Stellenbosch 2023 Abstract Submission

Title
Productivity gains in historical wine production: evidence from Stellenbosch, 1689-1839

I want to submit an abstract for:
Conference Presentation

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Keywords
productivity, panel data, Cape Colony, Huguenots

Research Question
Did productivity increase over two centuries of Cape Colony wine production, and if so, what were the characteristics of farmers who experienced the greatest increases?

Methods
Stochastic production frontier and an efficiency effects submodel

Results
Productivity increased substantially; larger farmers and those with Huguenot heritage experienced the largest increases

Abstract
Productivity gains in historical wine production: evidence from Stellenbosch, 1689-1839

Johan Fourie, Jan C Greyling and Francois Malan

The Cape is recognised as one of the oldest winemaking regions outside of Europe, with the first wine harvest recorded by Jan van Riebeeck in 1659. This paper presents a continuous series of wine farmer data for the period 1689 to 1839 for the Stellenbosch district, where Cape colony wine making was mainly situated. We use household-level annual tax censuses, or opgaafrolle, that were recorded in the early years of Dutch East India Company rule and remained in place after the British takeover. The opgaafrolle included every settler household, listing the names of the male and female household heads and the numbers of male and female children, male and female...
servants, male and female slaves, Khoe workers, and various agricultural inputs, outputs and assets, including vines and wine.

Stellenbosch wine production grew substantially during the period of analysis. The litres of wine production increased from 0.5 million litres in 1700 (the first year this metric was reported) to peak at 11 million litres in 1823 before pulling back to 3.9 million litres in 1838, the last recorded year. Production expanded by 8 million litres (140%) between 1796 and 1823. This increase is staggering, given that only 61% more vines (14 million) were added during the corresponding period, suggesting a substantial increase in productivity.

The growth in wine production was fueled by preferential access to the British market after the annexation of the Cape Colony. In 1813, an act of the British parliament gave Cape farmers access to the British wine market at one-third of the duty then payable on Spanish and Portugal wines. This reduced duty regime continued until 1825 when the protection was reduced by 61%, with an additional reduction of 25% after eight years. Given that the growth in wine production outstripped the growth in vines planted, the trend suggests a substantial productivity gain during the first part of the 19th century.

Using a stochastic production frontier, we quantify the productivity of Stellenbosch farmers during the study period and juxtapose the policy interventions to test this hypothesis. We also use an efficiency effects submodel to identify the possible farm and farmer characteristics that contributed to the increase in productivity. Our results indicate that productivity increased significantly during the period under study. This productivity increase can be attributed to several factors, including technological change, a more efficient use of inputs, and the policy interventions discussed above.

In addition to productivity analysis, we investigate the farm and farmer characteristics that contributed to the increase in productivity. Our results show that farms with more vines and workers were more efficient, and productivity was positively associated with the number of male and female slaves and Khoe workers. Additionally, we find that the more experienced farmers were more efficient, indicating that human capital played an important role in the productivity gains observed during the study period.

Social capital also seems to matter. We include ethnic identifiers, notably a Huguenot dummy, to ascertain whether those farmers with Huguenot heritage were more productive, as recent scholarship suggests. Our results support this; we find consistent evidence that Huguenots (even second and third generation Huguenots, now completely assimilated into the Dutch population) maintained their advantage beyond what can be expected from an initial human capital advantage. We attribute this to their social capital: intermarriage with other Huguenots and the ability to train and maintain a work force with specialised skills in viticulture.

Our results improve our understanding of the historical development of wine production in Stellenbosch and the development of the New World wine regions, and in particular the role of initial human capital advantages and the characteristics of farmers that are able to react to market incentives.

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