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Measuring the Social Institutions of Education Systems

Thomas Bolli, Katherine M. Caves, Patrick McDonald and Ursula Renold
Chair of Education Systems, ETH Zürich, Switzerland

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Motivation

Education programs vary across country, economic and social contexts.

A social institutions framework allows for a way to measure programs across contexts, by conceptualizing them as **common, predictable patterns of behaviour towards a common end**

We developed a theoretical framework for measuring the **robustness of social institutions** (Rageth et al. 2021). A more robust social institution should lead to better outcomes.

Measuring the robustness of social institutions: a theoretical model

A social institution is more **robust**

- if it fulfills its **function(s)** more effectively
- if its **structure** is more clearly defined and more stable
- if its **culture** more strongly influences a common pattern of behavior among its actors.
- if its **sanctions** are applied more quickly in response to violations of agreed rules. (Miller 2003)

A social institution is more robust if it has **advanced through the institutionalisation** process. (Tolbert and Zucker 1999)

Institutionalization Phases		Pre-institutionalization		Semi-institutionalization		Full institutionalization	
Breadth of Scope		Narrow Scope	Broad Scope	Narrow Scope	Broad Scope	Narrow Scope	Broad Scope
Quality Properties	Function						
	Structure						
	Culture						
	Sanction						

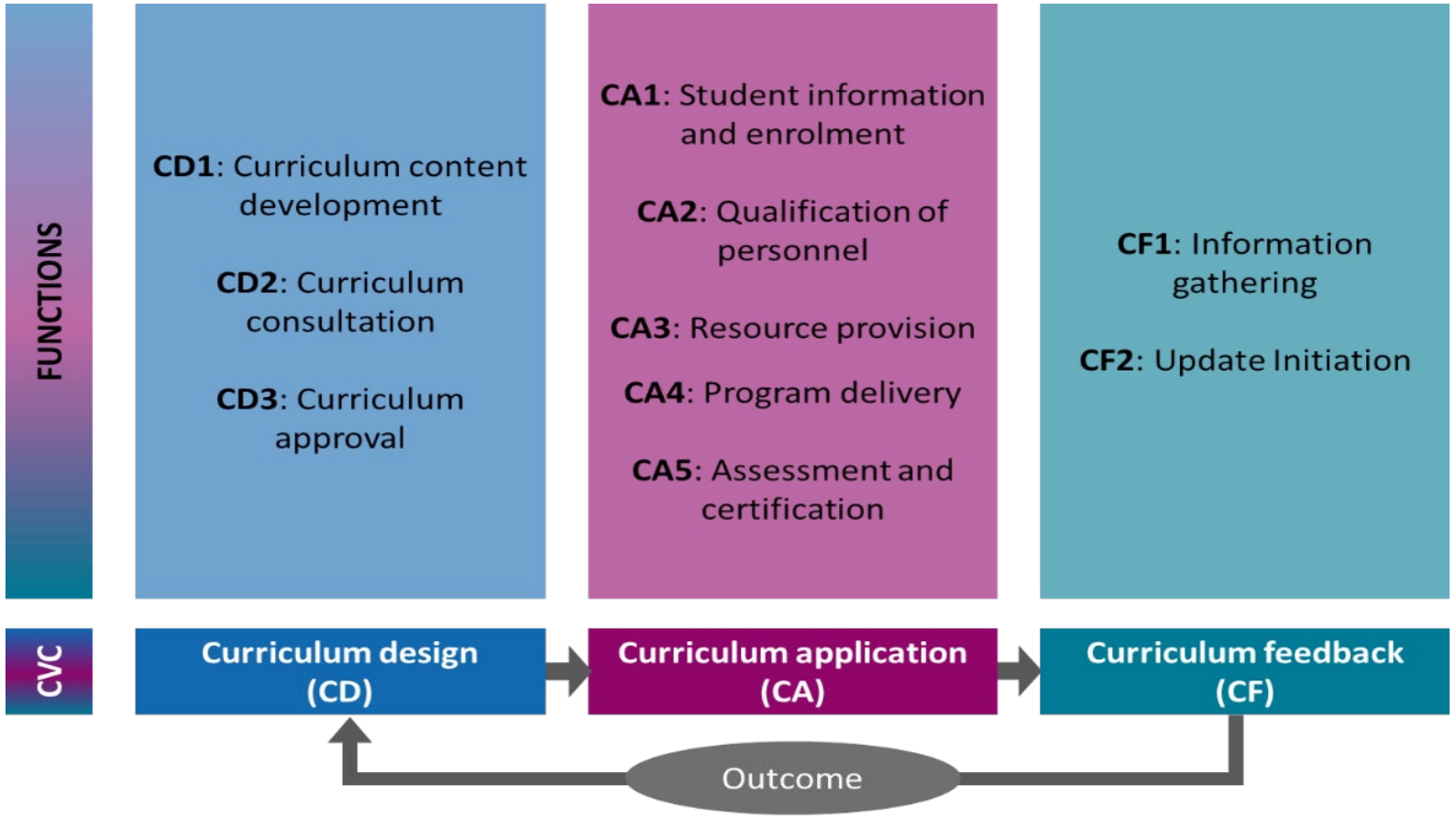
A social institution is more robust if it is **broader in scope**. (Leslie and Clunan 2011)

