Fiscal Implications of Free Secondary Education: the case of Tanzania

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Free secondary education

- MDG 2 targeted universal primary education
- 23 Sub-Saharan African countries abolished primary fees 2000-2015 (UNESCO, 2015)
- Large gains in primary enrollment
- SDG 4 extends goal to secondary education
- Abolition of lower secondary tuition fees so far:
  - Ghana, Kenya, Rwanda, South Africa, Tanzania, Uganda
  - In 2018: Sierra Leone, Malawi (4th poorest country)
- Rapid impacts on participation
  - e.g. Kenya: Free secondary education introduced 2008
  - NER rises from 33% in 2009 to 51% in 2016

Fiscal risks of free education

- Policies politically popular and often announced around elections (Harding and Stasavage, 2014)
- May be announced without full fiscal planning
- → Shortages, inequitable distributions
- In Secondary, exacerbated by higher per-student cost model
- e.g. Kenya:
  - Severe shortages of staff and infrastructure in poorest counties
  - Private schools accounted for 28 percent of enrollment in 2016 (Senkasi, 2018)
  - 90 percent of Form 2 students do not reach minimum competency in albegra and geometry
  - Urban students twice as likely to achieve minimum competency as rural students (World Bank)

How can free secondary education be done sustainably?

Free lower secondary education in Tanzania

- Free primary education introduced 2002
- Secondary education maintained fee system
  - Tsh. 20,000 (US $9) per year tuition
  - Tsh. 30,000 (US $13) boarding fees
  - Inspection, examination fees
- Fee-Free Basic Education Policy (FFBEP) announced December 2015
- Abolishes formal fees at lower secondary level
- Prohibits informal fees at primary and lower secondary levels
- Associated with an approximately 10-15 percentage point increase in transition from Standard 7 to Form I

Simulation model tool

- Requested by Government of Tanzania to develop tool to support fiscal planning for lower secondary education
- Enables modelling of wide range of parameters
- Allows policymakers to update and amend plans according to changing conditions (enrollment, costs)
- Enables simulation of long-term impact of number of policies and service standards

Policy parameters:

- Automatic promotion to secondary

Service standards:

- Teacher-stream ratio
- Pupil-stream ratio
- Stream-classroom ratio
- Share of students who are boarders

Instrastructure standards:

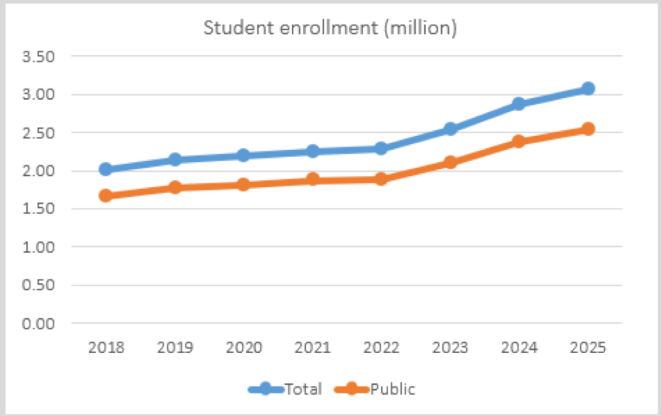
- Pupils per toilet
- Number of blocks (forms) per classroom
- Number of science labs per school
- Share of teachers with housing
- Share of schools with admin blocks
- Share of schools with libraries

Simulation model tool

Policy parameters

	Baseline, 2017	Target value	Target year
Primary education			
		SELECT	SELECT
Years of primary education	7	7	2019
Teacher-stream ratio	1.0	1.0	2019
Pupil-stream ratio	45.7	45.7	2019
Stream/classroom ratio	1.7	1.7	2019
Secondary education			
		SET VALUE	SELECT
Automatic promotion to secondary (yes/no)	No	No	2019
Form 2 examination abolishing	No	No	2019
Teacher-stream ratio	2.5	2.5	2019
Pupil-stream ratio	45.1	45.1	2019
Stream-classroom ratio (shifts)	0.88	0.88	2019
Cash grants to schools, TSh per student	12,500	12,500	2019
Textbook grants, TSh per student	12,500	12,500	2019
Food for board. pupils., thousand TSh / pupil	528	528	2019
		SET VALUE	SELECT
Budget shortfall (% of cost unable to cover)		0%	2019

