

INTRODUCTION

Unplanned pregnancy is a significant challenge to global health, and it is the result of contraceptive failure, lack of access to modern methods, or inconsistent use of available contraceptive methods. The absence of family planning can impact women's health and well-being. Additionally, it can lead to negative outcomes for health systems, in terms of increased costs. Contraception is a highly cost-effective and even economical measure from the perspective of health systems.

OBJETIVE

To evaluate the cost-effectiveness and budget impact of the etonogestrel subdermal contraceptive implant (ESI) compared to other methods included in the Brazilian Public National List of Special Medicines (RENAME) to preventing unplanned pregnancy (UP) in women aged 18 to 49 from a public health perspective.

METHODS

A Markov decision tree model was estimated using 3-, 5- and 10-years' time horizons, simulating healthcare resource utilization and cost states of "pregnant" and "not pregnant." Patients could switch methods once or discontinue use, with no reinitiation allowed after discontinuation. Model parameters such as cost, age, fertility rates, pregnancy outcomes, and market share were collected from public datasets (i.e. SIGTAP, IBGE and Tabnet/DATASUS), while typical failure rates and discontinuation rates remained fixed. Fertility rates were calculated using conception rates from Trussell (85%) and adjusted for age-specific relative risks from Menken

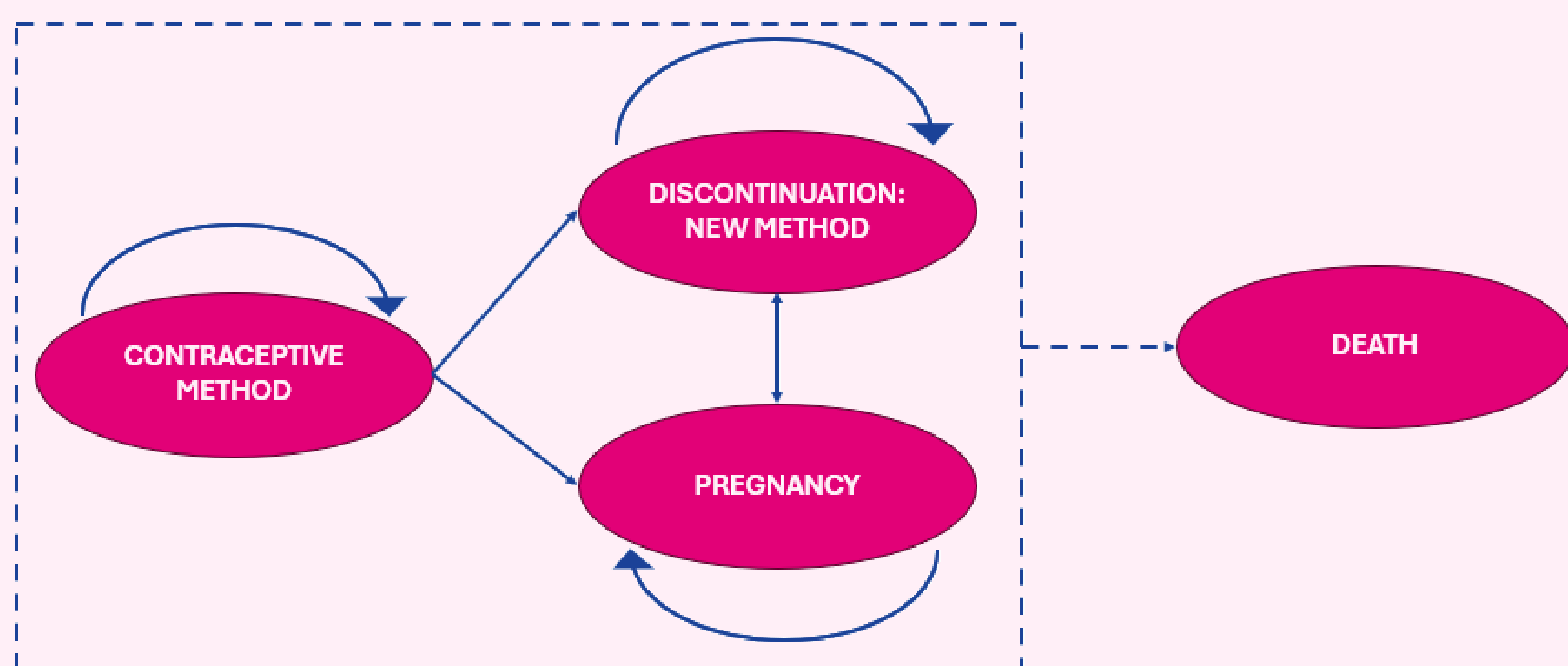


Figure 1. Markov Model for Outlining the Budget Impact of Analysis

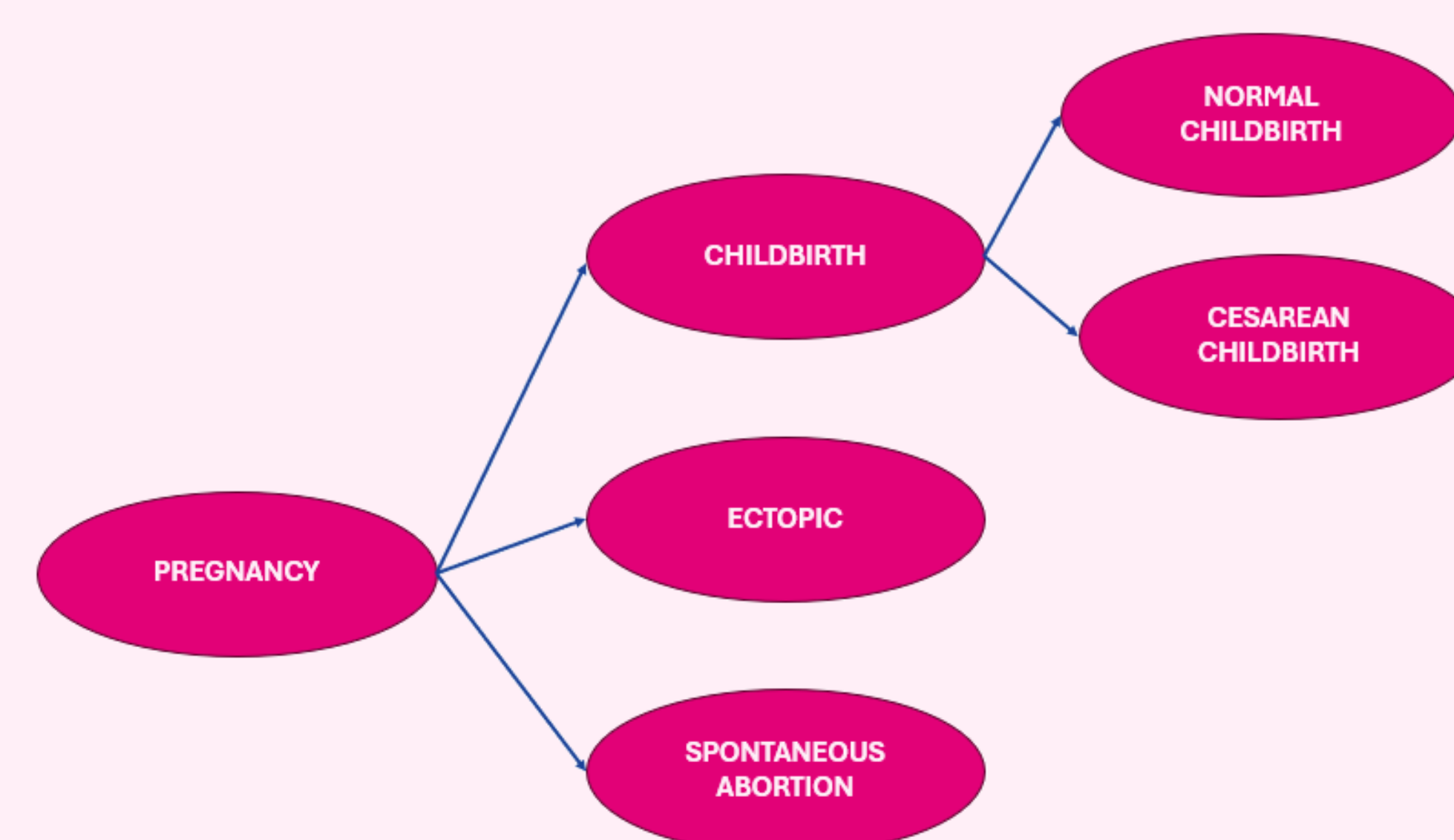


Figure 2. Pregnancy Segmentation Model

RESULTS

The direct cost of public healthcare with UP in Brazil was estimated at USD 745 million (R\$5,5/USD). Since costs have a direct correlation to broad contraceptive method access, ESI remains the most cost-effective contraceptive compared to all other contraceptives (oral, injectables and IUD). In a 10-years horizon, the ESI was dominant compared to oral and injectable methods and presented an incremental cost-effectiveness ratio (ICER) of USD 400.53 compared to the copper IUD, which represents less than 4% of the willingness-to-pay threshold referenced in Brazil.