High quality
Somewhat high quality
Somewhat low quality
Low quality

Education programs as social institutions

- Renold et al. (2019), following Renold et al. (2015) conceive of education programs as a series of **processes** organized along the **curriculum value chain** (CVC).
- These processes represent the social institutions of the program overall (itself a social institution).
  - The more robust the processes, the more robust the program overall.
- The processes should be context-neutral – exist in all programs, even if by a different name.

The Curriculum Value Chain (CVC)



Measuring social institutions: theory to empirics

- Can we use the theoretical framework for social institutions robustness as a basis for an empirical measure?
- We develop a survey tool based on the elements in the framework
- We apply the survey with stakeholders in education programs in four LELAM countries: Benin, Costa Rica, Nepal, Switzerland.
- Two-step process:
  1. Use a regression-based approach to ascertain the importance of each of the robustness elements for the overall robustnes score in a social institution (education program process) (cf. Bolli et al. 2018)
  2. Apply the weighted robustness values to derive objective scores for the processes.
  3. Use the process scores to define a program's overall robustness, based on weights defined by respondents (defining the % importance of each process for the program overall).

Data and methods

- Survey amongst stakeholders (teachers, employers, education officials) in three countries in the LELAM-TVET4Income project
- 278 responses in 4 countries: 105 in Benin, 30 in Costa Rica, 50 in Nepal, 93 in Switzerland
- Respondents asked a series of questions about the SI factors in the theoretical framework, and how robust they are in the program/process (Likert scale 1-5).

Development of curriculum

The following questions refer to the process of developing the content of curricula. This process includes the definition of the curriculum development method, curriculum framework, curriculum content, teaching methods and exam form. In [the TVET programme] this process is known as [CD1_name] and consists of [CD1_description]

In your opinion, how robust is [CD1_name]?

- ○ Very robust
- ○ Robust
- ○ Somewhat robust
- ○ Not very robust
- ○ Not at all robust

In your opinion, how well does [CD1_name]reflect labour market demands?

- ○ Not at all
- ○ To a small extent
- ○ To a moderate extent
- ○ To a large extent
- ○ Completely

In your opinion, how clearly defined are actors' roles and responsibilities in [CD1_name]?

- ○ Very unclearly
- ○ Unclearly
- ○ Moderately clearly
- ○ Clearly
- ○ Very clearly

In your opinion, how accurately does the formal rule (e.g. law, legal document, association statute) define [CD1_name]?

- ○ Not at all
- ○ Very broadly
- ○ Broadly
- ○ Accurately
- ○ Very accurately

In your opinion, how deeply are actors involved in [CD1_name]?

- ○ Not at all
- ○ To a small extent
- ○ To a moderate extent
- ○ To a large extent
- ○ Completely

Data and methods

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- 278 responses in 4 countries: 105 in Benin, 30 in Costa Rica, 50 in Nepal, 93 in Switzerland
- Respondents asked a series of questions about the SI factors in the theoretical framework, and how robust they are in the program/process (Likert scale 1-5)
- Regress the individual scores on the overall robustness score for each process (cf. Bolli et al. 2018) to ascertain the statistical importance of each – convert to % to create an unbiased robustness score for each process.

Data and methods

- Estimation:

$$Robustness_{p,e} = \gamma_p + \beta_1 Function_{p,e} + \beta_2 Structure\hat{}_{p,e} + \beta_3 Culture\hat{}_{p,e} + \beta_4 Sanctions_{p,e} + \beta_5 Scope\hat{}_{p,e} + \beta_6 Institutionalization_{p,e} + \epsilon_{p,e}$$