Cost reduction (-) or increase (+) compared to baseline scenario (without AP), bln	
Total costs	0.0
Construction costs	0.0
Cost reduction (-) or increase (+) compared to baseline scenario (with AP), bln	
Total costs	-2,061.6
Construction costs	-1,458.2

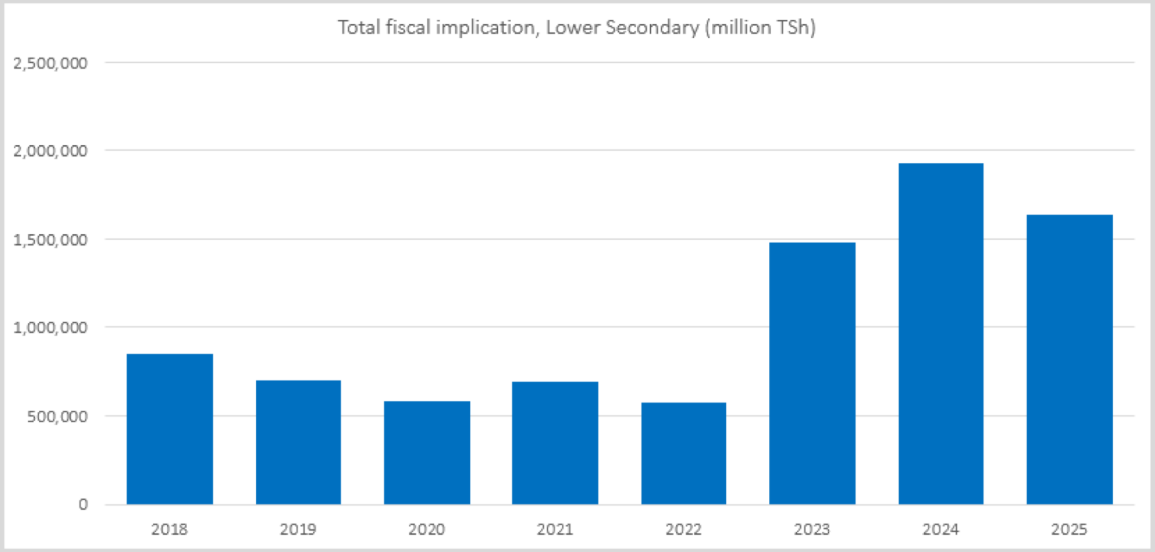


Fiscal implication, lower secondary education (million TSh)

	2018	2019	2020	2021	2022	2023	2024	2025
1) Capitation grants and fee subsidies	87,478	93,043	95,221	98,315	99,180	110,697	125,124	133,579
including								
(i) Capitation grants:	*41,656*	*44,306*	*45,343*	*46,816*	*47,229*	*52,713*	*59,583*	*63,609*
(a) Cash grants	*20,828*	*22,153*	*22,672*	*23,408*	*23,614*	*26,356*	*29,791*	*31,804*
(b) Cost of textbooks	*20,828*	*22,153*	*22,672*	*23,408*	*23,614*	*26,356*	*29,791*	*31,804*
(ii) Tuition fees	*45,822*	*48,737*	*49,878*	*51,498*	*51,952*	*57,984*	*65,541*	*69,970*
2) Food for boarding pupils, million TSh	131,906	140,298	143,582	148,247	149,552	166,918	188,673	201,421
3) Teacher salaries	94,099	148,568	168,467	196,732	204,640	309,855	438,307	515,545
4) Examination fees	28,627	32,935	33,747	37,203	36,342	36,055	42,186	44,527
6) School inspections	1,666	1,772	1,814	1,873	1,889	2,109	2,383	2,544
7) Capital costs	504,589	285,952	138,280	208,237	79,503	857,975	1,129,655	736,462
Budget shortfall	0	0	0	0	0	0	0	0
Total fiscal implication	**848,366**	**702,568**	**581,110**	**690,606**	**571,107**	**1,483,609**	**1,926,328**	**1,634,078**

