

Extended Abstract

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Paper/Poster Title	Aspirations and Investments in Livestock: Evidence of an Inverted U-shaped Relationship from Kenya
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Abstract	<i>200 words max</i>
<p>Aspirations have been shown to positively influence future-oriented behaviour and ensuing outcomes. But they may also fail to do so when the aspired-to-status is too far away from the current one. Theoretical predictions suggest an inverted U-shaped relationship between this aspiration gap and the effort to achieve what is aspired to. Aspirations that are ahead but not too far ahead of the current status serve as the best incentives for investments or savings. We examine the income aspiration gap of smallholder households and relate it to livestock in a pastoral setting in Northern Kenya. Our focus on livestock is guided by the burgeoning recognition of livestock as an investment and saving conduit for many households in pastoral communities in developing nations. Employing different empirical strategies, we find livestock to be increasing with aspirations up to a threshold aspiration point, from which it then declines leading to aspiration failure. We show that the findings are unlikely to be driven by unobserved heterogeneity. A dive into mechanisms shows that an increasing aspiration gap reduces the internal locus of control, which is defined as the degree to which individuals believe they control outcomes in their lives. This reduction in belief could adversely influence actual livestock a household keeps. Our findings have two important implications: first, it reinforces previous claims of the important role of psychological constraints on poverty reduction and rural development. More importantly, it has implications for the current debates and plans for boosting the development of the livestock sector in Africa as a pathway to overall economic development.</p>	
Aspirations; Investment; Livestock savings; Psychological constraints, Economic development	Aspirations; Investment; Livestock savings; Psychological constraints, Economic development
JEL Code	D91; E71; I32; O13
Introduction	<i>100 – 250 words</i>
<p>Aspirations have been associated with various future-oriented socio-economic outcomes. Particularly, they are associated with human capital through education (Beaman et al., 2012; Bernard et al., 2019; Favara, 2017; García et al., 2019;</p>	

Macours and Vakis, 2014; Pasquier-Doumer and Brandon, 2015; Ross, 2019; Serneels and Dercon, 2021), savings (Janzen et al., 2017; Seshan and Yang, 2014), and women’s empowerment (Kosec et al., 2021). They also matter in inducing civic engagement and political participation (Healy et al., 2017; Kosec and Mo, 2017) and increasing happiness (Stutzer, 2004). Beyond the above relationships, aspirations also increase food security (Mekonnen and Gerber, 2017).

Since a positive relationship is suggested between aspirations and future-oriented efforts, and thus outcomes, one direct policy implication could be to boost aspirations. This is not straightforward however, as the theoretical literature highlights an inverted U-shaped relationship between aspiration and future-oriented economic efforts (Dalton et al., 2016; Genicot and Ray, 2017; Lybbert and Wydick, 2018). This goes to say that aspirations should be large enough to incentivize but not so large as to cause frustration, resulting from highly perceived unattainable efforts. It thus becomes relevant to better understand the link between the aspiration gap and individual behaviour in a bid to uplift the poor from chronic poverty.

In this paper, we examine the relationship between aspirations and future-oriented outcomes. Particularly, we provide an empirical test of the theorized non-monotonic relationship between the aspiration gap and efforts. We define the income aspiration gap to be the difference between the current income status and the aspired-to income status of households relative to the aspiration level. For our measures of efforts, we focus on livestock savings and investments which is arguably an important indicator of rural welfare, especially in many pastoral communities in developing nations. Here, we consider the various livestock owned by households, proxied as the herd size as well as the Tropical Livestock units (TLUs). We relate these outcomes to the income aspiration gap and establish whether aspirations that are ahead, but not very far ahead of people’s current status serve as incentives for livestock savings.

Methodology

100 – 250 words

We perform both parametric and semi-parametric methods to empirically test the inverse U-shaped relationship between aspirations and livestock investments. From a parametric point of view, our empirical strategy involves estimating the relationship between income aspiration gaps and livestock by imposing a quadratic functional form and including a set of controls as explanatory variables shown in Eqn. (1):

$$LS_{iv} = \beta_0 + \beta_1 G_{iv} + \beta_2 G_{iv}^2 + \beta_3 W_{iv} + \beta_4 X_{iv} + v_{iv} + \epsilon_{iv} \quad (1)$$

Where LS_{iv} represents livestock holdings, G_{iv} the income aspiration gap and G_{iv}^2 allows the fitted relationship to exhibit the theorized non-monotonic functional form between the income aspiration gap and livestock savings. X_{iv} is a vector of controls including socio-economic characteristics of households like age, education, sex, family size, institutional variables like access to credits, extension services and membership in cooperative groups. Here, we also control for the current wealth status of households as well as for their ethnicity. Controlling for the current wealth status (W) is important for two main reasons: (1) the wealth level of households is presumably correlated with livestock holdings through other channels. Wealthier households may have more livestock than their counterparts. (2) The turning point of the aspiration gap effect on livestock could be increasing in one’s current wealth level

(Janzen et al., 2017). To cater for this possibility, we include an interaction between current wealth and the aspiration gap. We also control for village fixed effects (v_{iv}). ϵ_{iv} is the residual term and $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ are the coefficients to be estimated. Our main parameters of interest are β_1 and β_2 since they tell us how and how strongly the aspiration gap incentivizes livestock savings.

