wages	->	Student interest	–0.01	0.03	–0.31	0.76
Research drive	->	Structural conditions	–2.58	0.41	–6.29	0.00
Wages	->	Structural conditions	–0.01	0.03	–0.24	0.81
Research drive	->	Wages	–0.69	0.18	–3.76	0.00

Source: Own construction

Also, our overall statistics suggest that our model is statistically acceptable and the results are aligned with our theory. Assessing global model fit, six indices point to acceptable overall performance, we also want to emphasise approximate and incremental indices given the large N.

The χ^2 test is significant – $\chi^2(47) = 613.66$, $p < .001$ – with $\chi^2/df = 13.06$; because χ^2 is highly sensitive to large samples, we rely more on incremental indices (which is expected with large samples; we therefore do not rely on the normed χ^2/df ratio; Kline, 2023). The CFI = 0.945 (or 94.5% better than baseline model) and TLI = 0.923 exceed the conventional .90 threshold (with .95 often cited as "very good"), indicating the model reproduces the covariance structure reasonably well. NFI = 0.941 is consistent with this verdict. The RMSEA = 0.097 sits at the boundary of what is typically regarded as mediocre-to-acceptable (extreme

close fit ≤ .05; reasonable .05–.08; mediocre .08–.10; poor-fit hypothesis> .10; Kline, 2023), suggesting limited data (variables) rather than failure of the model. RMSEA sits near the boundary (0.10) where many guidelines move from "reasonable" to "problematic," but Kline cautions that such thresholds are only heuristics. Finally, AIC = 61.00 and BIC = 219.64 help compare rival specifications (lower is better) but have no absolute cut-off.

Overall, this pattern – incremental fit in the mid 90s paired with acceptable RMSEA in a large-N panel – supports the adequacy of the proposed CB-SEM for theory testing while leaving scope for minor, theory-guided refinements. The model captures the hypothesised structure (strong positive effects of structural teaching conditions and research drive on student interest, and a null direct wage effect), aligning with your theoretical expectations.

Table 3 Model variables measurements

Measured variable	Latent variable	Estimate	Std. error	z-value	P-value
Normative	L1	1.00	–	–	–
avg_amount_lecturers	L1	0.62	0.03	20.27	0.00
Metropolis	L1	0.19	0.02	11.36	0.00
Year	L2	1.00	–	–	–
GACR	L2	–3.08	0.51	–6.05	0.00
TACR	L2	–0.47	0.16	–3.05	0.00
avg_m_w_other	L3	1.00	–	–	–
avg_m_w_P_AP	L3	0.31	0.03	10.52	0.00
avg_m_w_AcadS	L3	1.06	0.08	13.82	0.00
Grad	O1	1.00	–	–	–
new_stud	O1	0.97	0.02	63.19	0.00
total_stud	O1	1.06	0.01	94.54	0.00

Source: Own construction

All estimated measurement loadings are statistically significant ($p < .001$ or $p < .01$), supporting the convergent validity of all reflective constructs. For structural conditions (L1) we observe positive loadings for avg_amount_lecturers ($\beta = 0.62$, $z = 20.27$) and metropolis ($\beta = 0.19$, $z = 11.36$); for wages (L3) both avg_m_w_P_AP ($\beta = 0.31$, $z = 10.52$) and avg_m_w_AcadS ($\beta = 1.06$, $z = 13.82$) are significant; and for student interest (O1), new_stud ($\beta = 0.97$, $z = 63.19$) and total_stud ($\beta = 1.06$, $z = 94.54$) are very strong indicators. Within research drive (L2), GACR ($\beta = -3.08$, $z = -6.05$) and TACR ($\beta = -0.47$, $z = -3.05$) are also significant. Their negative signs reflect factor orientation relative to the year anchor fixed at 1.00, while the reference indicators (normative, year, avg_m_w_other, grad) were fixed to 1.00 for identification and thus not tested.

We assessed the CB-SEM measurement model using standardized factor loadings and SEM--consistent diagnostics. Convergent validity was evaluated using the magnitude and statistical significance of standardized loadings and the Average Variance Extracted (AVE). Internal consistency was summarized using composite reliability indices derived from standardized loadings and indicator error variances. We do not report Cronbach's alpha because our constructs are measured by a small number of heterogeneous administrative indicators, for which alpha is strongly driven by the number of indicators and relies on assumptions (e.g., tau-equivalence and item homogeneity) that are not well matched to this measurement

setting. We therefore prioritize SEM-aligned indices and interpret them as diagnostic evidence rather than strict pass-fail thresholds.

Since our research intentionally combines competitive grant activity with a time trend, high internal consistency is not a conceptual requirement; accordingly, reliability indices are interpreted as diagnostic only.

4 DISCUSSION

Consistent with the a priori expectation, student interest is positively and statistically significantly associated with structural conditions. Faculties with greater teaching capacity, represented by the number of lecturers, higher normative resources per student and metropolitan or regional location, exhibit higher inflow and persistence of students, conditional on the other constructs.

