Thesis title: The economics of diabetes in middle-income countries

This thesis focuses on the economic analysis of type 2 diabetes (T2D) in middle-income countries. Given the increase in T2D prevalence in middle-income countries (MICs), it is paramount that efforts to prevent and treat the disease are based on country specific evidence. One part of this is information about the economic burden of T2D, both in terms of healthcare costs as well as labour market effects, taking into account the heterogeneity of the diabetes population. Further, information about the current ability of people in MICs to change health behaviours after a diabetes diagnosis is needed to improve secondary prevention.

The thesis consists of four essays with the unifying theme of identifying a causal relationship between diabetes and the investigated outcomes despite the potential for unobserved heterogeneity in the data. Essay (1) provides an updated overview and critically assesses and identifies gaps in the current literature on the economic costs of T2D using a systematic review approach; essay (2) fills a void in the literature by studying the effect of self-reported diabetes on employment probabilities in Mexico, using cross-sectional data and an instrumental variable approach; essay (3) extends the previous essay via the use of panel data and the extension of outcomes to wages and working hours as well as through the use of cross-sectional biomarker data that allow for the investigation of measurement error in self-reported diabetes; essay (4) then investigates the effect of a diabetes diagnosis on employment and income as well as health behaviours in China, again using longitudinal data and applying two distinct identification strategies, fixed effects and marginal structural models.

The findings of this thesis show a considerable increase in studies on the economic costs of diabetes, particularly in MICs. However, most of the evidence is based on cost-of-illness studies and the literature on labour market effects of diabetes in MICs is scarce. The thesis fills part of this void and shows that self-reported diabetes has a considerable impact on employment probabilities of people living in the MICs Mexico and China. The findings are robust to the application of different identification strategies. No consistent evidence of an adverse effect of diabetes on wages or working hours is found, suggesting that diabetes mainly affects the extensive margin. The findings for Mexico indicate that particularly people working in the informal or agricultural, hence less protected and often more physically demanding, labour market bear the brunt of the negative effects of diabetes. Taking into account the undiagnosed population, the adverse effect of diabetes is reduced but still important. Undiagnosed diabetes itself does not show an adverse association with any labour market outcome indicating that the undiagnosed population is very distinct from the diagnosed population, likely due to differences in health information and health status. Therefore, research using self-reported diabetes information should limit its claims to the diagnosed population as economic effects are likely different for the undiagnosed. In terms of health behaviours, the findings from China indicate that people who received a diagnosis reduce their body mass index (BMI), waist circumference, alcohol and caloric consumption, independent of the used identification strategy. Perhaps surprisingly, especially men appear to be able to change their risk behaviours. Not accounting for unobservable heterogeneity leads to a turn in sign for the effect of a diagnosis on BMI and waist circumference, while the differences in estimates are less pronounced for other outcomes.