

Extended Abstract

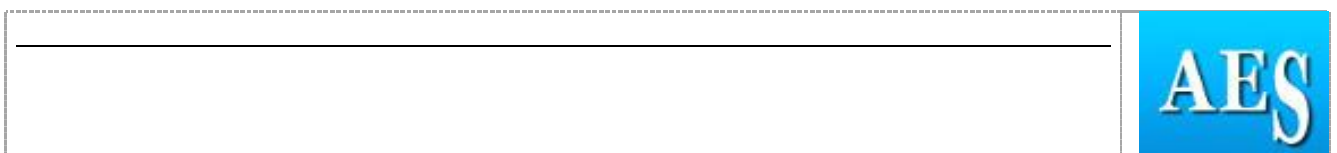
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Paper/Poster Title	Trends and Persistence of farm-gate coffee prices around the world
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Abstract prepared for presentation at the 96th Annual Conference of the Agricultural Economics Society, K U Leuven, Belgium

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Abstract	200 words max
<p>This paper examines the dynamic behaviour of real coffee prices received by growers. First, I analyse long run trends of real coffee prices to determine whether producers are relatively worse off over time. Given that coffee prices can be characterised by large swings that can last several years, I allow the possibility of structural breaks that cause a change in the sign and/or magnitude of the trend. Secondly, given the variability in coffee prices, an important issue for farmers' is whether any shock to the prices they receive is short-lived or not. To investigate both of these questions, I conduct robust econometric procedures on a unique data set for selected countries that grow coffee. There is no evidence of breaking trends and little evidence of any significant secular trend. This result dispels the popular belief of a negative trend in farm-gate coffee prices and tends to suggest what coffee prices lack in trend, they make up for in variability. When considering whether shocks to coffee prices are short-lived or not, I find mixed results, suggesting that the country and classification of coffee matters. The results are informative as they dispel some of the beliefs about trends in farm-gate coffee prices.</p>	
Keywords	trends; shocks; coffee prices; coffee farmers.
JEL Code	C22; O13; Q02; Q11
Introduction	100 – 250 words
<p>The <i>Coffee Development Report</i> notes a continued downward trend in world prices of coffee since 2016, which could have an adverse impact on coffee growers in terms of their income, and the ability to cover the costs of their production and welfare. These findings echo a coffee market report published by <i>Oxfam</i> in 2001, which painted a bleak picture of the coffee producing countries, largely reliant on the income earned through the production and export of coffee, thereby spelling doom and gloom for coffee farmers. The main reasons cited for this decline was oversupply of coffee has caused stocks to rise over time leading to declining prices. In comparison, the demand for coffee shows little fluctuation due to the lack of close substitutes. I address two key questions. First, whether this perceived notion of decline in coffee prices as documented in previous studies is a long run phenomena, or is it a short run temporary phase, interspersed with increasing trends, broken trends or no trends? Since liberalisation of the coffee sector, prices have become more variable and this hampers the ability of farmers to expand production, invest in inputs and service debt. The second crucial question that arises here is whether any shocks to coffee prices are transitory? If shocks to coffee prices are not short-lived then risk management policies</p>	



and intervention is needed to help farmers cope with smoothing their incomes and consumption as well as providing the necessary capital for maintaining production.

Methodology

100 – 250 words

I employ a robust test for structural breaks in the data to establish whether we should estimate a secular trend or whether the estimation of broken trends would be more appropriate. If I find structural breaks, that would imply the trend is not secular and that either trend estimation would include regimes where the sign and/or magnitude of the trend may be different in each regime. The tests I employ allow us to be agnostic as to whether the real coffee price series chosen in this study contain stochastic trends which is due to Sobriera and Nunes (2016) by using the following specification:

$$P_t = \alpha + \beta t + \sum_{j=1}^n \delta_j DU_t(\tau_j^*) + \sum_{j=1}^n \gamma_j DT_t(\tau_j^*) + \varepsilon_t, \quad t = 1, 2, \dots, T$$

Where P_t is the price and DU_t and DT_t are appropriate level and trend dummies. To estimate the trends in the data, I make use of another robust test that allows one to be agnostic to the underlying order of integration in the data, which is due to Perron and Yabu (2009). To implement this procedure, a bias corrected version of the autoregressive parameter is created to improve the finite sample properties of the test, from which a quasi-differenced regression is estimated. Appropriate confidence intervals are constructed to determine the significance of the trend. To estimate persistence, we consider a union of unit root tests proposed by Smeekes and Taylor (2012) that are robust to nonstationary volatility, trend uncertainty, and uncertainty about the initial condition, based on the wild bootstrap approach, combined with the sieve principle. The procedure is based on two bootstrap union tests.

Results

100 – 250 words

I conclude, the null hypothesis of no trend breaks cannot be rejected for all coffee prices. Given that there is not enough evidence that coffee prices have any structural break in the trend, I proceed to estimate an unbroken trend for these coffee prices. At this point, I can infer that the large upswings and downswings in prices do not manifest as broken trends, but are likely to be described by high volatility. In the case of robust trend estimation of the prices, I conclude there is no evidence of a significant trend in any of the real coffee prices, irrespective of the country of origin, or the variety of coffee, except for Honduras and India (Robusta) coffee prices. The parameter estimates for Honduras and India (Robusta) are negative and the t-statistics indicate significance at both the 95% and 90% confidence levels, implying that the real prices for these two coffee prices have been declining over time. The trend estimates of India (Robusta) show a fair amount of variability with a lower bound decline of 1.32% and an upper bound decline of 0.28% at the 5% significance level; or a lower bound decline of 1.41% and an upper bound decline of 0.19% at the 10% significance level. Using the robust procedure due to Smeekes and Taylor (2012) we find that only for 4 cases (that is, Costa Rica, Honduras India (Arabica) and Uganda (Arabica)) we can reject the null hypothesis at least at the 10% significance level.

Discussion and Conclusion

100 – 250 words

What do these results imply for coffee producing countries? If costs have been relatively constant over time, then the insignificant trend estimates for coffee prices

received by growers would suggest that the farmers are no better off, but also not worse off in the long-run. Countries such as Colombia and Ethiopia are at a disadvantage competing on production costs, as these origins are associated with superior quality that generally command a premium in the coffee market. Continuously improving quality (rather than yields) and tapping into the high-value market segment can provide a way out for farmers in Honduras and Robusta coffee growers in India. Governments in producing countries can support their farmers through provision of targeted extension services as well as the establishment of a strong brand related to the origin (as in the case of Colombia). Farmers can consider planting environmentally friendly shade trees that can enhance the demand for speciality coffee (for which a premium can be charged) and at the same time provide an alternative source of income through the production of timber. This approach could be extended to farm level diversification to allow for other cash crops, or food crops that could be used for domestic consumption. Investment in coffee tree nutrition and disease or pest control can prevent price shocks. Farmers need to be provided with the liquidity to make such investments and to cover unforeseen shocks. These issues, subject to the availability of data, would be areas of future research.