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Personal Draft Problem

In Ethiopia, non-communicable diseases (NCDs)—such as diabetes mellitus, hypertension, and cancer—account for 42% of all deaths. To address the growing burden of NCDs and other healthcare challenges, the country introduced a major healthcare financing reform in 1998 to expand access to primary healthcare services. This reform introduced several key measures, such as allowing health facilities to retain and reinvest their revenue in service quality improvements. Previously, all revenue was funneled into the central treasury and redistributed through the government budget. The new approach led to increased availability of essential medicines, improved diagnostic capabilities in health facilities, and overall enhancements in healthcare service delivery.

Despite these reforms, Ethiopia's healthcare system remains fragmented. High out-of-pocket expenditures continue to limit access to healthcare services, particularly for lower-income populations. To address these persistent challenges, Ethiopia is now implementing a second-generation healthcare financing reform aimed at improving financial protection and healthcare access. Key interventions in this reform include reducing out-of-pocket spending by negotiating with public and private health service providers, strengthening supply chain management in public health facilities to ensure essential drug availability, and enhancing capacity development for sustainable healthcare financing. Additionally, the reform seeks to strengthen public-private partnerships to optimize healthcare service delivery.

Commented [HR1]: This background is interesting, but not clear how much it informs the more concrete modeling project you are proposing afterwards, so could be shortened as motivation only.

For this project, the goal is to develop a model that captures treatment uptake among patients with NCDs, focusing on three conditions: 1) cervical cancer, 2) hypertension, and 3) diabetes mellitus. However, this project may initially focus on one of the three NCDs. Treatment uptake is influenced by multiple factors, including healthcare system capacity, patient satisfaction, and insurance enrollment. The model will incorporate various policy levers and assess the impact of healthcare financing reform components on treatment uptake for NCD patients.

Commented [HR2]: A simple patient flow model with treatment uptake would be a good option here. On the patient flow you have key states of an individual (e.g. healthy, with disease, with complications), and then there is diagnosis, and treatment state transitions (so a person can be undiagnosed, diagnosed not treated, and 'diagnosed and treated'). Building that part is the scope feasible for class exercise. As future steps you will need to add details to the flows between these population stocks based on availability of healthcare capacity, costs, and insurance options.

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