Table 1. Cost-Effectiveness Analysis outcomes

Contraceptive methods	Technology Acquisition Costs		Costs per avoided pregnancy		RCEI (USD)
	Total (USD)	Incremental (USD)	Total (USD)	Incremental (USD)	
Subdermal Etonogestrel Implant	101.198,78	0,00	33,73	0,00	-
Quarterly injectable contraceptives (medroxyprogesterone acetate 150 mg)	102.489,06	-1.290,28	79,81	-46,08	Dominant
Copper SIU	65.728,64	35.470,14	49,22	-15,49	400,53
algestone acetophenide 150 mg + estradiol enanthate 10 mg	113.025,15	-11.826,37	79,16	-45,43	Dominant
medroxyprogesterone acetate 25 mg + estradiol cypionate 5 mg	113.025,15	-11.826,37	79,16	-45,43	Dominant
mini-pill (norethisterone 0.35 mg)	104.186,82	-2.988,03	84,17	-50,44	Dominant
combined pill (ethinyl estradiol 0.03 mg + levonorgestrel 0.15 mg)	107.571,05	-6.372,27	84,17	-50,44	Dominant

BIA highlighted no incremental cost and reductions in UP with ESI, resulting in a cost reduction of USD 15.5 million when considering the direct cost of outcomes.

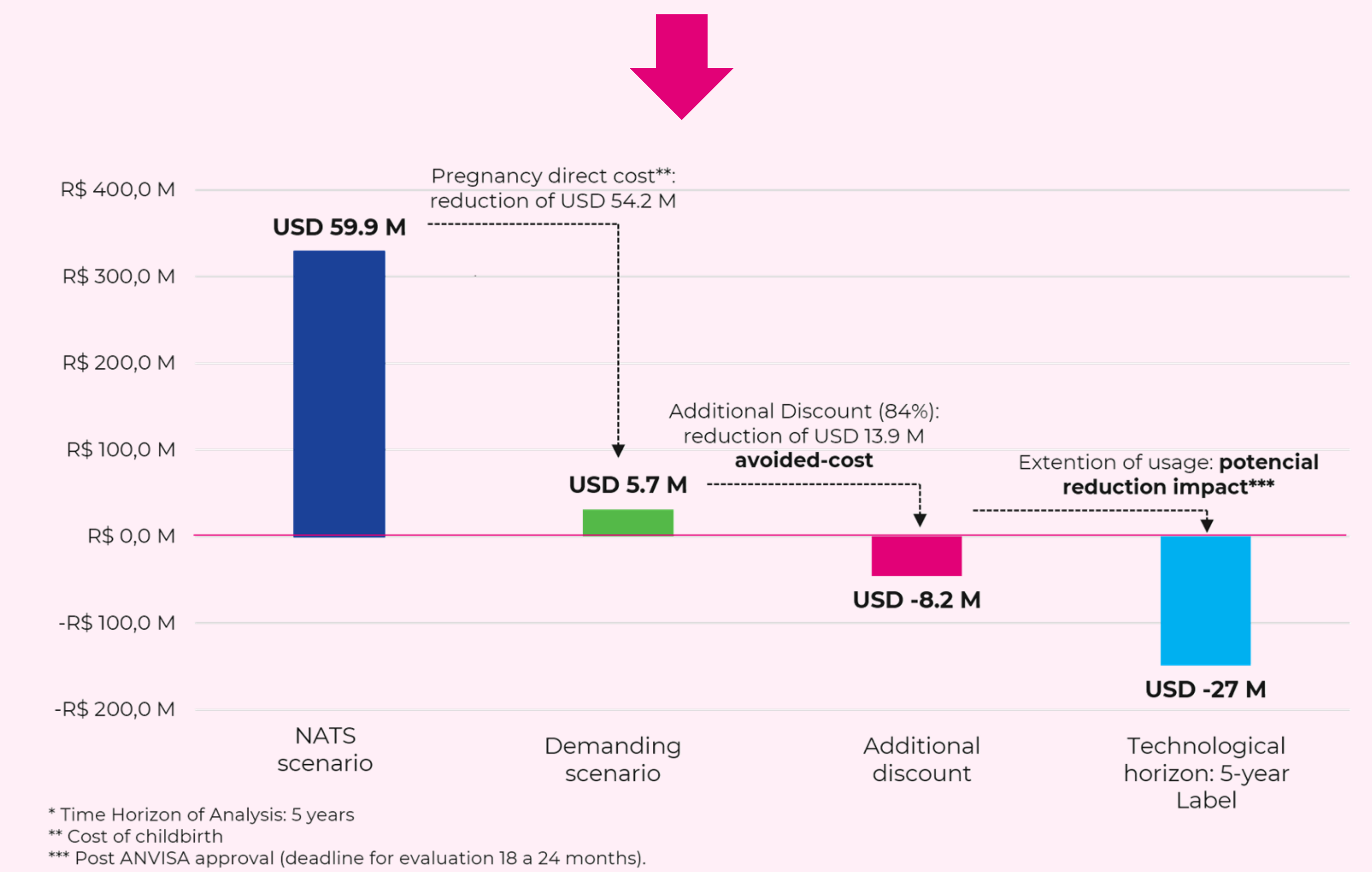


Figure 3. Budget Impact Analysis Outcomes

CONCLUSION

The findings suggest significant potential for cost reduction with ESI, supporting their expanded use to optimize contraceptive strategies, as this analysis corroborates the economic and clinical value of their expansion, providing support for health managers and policymakers.

REFERENCES