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When Pastoralists become Farmers: Economy-wide Effects of Sedentarisation

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Background

Pastoral livestock activities are highly extensive thereby resulting in pastoralists occupying large land areas and much of the land under pastoral control is less suitable for crop farming. Traditional pastoralism is often considered highly inefficient with respect to land-productivity (Rahmato, 2007). Besides, most pastoral areas especially in Africa lack basic social amenities such as schools, hospitals and roads. It is therefore not surprising that the rates of child mortality, tuberculosis and other diseases are high among pastoral groups (Chabasse et al., 1985). In an attempt to address these challenges, some countries have embarked on sedentarisation policies, aiming at nomadic households settling in one location or community.

Sedentarisation is often aims at reducing the size of the land area under the control of pastoralists, thereby making land available for other economic activities such as crop production. Settling pastoralists also makes it easier for governments to provide infrastructural facilities such as schools, hospitals and roads, improving the quality of life of households. Summing up, sedentarisation policies are often put in place by governments as a way of modernizing livestock production activities and improving pastoral areas. This has been the case in Ethiopia since 2002 when a government development plan encouraged pastoral sedentarisation along the banks of the major rivers.

Besides government intervention, pastoralists have also been known to willingly settle in or close to towns for numerous reasons such as higher political and economic security. Furthermore, pastoralists are drawn to towns due to the marketing opportunities for livestock and dairy products and also the opportunity for income diversification such as wage employment. Besides, the privatization and commoditization of communal lands – which is widely used by pastoralists – have largely inhibited the mobility of pastoralists hence promoting sedentarisation. Also, rapid population growth in pastoral areas (Coppock, 1994) especially in Africa and climate change (Jema and Legesse, 2017) have equally pushed pastoralists to settle.

Sedentarisation significantly affects pastoralists in every aspect of their wellbeing since it is not only a source of income, but also a way of life. Therefore, altering their way of life will require a drastic shift in behaviour which will take some time to accomplish. Several studies have found that numerous livelihood changes occur among pastoralists after settling (Little et al. 2001; Homewood et al., 2001; BurnSilver et al., 2008). Prominent among such changes in lifestyle are intensification of livestock production, diversification into crop production and engaging in wage employment, affecting household income and expenditure patterns. This has implications for labour and commodity markets. Government income and expenditure are affected due to a wider tax base as well as the provision of social amenities. In short, the entire economy is affected in different ways if larger population groups change from a nomadic to a sedentary lifestyle.

CGE models are widely used in analysing economy-wide effects of economic. Many CGE models have looked at the impact of international migration on either the origin or host the countries or both of them.

Sedentarisation basically means moving households (or people) from one locality or area to another within the same country which is similar to internal migration. Most CGE models that consider migration use relative wages or income as the driving force for migration. However, sedentarisation due to incentive policies is not driven by relative wages or income but by government intervention and personal choices. Besides, sedentarisation involves the movement of entire households not just individuals within a household. In addition, sedentarisation makes land and other factors available for other economic activities including crop and intensive livestock production. To the best of our knowledge these aspects have not been considered in a CGE-approach so far.

Method

The aim of this study is to develop a CGE model that adequately captures the features of sedentarisation, and use it to assess the economy-wide impacts of sedentarisation policies. This study uses a modified version of the STAGE 2 CGE model (McDonald, 2015). Modifications include household mobility (independent of relative wages), factor mobility and differentiation between extensive (pastoral) and intensive livestock production among others.

This study will use Ethiopia as a case study where sedentarisation policies are being pursued. Sedentarisation policies have been adopted in the development plan. Some of the main reasons for encouraging sedentarisation in the country are to ensure food security by making pastoral land available for crop production and to make it easier for the government to provide infrastructure and social services to pastoral households. Hence, the practice has been going on in Ethiopia for some years now, thereby making it ideal for the study.

Simulations/Model Setup

The scenarios to be considered in this study include moving households from pastoral to sedentarised household groups whilst allowing for factor mobility and increase in government expenditure to account for the rise in the provision of social infrastructure. Similarly, shifts in household the demand structure including subsistence consumption are captured in demand functions.

Model closures include flexible wages and a flexible exchange rate regime. The model is investment driven and the CPI is used as the numeraire. Tax rates are fixed and so is the external balance. Factors are assumed to be more mobile among agricultural and pastoral activities.

Expected Results

When pastoralists are sedentarised, we expect an increase in the wages of pastoral labour and a reduction in pastoral livestock production due to the fall in factor supply, but intensive livestock and crop production are expected to increase. Depending on the magnitudes of the changes in extensive and intensive cattle production, cattle supply will either increase or decrease. Pastoral household income will also either decrease or increase depending on the magnitudes of the rise in wages and the number of sedentarised households. However, wages

of other factors are expected to fall because of the spill over effects of the excess factor supply from pastoral households. Prices of crop commodities are expected to fall due to the rise in production thereby leading to an increase in commodity demand. Household expenditure is expected to decline because of the decline in factor prices and GDP is therefore expected to fall, too.

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