CONTRACT RESEARCH

SETTING THE RIGHT DISCOUNT RATE FOR HEALTH TECHNOLOGY ASSESSMENT IN THE SLOVAK REPUBLIC

Is It Time To Update the Discount Rate in The Slovak Republic?

OHE
Jake Hitch
Mikel Berdud
Patricia Cubi-Molla
Martina Garau
Adrian Towse

CONTACT
Patricia Cubi-Molla
PCubi-Molla@ohe.org

ohe.org

Background

The current discount rate for pharmacoeconomic analysis in the Slovak Republic is one of the highest in the world and inconsistent with comparator countries. It uses the social rate of time preference (SRTP) for consumption as a base estimate which has been calculated using the Ramsey Rule.

The data used to calculate this is now outdated and the methodology used to calculate specific parameters in the Ramsey Rule can be critiqued. We have used the most appropriate data and methodologies to estimate an updated discount rate.

Aim

- Our aim was to inform dialogue between key stakeholders in the Slovak Republic regarding potential revisions to discounting practice in economic evaluation
- Exploring the dimensions relevant to setting discount rate
- Identify the discount rate underpinned by the strongest rationale across different approaches

Methods

We estimated a new discount rate by calculating the SRTP for consumption using The Ramsey Rule[1].

RAMSEY RULE

r	=	δ	+	L	+	μ	x	g
Discount rate	=	Pure time preference	+	Catastrophic risk	+	Elasticity of marginal utility of consumption	x	Expected growth rate of future real per capita consumption
Discount rate	=	Utility discount rate (**ρ**)			+	Wealth effect (**μg**)		

Utility Discount Rate: Pure Time Preference (δ) is the rate at which future utility declines in value, reflecting that people are generally impatient and prefer to receive benefits now rather than later.

Utility Discount Rate: Catastrophic Risk (L) refers to the risk of some catastrophe happening which would result in society being unable to enjoy future benefits. As a result, future benefits are innately uncertain and less value should be placed on future costs and effects.

Wealth Effect: Elasticity of Marginal Utility of Consumption (μ) is the percentage change in marginal utility of consumption (how much you value a small increase in consumption) associated with a 1% increase in consumption. It decreases as you become richer and consume more as you naturally value small amounts of additional consumption less and less.

Wealth Effect: Expected Growth rate of Future Real Per Capita Consumption (g) should relate to consumption adjusted for inflation and population growth ie real consumption per capita. Although the growth rate of real GDP per capita may be used as a proxy if good consumption data is missing.

Discussion

- We repeated the original calculation completed by the Ministry of Investments, Regional Development and Informatisation of the Slovak Republic (MIRI) in 2017[2]
- In our calculation we used more up to date data and in some cases different methodologies for components in the Ramsey Rule described below:
  - δ – this was set to 0% in the calculations for both the existing discount rate and our discount rate.
  - L – MIRI[2] used a crude death rate for 2015 and for our calculation mortality rate in 2019 was used.
  - μ - The Stern formula, which uses the common equal sacrifices income tax approach, was used. The calculation by MIRI[2] used data from 2016 for a person earning an average monthly wage. We used average values for the period 2010-2019 for a single individual earning average earnings and no children.
  - g - Average growth in aggregate real GDP for 2010-2020 used in MIRI[2] while we use average growth in real consumption per capita for 2010-2019. Real consumption per capita is more has clearer welfare implications than GDP per capita. Also, consumption and GDP may grow at different rates regardless of whether population growth has been accounted for, and consumption ultimately is more appropriate for estimating the SRTP for consumption.
- There is uncertainty around our estimates for SRTP for consumption partly due to the economic and demographic impacts of the COVID-19 pandemic. To address this data from these years was not included in the calculation; even though it is the most recent available data it would be less predictive of actuality
- There is theoretical justification for differential discounting ie a lower discount rate for health than costs which may be appropriate if health opportunity costs or the consumption value of health grows over time
- We have taken a conservative approach to estimating a uniform discount rate by ignoring growth in health opportunity costs and the consumption or monetary value of health

Results

We estimated a more appropriate discount rate of 3.3% per annum compared to the current rate of 5% estimated by the Ministry of Informatisation, Regional Development and Informatisation (MIRI) in 2017[2].

Different values for the growth parameter of the Ramsey Rule explain the difference between our best estimate and MIRI[2]. We use average growth in real consumption per capita (1.75% for 2010-2019) compared to average growth in aggregate real GDP (3.3% for 2010-2020) used in MIRI[2]. The values have been highlighted in the table below.

	r	=	δ	+	L	+	μ	x	g
OHE range	**3.0% - 5.3%**	=	0.00% -	+	0.75% - 1.35%	+	1.28 - 1.44	x	1.72% - 2.77%
OHE best estimate	**3.3%**	=	0.00%	+	0.97%	+	1.34	x	1.75%
MIRI (2017)	**5.3%**	=	0.00%	+	0.99%	+	1.30	x	3.30%
Difference = MIRI – OHE best estimate	**-1.97%**	=	0.00%	+	-0.02%	+	0.04	x	-1.54%

Recommendations

- Lower the reference case discount rate from 5% to 3.3% per year
- More transparency on choice of discount rate and discounting method, including making related data resources publicly available
- Continue to update the discount rate every four to five years in line with updates to HTA methods in other countries
- Explore whether differential discounting is appropriate for either the reference case or the sensitivity analysis
- Update the discount rate range for sensitivity analysis in line with the new reference case
- Explore whether it is appropriate to apply a lower discount rate to long term costs and effects
- Ensure the discount rate and discounting method is consistent with other public sectors

This study was commissioned by AIFP[SK]

References

1. Ramsey, F.P., 1928. A Mathematical Theory of Saving. The Economic Journal, 38(152), pp.543–559. 10.2307/2224098
2. MIRI, 2017. Framework for the evaluation of public investment projects in the Slovak Republic. Available at: https://www.mirri.gov.sk/sekcie/investicie/narodny-investicny-plan/vladne-materialy/ramec-na-hodnotenieverejnych-investicnych-projektov-v-sr/ [Accessed 5 Dec. 2022].

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