Education system indicators, lower secondary education

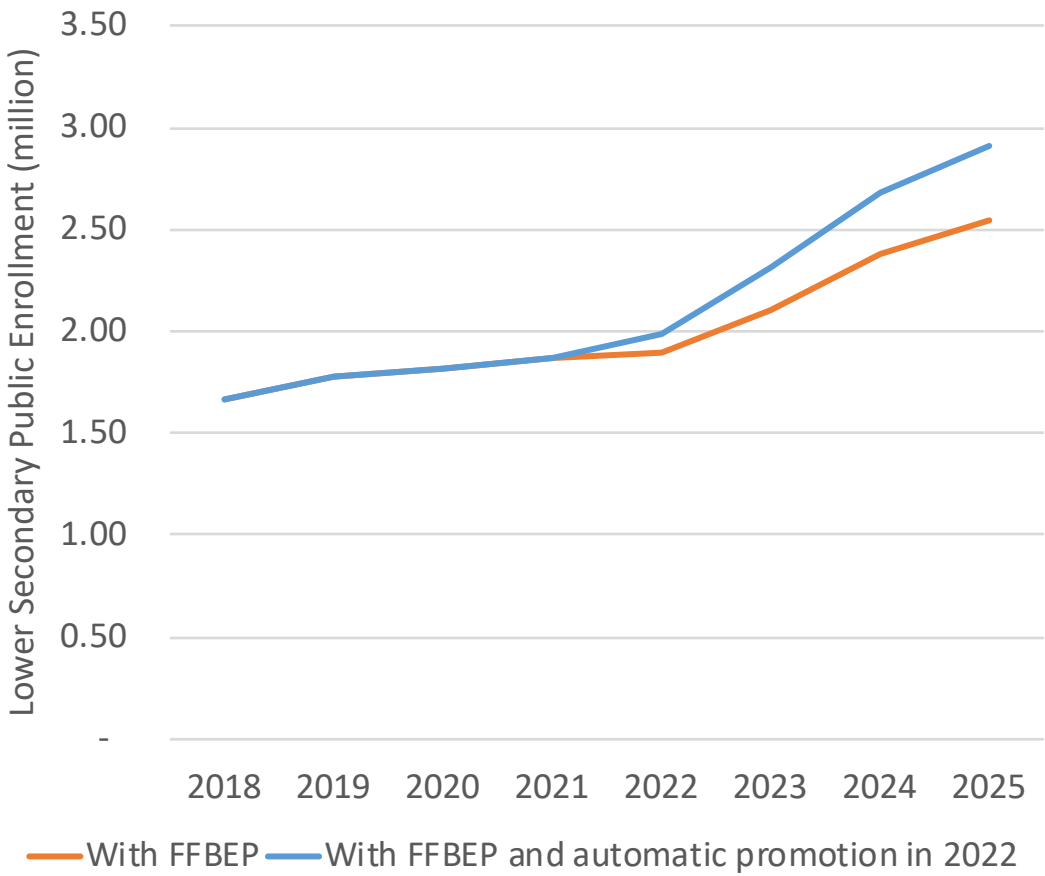
	2018	2019	2020	2021	2022	2023	2024	2025
Student enrollment (million)								
Total	2.01	2.13	2.18	2.26	2.28	2.54	2.87	3.06
Public	1.67	1.77	1.81	1.87	1.89	2.11	2.38	2.54
Total number of teachers	91,617	98,269	100,570	103,837	104,752	116,915	132,153	141,082
Pupil-teacher ratio	17.3	17.3	17.2	17.1	16.9	17.0	17.1	17.1
Pupil-classroom ratio	39.6	39.6	39.6	39.6	39.6	39.6	39.6	39.6



What will FFBEP cost?

Estimating enrolment to 2025

- We estimate that transition will continue to rise to 80% by 2025
- With automatic promotion, we estimate transition will rise to 90% from 2021 onwards
- Under these assumptions enrollment in government lower secondary schools rises to 2.54 million by 2025 with FFBEP
- Automatic promotion from 2022 raises enrollment projection further to 2.91 million in 2025
- This equals a 74% percent increase from 2018 to 2025
- Enrollment will increase more rapidly if all govt KPIs achieved