Student interest is statistically significantly associated with research drive, which is formed by the number of completed grants from two Czech grant agencies together with a time trend (2017–2024). Our results indicate that higher research intensity and system improvements over the period move alongside higher student demand and progression. Because the research drive combines grant activity with the time trend, this effect should be read as their joint influence.

In line with the expectation of a small direct effect, wages show no statistically significant direct association with student interest once structural conditions and research drive are accounted for. This is consistent with wages not operating as a demand signal by itself; any indirect role via capacity and reputation remains tentative.

There is a statistically significant association between research drive and wages, indicating that compensation systematically varies with the research/time profile of faculties. Given the composite nature of the research drive, the sign should be interpreted with caution. The result nevertheless indicates a robust linkage between research profile, period dynamics and pay setting.

The association between research drive and structural conditions is statistically significant, indicating that research/time dynamics are systematically related to teaching capacity and metropolitan versus regional positioning of the faculty. The direction observed in our data suggests that research orientation is linked to a distinct organisational footprint, consistent with strategic differentiation over the study period.

Wages show no statistically significant direct association with structural conditions. This aligns with the theoretical ambiguity: higher salaries may facilitate recruitment yet be offset by headcount constraints, yielding no net direct effect on teaching capacity once the research drive is considered.

Taken together, structural conditions and research drive emerge as the principal correlates of student interest, while wages appear consequential mainly through their associations with these constructs. The significant links from research drive to both wages and structural conditions indicate that research and period dynamics shape how faculties remunerate and organise teaching, whereas wages alone do not translate into direct changes in capacity or demand.

Our model adds theoretical clarity by aligning four institution-level constructs (structural conditions, research drive, wages, and student interest) with how Czech faculties convert resources into attractiveness and progression. Treating student interest as a composite of inflow, stock, and graduation is consistent with evidence that graduation rates are a primary driver of institutional returns, whereas prestige proxies are not robust once controls are included (Dorius et al., 2017). Separating structural conditions from wages avoids conflating scale with compensation and allows mediation: pay can shape who is hired, while capacity and place transmit what students experience. In this sense, the chain we specify is consonant with work showing that non-financial organisational strengths (customer perspective, internal processes, learning and growth) can underpin financial performance (Al-Hosaini et al., 2023), and with evidence that intangible resources such as reputation tend to operate indirectly by enabling the accumulation of tangible resources before influencing outcomes (Won and Chelladurai, 2016).

The pattern we observe, strong associations of structural conditions and research drive with student interest, coupled with a weak direct role for wages, is consistent with international findings. In the U.S., endowment shocks are associated with higher spending and increased selectivity, without expanding scale and with slight declines in Pell/URM shares (Bulman, 2022). Financial-market evidence shows that credit ratings co-move with student demand and quality, especially among private universities (Gottesman and Ismailescu, 2020). Territorial amenities, public services and labour-market conditions are associated with where students enrol (Giambona et al., 2017) and prestige mechanisms can concentrate top-performing students within a small set of universities (Wörner, 2011). Read against this backdrop, our results suggest that attractiveness in Czech faculties is primarily associated with teaching capacity and research visibility, while wage policy appears, at most, indirectly related through those channels; the research drive construct should be read as the joint influence of competitive grant activity and system--wide time dynamics between 2017 and 2024.

CONCLUSION

This study advances how Czech faculties of public higher education institutions convert resources into institutional attractiveness by aligning four constructs considering financial, personnel, spatial and research conditions of academic staff within a CB-SEM framework. The pattern of associations indicates that student interest relates most strongly to structural conditions and research drive, while wages matter chiefly indirectly through these channels. Conceptually, the separation of structural conditions from wages clarifies how capacity and place transmit what students experience, whereas compensation primarily conditions who can be hired. Taken together, the results provide a parsimonious structure for interpreting institutional attractiveness as the interplay of teaching capacity, research visibility and staffing economics rather than as a function of any single input.

Our findings are consistent with the existing literature on the roles of capacity, reputation and territorial context in shaping student demand. Two qualifications are important for interpretation: research drive embeds both competitive grant activity and an institutional time trend, so its effects capture joint institutional and period dynamics; and all relationships are read as associations contingent on measurement and context. These features point to natural extensions for future work (e.g., alternative operationalisations of research reputation, explicit policy shocks), but they do not alter the core theoretical implication: in this setting, strengthening teaching capacity and research visibility appears more consequential for institutional attractiveness than direct wage levels alone.

The findings suggest that, for government, ministry-level and institutional stakeholders, institutional attractiveness is most strongly associated with stable teaching capacity, research visibility and student-facing support. For universities and faculties, this highlights the role of strategic staffing and research investments, while wage policy – shaped by institutional autonomy and discipline-specific differences in research funding – appears to influence student interest mainly indirectly through its effects on capacity and reputation.

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