$Robustness_{p,e}$: Robustness of process *p* in program *e*

γ_p: Individual fixed-effect

$\epsilon_{p,e}$: Residual error term

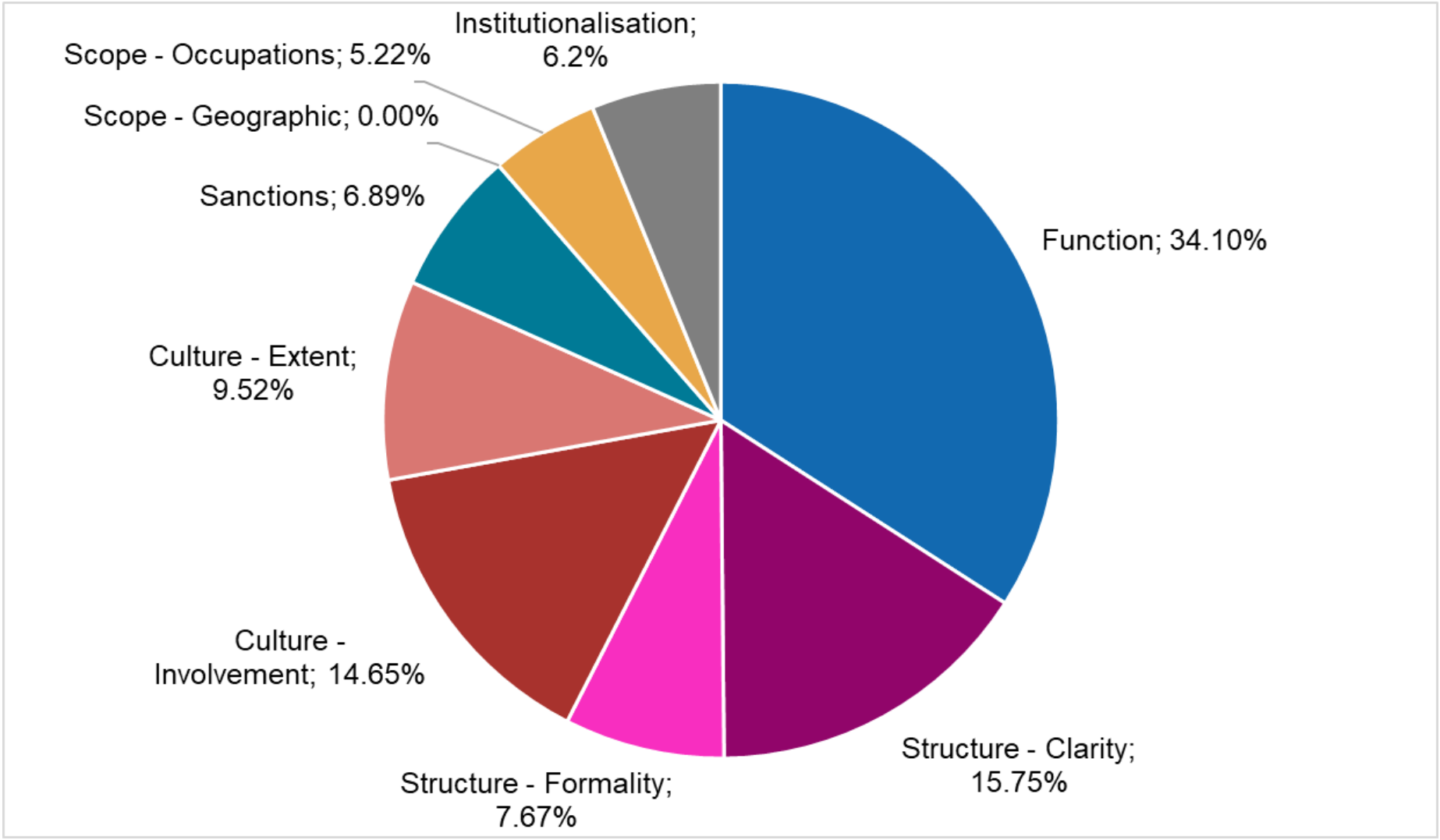
^ These factors had multiple questions so we run two models: one with each question individually as a factor, one with them combined.

Part 1: What are the most important elements for robustness?