FFBEP with current input model

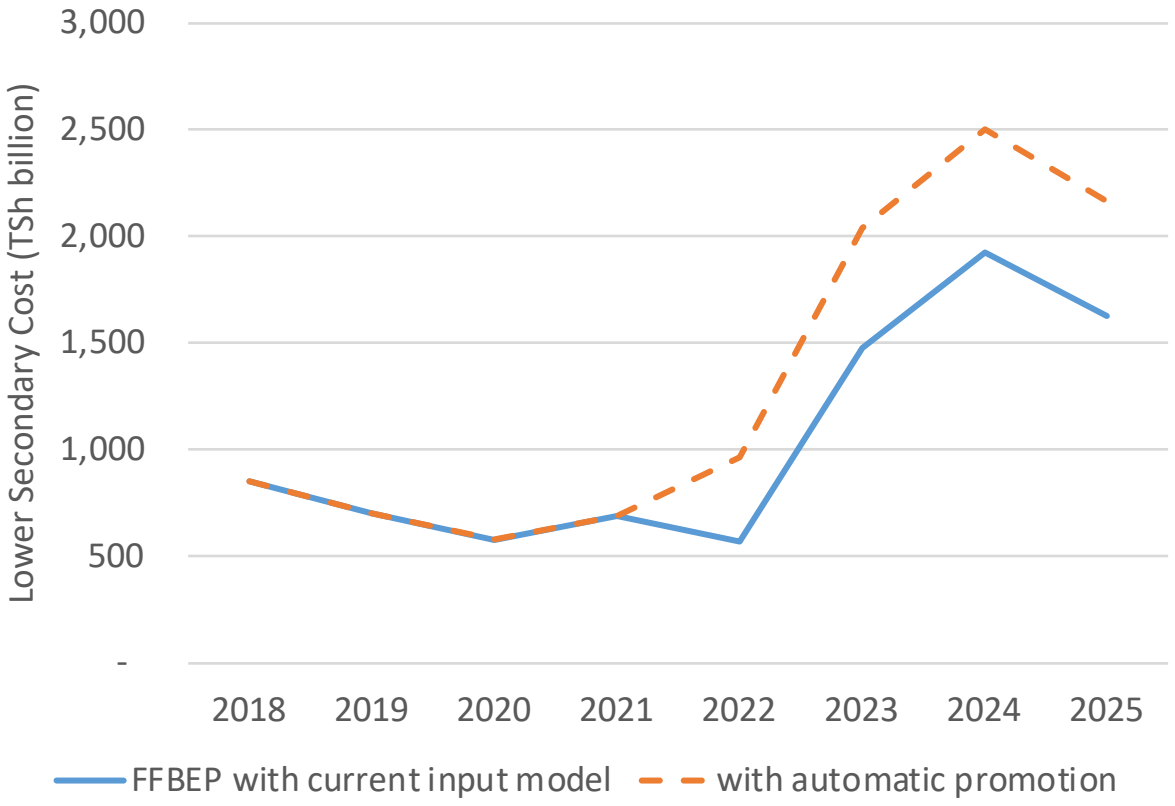
- To estimate the cost of implementing FFBEP we first estimate a conservative scenario, where the system expands but the **current model of inputs** is maintained
- Key parameters:
  - Teacher-stream ratio: 2.5
  - Pupil-stream ratio: 45.1
  - Stream-classroom ratio: 0.9
  - Laboratories per school: 1.5
  - 46% percent of schools have administration blocks
  - 9% percent of schools have libraries
  - 15% of students are boarders
  - 15% of teachers have housing
  - Cash grant Tsh. 12,500; Textbooks Tsh. 12,500; Fees Tsh. 20,000 for day students, 70,000 for boarders; Examination fees included; food for boarders included

  Source: BEST 2016-2017.

FFBEP and automatic promotion with current input model

- Factoring in additional recruitment from automatic promotion, the annual cost increases from US$370 million in 2018 to **US$ 1.09 billion** by 2024