Given the above equation, for an inverse U-shaped relationship to be confirmed, we expect the slope of the curve to be positive ($\beta_1 > 0$) when $G = 0$ and negative ($\beta_1 + 2\beta_2 < 0$) when $G = 1$ with one turning point between. Just looking at the signs of β_1 and β_2 may be enough to already comment on the presence of the inverted U-shaped relationship. However, as Lind and Mehlum (2010) have argued, this may be sound but potentially misleading¹. We thus follow the framework they adopted in testing and confirming the presence of a U-shaped relationship following tests developed by Sasabuchi (1980). The test provides results for the estimated slopes at $G=0$ and $G=1$, the turning point, the Sasabuchi p-value and the Fieller confidence interval for the turning point.

We also employ semi-parametric techniques where we do not impose any prior functional form and allow the aspiration gap to get into the estimation non-parametrically as shown in equation (7)

$$LS_{iv} = \beta_0 + f(G) + \beta_3 W_{iv} + \beta_4 X_{iv} + v_{iv} + \epsilon_{iv} \quad (2)$$

As can be observed so far, the only difference between equations (1) and (2) is how the gap enters the estimation. However, using both measures may offer more convincing insights into the theorized relationship. Equation (2) further allows for a more flexible relationship between aspirations and investments.

In the interest of unpacking heterogeneity as to which livestock matters more, we disaggregate livestock holdings into large ruminants, small ruminants and poultry. We also explored the mechanism that could be driving the relationship between aspirations and livestock holdings. Given that our results could be driven by unobserved heterogeneity, we begin by adding various controls in the estimation models to reduce this bias. More formally, we estimated bounds based on Altonji et al. (2005) and Oster (2019) which calculates how large omitted variable bias may be to annul the estimated relationship between aspirations and livestock. All these additional analyses are presented below in the results. We also perform some robustness checks to further confirm our findings. Here, we carried out some transformations, including truncations at zero and the inverse hyperbolic sine transformation (Bellemare and Wichman, 2019).

Results	100 – 250 words
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Using household-level data from Kenya, we find evidence of an inverted U-shaped relationship between income aspiration gap and households' holdings of livestock, signalling evidence of aspiration failure in Kenya. Specifically, we find suggestive

¹ As they highlight, it becomes problematic when the true relationship is convex but monotone over different data values. In this case, a quadratic specification may erroneously yield an extreme point. In such cases, it may be worthwhile to test whether the relationship is increasing and decreasing at high and low values respectively within the interval.

evidence of 'aspiration fatalism' and 'aspiration frustration' arising from low and high aspirations respectively.

The U test results further support the evidence of this inverted U-shaped relationship. The Sasabuchi p-values are below 0.05, allowing us to reject the hypothesis that the first derivative of the quadratic fit is the same sign at both the maximum and minimum points of the interval. We estimate a turning point around 0.49, like turning points reported in Janzen et al. (2017) and Bloem (2021). The Fieller 95% confidence interval (CI), which simply gives the CI around the turning point of the U-shaped function (Fieller, 1954), lies within the interval of the argument. All these results act as additional support for the inverted U-shaped relationship.

Thus, we conclude that income aspirations that are ahead but not too far ahead of the current income levels offer the best incentives for increasing the livestock holdings of households. Our findings are robust to the inclusion of several controls, and various transformations of livestock including truncations at zero and the inverse hyperbolic sine transformation (Bellemare and Wichman, 2019). We also show that one mechanism that could be driving the reduction in livestock holdings as a result of high aspirations is the reduction of the internal locus of control. This could be explained by frustration induced by high aspirations. In the interest of uncovering potential heterogeneities, we further reclassify livestock into three categories - large ruminants, small ruminants and poultry - and find that large ruminants, particularly cattle respond more to income aspirations.

Discussion and Conclusion

100 – 250 words

In addition to previous findings, our study brings forward two new insights. To begin with, we strengthen the theoretical (Genicot and Ray, 2017) and empirical debates (Bloem, 2021; Janzen et al., 2017; McKenzie et al., 2021; Ross, 2019) that psychological and behavioural factors like aspirations matter for improving future-oriented outcomes, especially in terms of investments and savings. Solely focusing on improving development outcomes by relieving and relaxing external constraints may not be effective if the aspirations of households are not considered. But again, only fostering aspirations may yield similar unsatisfactory outcomes given that the aspiration gap is a function of the current wealth levels. In this regard, the two should be regarded as complements rather than as exclusive in reducing rural poverty and achieving shared prosperity.

Finally, we reinforce the role of other psychological and internal factors like locus of control in fully explaining this non-linear relationship between aspirations and future-oriented behaviour. Taken together, the analysis has implications for pastoral communities in many rural areas. At a time when many governments in Africa are galvanizing efforts with support from organizations like USAID and FAO to boost livestock production in the framework of the Africa Sustainable Livestock 2050 initiative, our findings show aspirations to be one of the conduits for this great transformation. That said, improving aspirations should be highly caveated given that high aspirations could just lead to frustration and reduced investments (McKenzie et al., 2021). In this regard, simply exposing households to the relevant networks and successful households in their communities may bring about the apposite ways of improving their aspirations leading to increased investments (Beaman et al., 2012; Bernard et al., 2019).