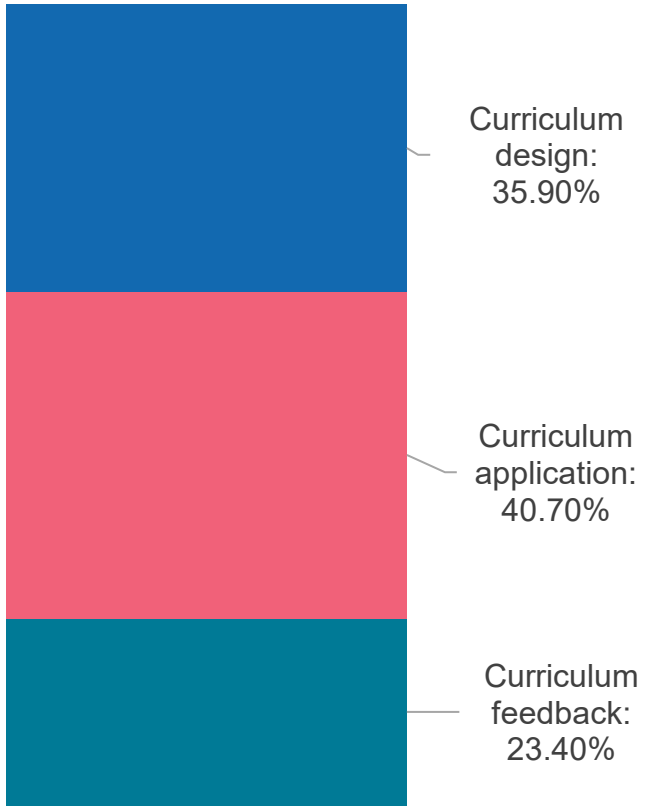
Factor	Robustness	Robustness
Function	**0.2607*** **	**0.2633*** **
	(0.0346)	(0.0349)
Structure: clarity	**0.1204*** **	
	(0.0365)	
Structure: formality	0.0586*	
	(0.0332)	
Structure: Combined		**0.1743*** **
		(0.0412)
Culture	**0.112*** **	
	(0.0338)	
Culture: extent	0.0728*	
	(0.0429)	
Culture: Combined		**0.1887*** **
		(0.0369)
Sanction	0.0527*	0.0527*
	(0.0277)	(0.0277)
Scope: geographic	-0.0026	
	(0.0314)	
Scope: occupation	0.0399*	
	(0.0208)	
Scope: Combined		0.0457
		(0.0325)
Degree of institutionalisation	0.0458	0.0458
	(0.0304)	(0.0304)
SEs	Clustered	Clustered
Observations	1690	1690
Individuals	239	239
R2	0.60579	0.60486
Within R2	0.22471	0.22288

Signif. codes: *** 0.01 ** 0.05 * 0.1

Part 1: What are the most important elements for robustness?



Part 2: Which parts of the CVC are most important for program robustness?