- **Three-fold increase** in annual costs from 2018 to 2024



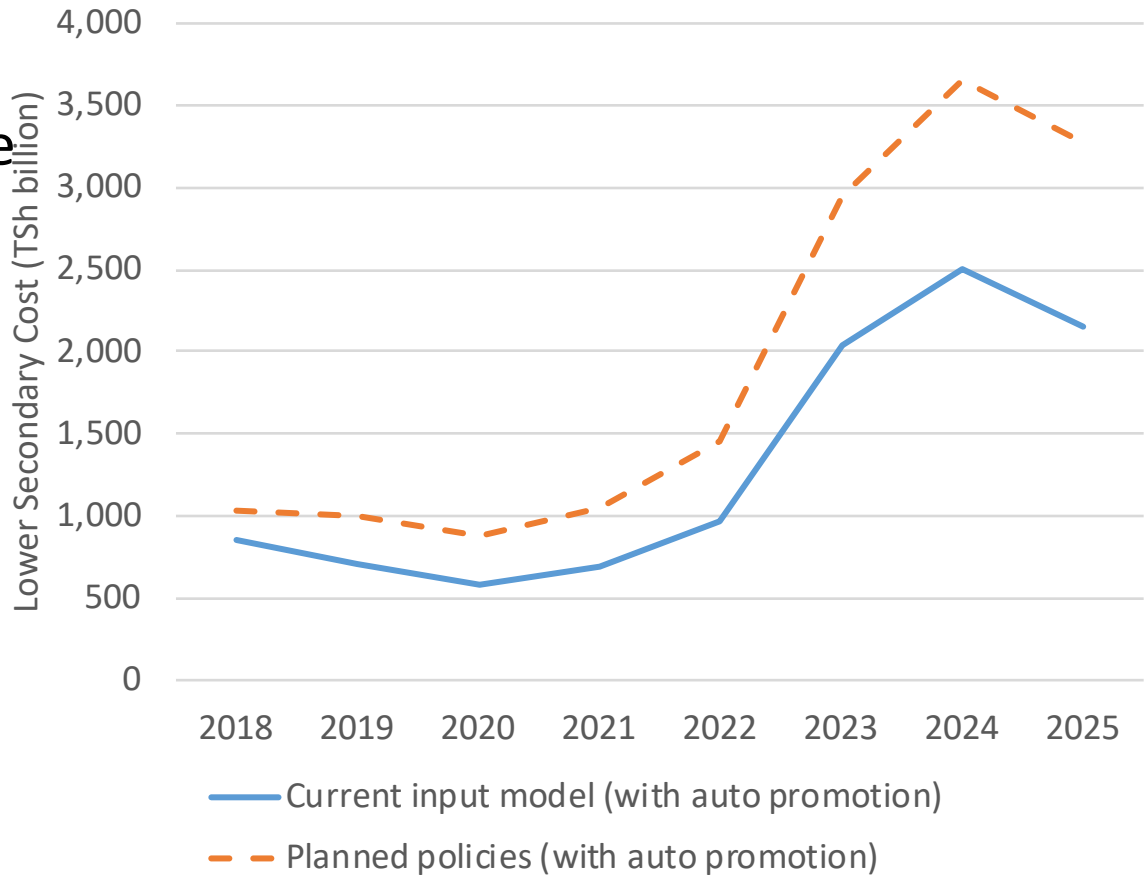
FFBEP and automatic promotion with planned input model

- However, FFBEP and other current policy discussions consider increases in inputs norms which would raise costs further
- Examples:
  - Target of 1:1 textbook ratio by 2025, financed by government[+]
  - Schools to finance ID cards, sports gear, other new costs[+]
  - 3 laboratories in new schools*
  - 1 library in all new schools*
  - 1 administration block in all new schools*
  - One latrine per 22.5 students (20 for girls, 25 for boys)*
  - All new lower secondary schools to have teacher housing and boarding facilities*

[+]FFBEP/MoEST *Draft Lower Secondary School Construction Guidelines

FFBEP and automatic promotion with planned input model

- Our simulations suggest that implementing these policies, with automatic promotion, would raise the annual cost of lower secondary education to **US$ 1.6 billion** by 2024
- Lower secondary increases from 19% to 35% of education budget despite ongoing shortages of resources in primary, pre-primary, tertiary
- Non-sustainable model likely to lead to partial implementation
  - e.g. some schools receive the 'full package' and others very little



What would a sustainable model look like?

Six potential policy parameters

Construction parameters:*

- *Reduce the use of boarding schools* (net zero new boarders)
- *Reduce the use of teacher housing* (no new government teacher housing)
- *Reduce the use of standalone laboratories* (one multi-science lab per new school)
- *Employ classroom libraries, rather than dedicated library buildings, in new schools*.

