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## Governance Strategies and Welfare Effects: Vertical Integration and Contracts in the Pangasius Sector in Vietnam

NEDA TRIFKOVIC

*University of Copenhagen, Dept. of Food and Resource Economics, Denmark*

### Abstract

We investigate the welfare effects of different vertical coordination options in the Vietnamese pangasius (catfish) sector. In particular, we compare the outcomes from farming pangasius as either non-integrated farmer, contract farmer or an estate farm employee. We use an original dataset comprising 276 farmers from the Vietnamese pangasius sector, which we supplement with data from 52 qualitative interviews with key actors from the sector.

While most of the previous studies focus on separately estimating the effect of contract farming and vertical integration, we simultaneously compare the effect of two vertical coordination forms on farmers' welfare. To account for the effect of the unobservable farmer characteristics, we use the maximum simulated likelihood estimator with instrumental variables. This method yields improvements over the commonly used methods, e.g. propensity score matching, in that it allows estimating the sign and the magnitude of the unobservable factors and thereby increases the understanding of the farmer self-selection process. Further on, we combine quantitative and qualitative methods to understand and explain individual and contextual drivers of vertical coordination, and to elicit the functional relationship between farmers' welfare and vertical coordination.

Our results show that gains from participating in intensive export sectors depend on the governance structure. Although being a part of a booming export sector is not conditioned by contracts, we find that producing under contract has a positive effect on per capita consumption expenditure when evaluated against the situation of non-integrated farmers. In our most conservative specification, producing under contract increases the monthly per capita expenditure by 45%. Conversely, we find no difference in welfare between the employees on estate farms and non-integrated farms, meaning that the estate farm employees who traditionally constitute a group of landless wage labour fare at least as well as independent farm owners. This finding implies that traditionally vulnerable groups – such as estate farm workers – are not losing in the process of rapid transformation of rural economies with the arrival of high-value export sectors. Overall, the results imply that contracts present opportunities for economic growth, but the additional effort is required in improving the accessibility of contracts to smallholders.

**Keywords:** Agri-food transformation, maximum simulated likelihood, pangasius, vertical coordination, Vietnam