Curriculum content development: 15.3%

Curriculum consultation: 11.8%

Curriculum approval: 8.4%

Student enrolment and information: 6.6%

Qualification of personnel: 9.4%

Resource provision: 9%

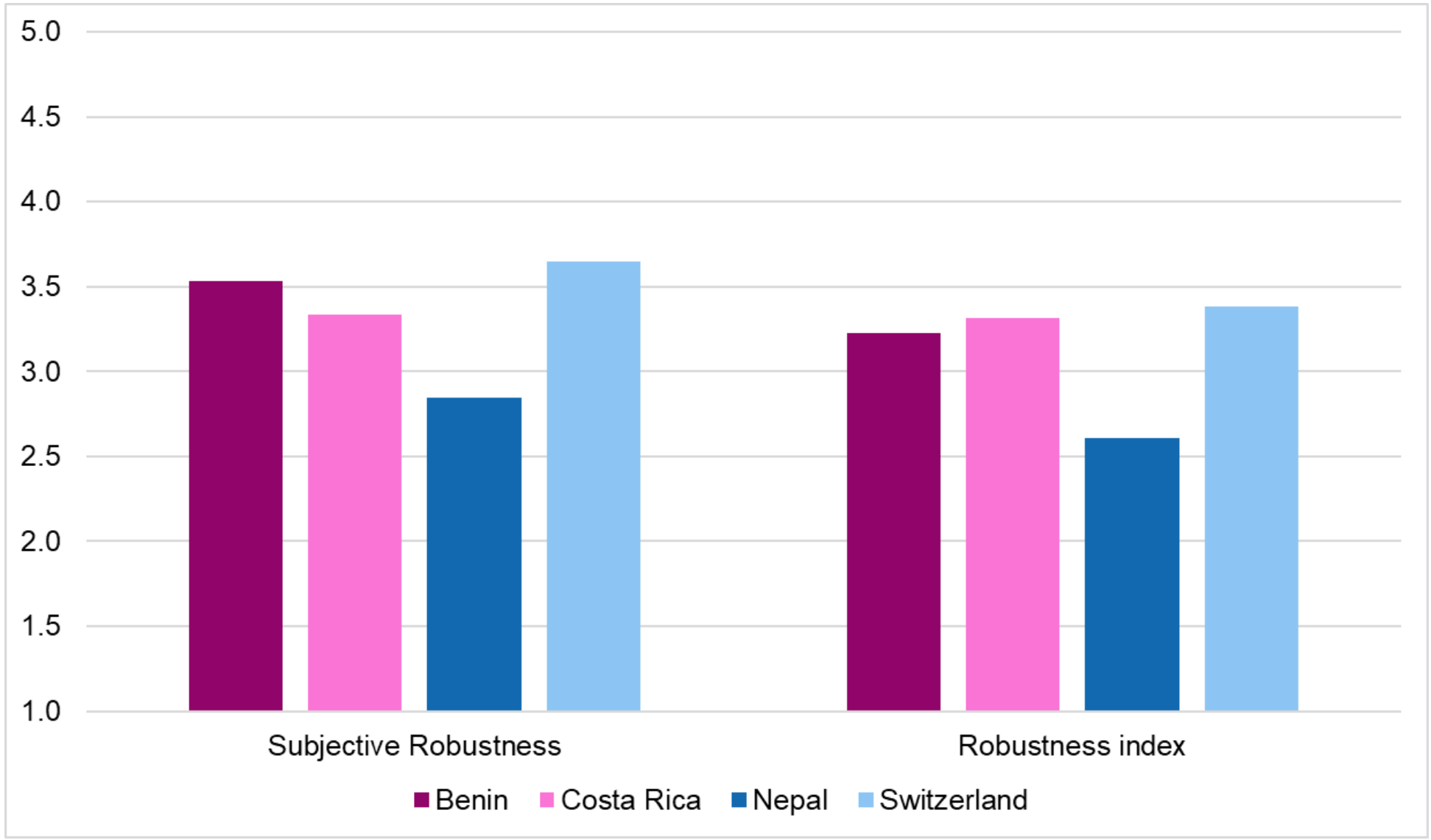
Program delivery: 10.5%