Other potential policy parameters:+

- *Improved utilization of teachers* (teacher/stream ratios decline to 2.0)
- *Introduce 'double shifts' in ten percent of schools.* (stream/classroom ratio to 1.1)

*Identified in workshop with government stakeholders

+ Identified from international best practice

Six potential policy parameters

Selected to minimize impacts on learning

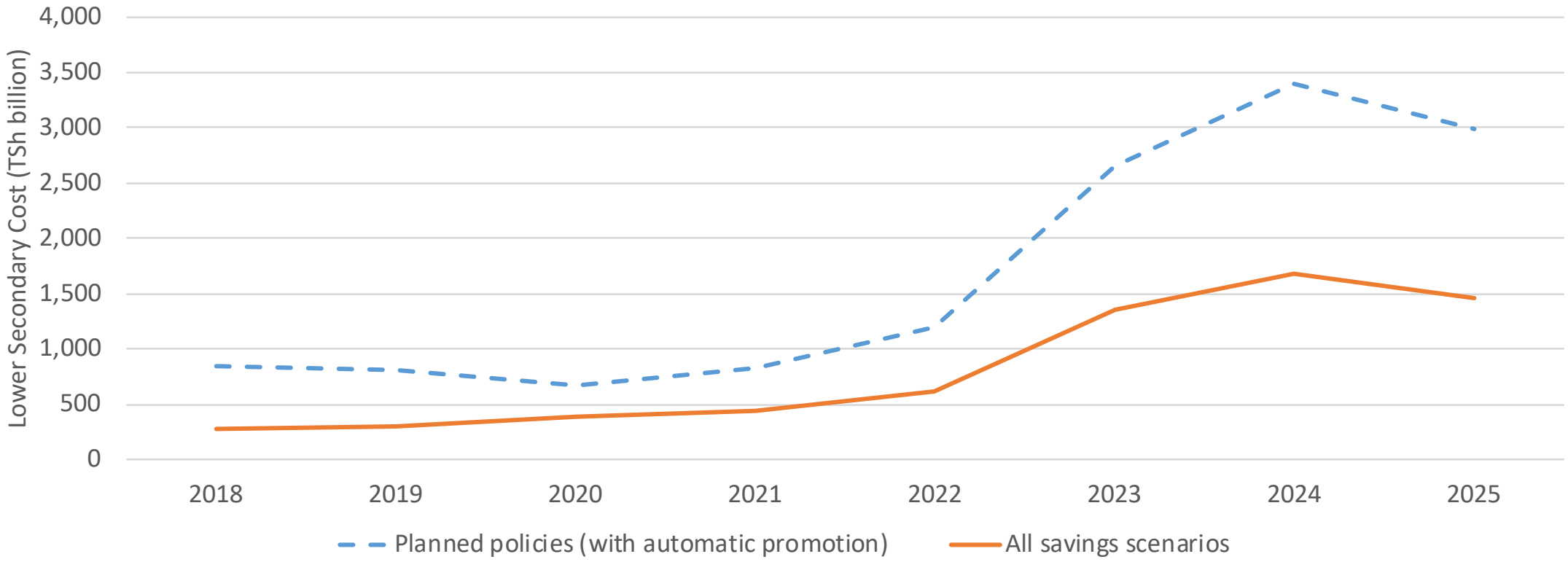
- e.g. Teacher housing: no rigorous evidence housing improves PTRs; alternative measures (e.g. increased remote allowance) more cost-effective (Asim et al., 2017)
- Laboratories: large current backlog; single multi-science laboratories offer large cost reduction with limited impact on teaching
- Multiple shifts a key tool used to manage rapid expansion of school systems (e.g. Latin America)

Selected to maximise value for resource use

- Standalone library cost equivalent to three classrooms

Combined savings

Applying all these adjustments reduces the annual cost of lower secondary in 2025 by **US$ 777 million** (54% saving)



Key takeaways

- Enrollment increase from free secondary education will be rapid and large
- Maintaining current input models will often be hard to sustain
- Fulfilling current policies much harder to achieve
- Risk of inequitable distribution and shortages
- School minimum infrastructure package matters
- Scenarios demonstrate potential for significant savings from careful choices
- Simulation Model now being mainstreamed into Government use
- Being adapted for use in other countries