Assessment and certification: 5.9%

Information gathering: 11.4%

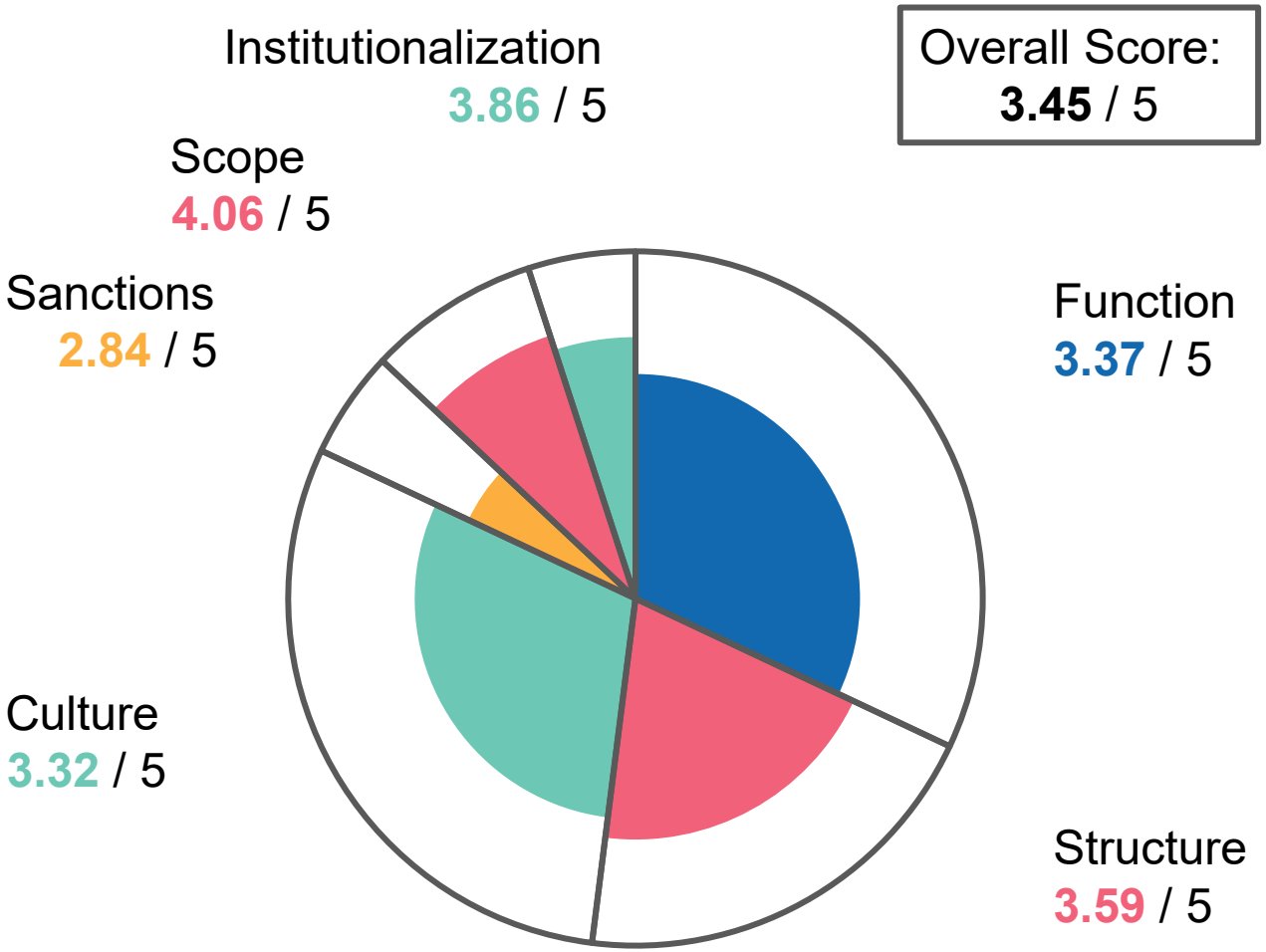
Update initiation: 12%

Results: Overall program robustness – subjective vs. objective



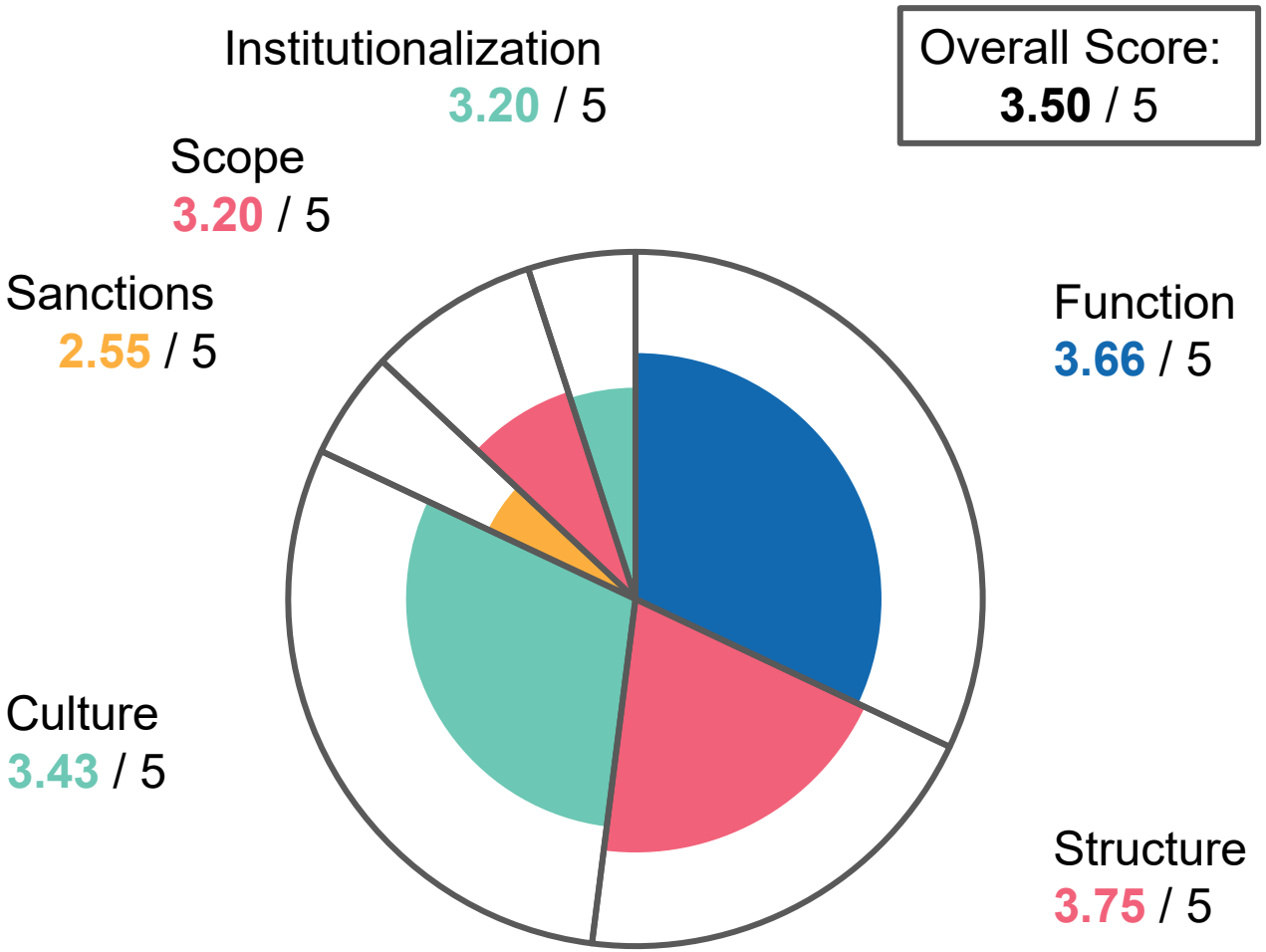
Results: impact of each factor on overall robustness

Benin



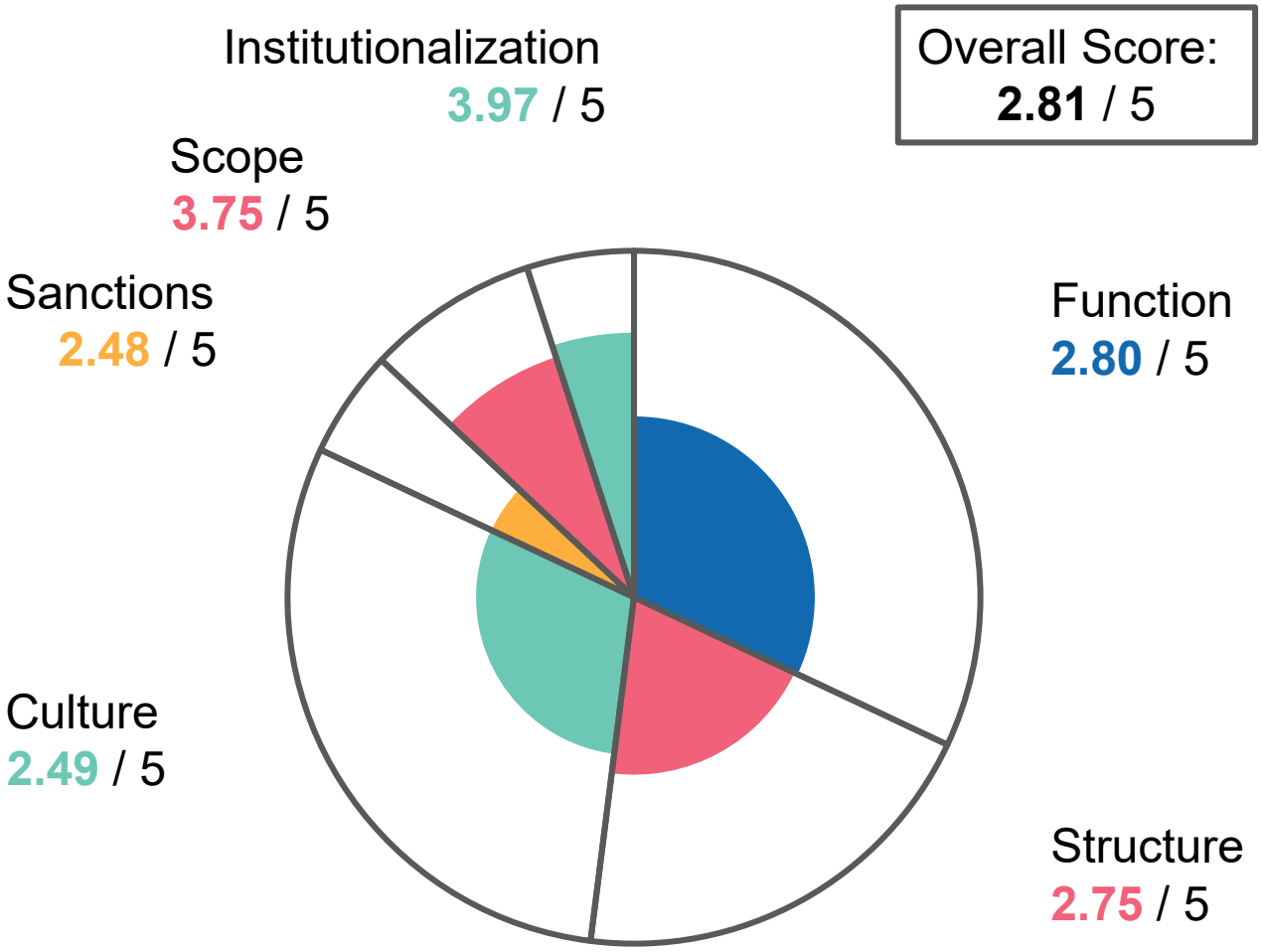
Results: impact of each factor on overall robustness

Costa Rica



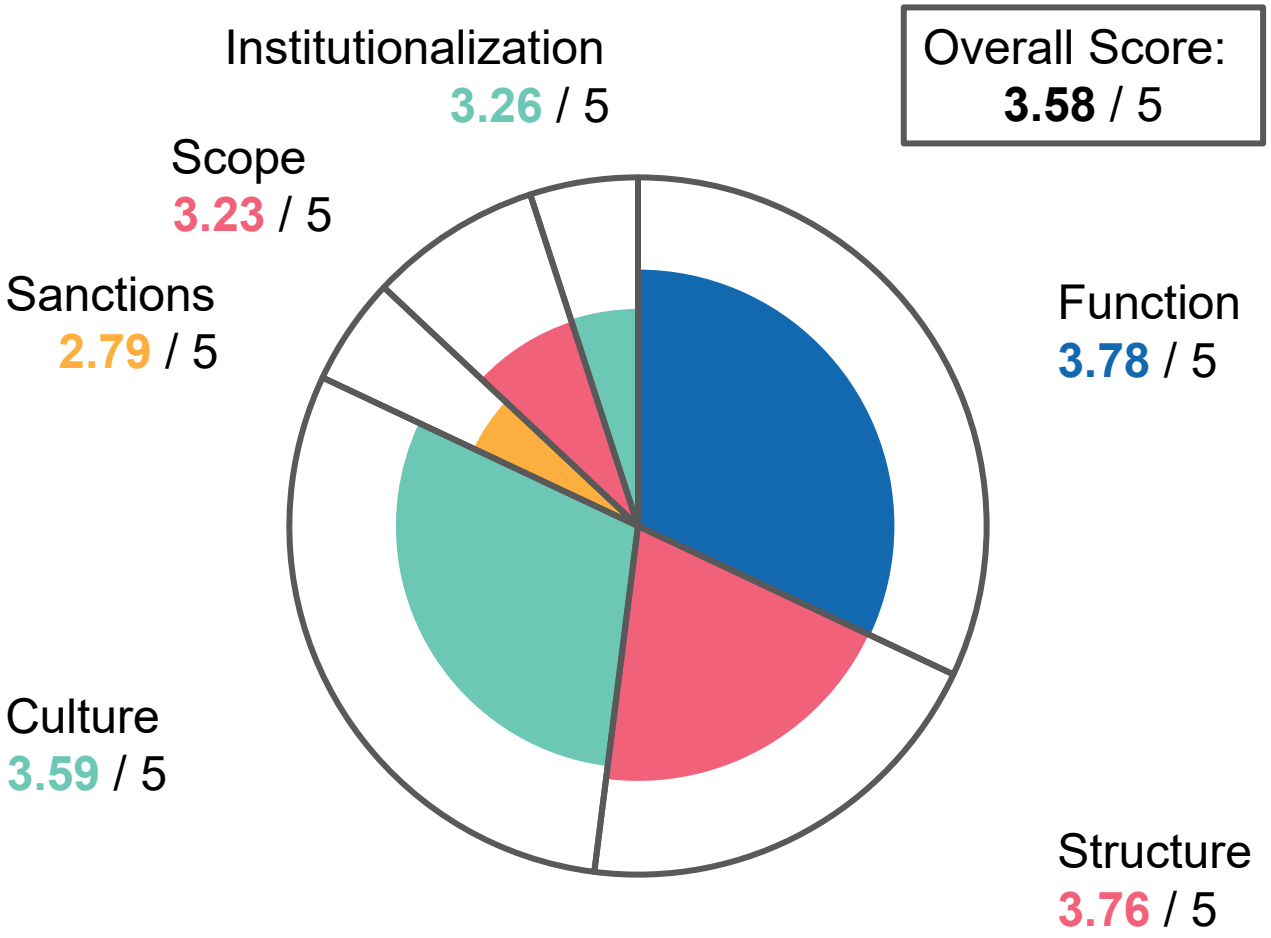
Results: impact of each factor on overall robustness

Nepal



Results: impact of each factor on overall robustness

Switzerland



Summary

- We use a theoretical framework we develop to propose an **empirical measurement of social institutions**
- We apply the measure to **VET programs** in three countries developing their education systems
- Statistical analysis suggests **function, structure and culture** are the most important factors for VET program robustness
- The **processes of VET programs** have a relatively similar impact on program robustness overall (6-15%)
- This is important because we expect social institutions to proxy the **underlying strength of the programs**. Stronger programs = better outcomes (but may be more difficult to change)
- Next step: Adding analysis from an **established VET program** (Switzerland), to see if the results (importance of factors) change.

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Thank you for your attention!

CHAIR OF EDUCATION SYSTEMS

patrick.mcdonald@mtec.ethz.ch

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