Usage guide Code

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1 Introduction

This document contains a short description of the code used to generate the results for the thesis. If anything remains unclear after reading this description, feel free to write an e-mail to l.m.j.beemster@student.vu.nl.

2 Data structuring

To run the code, the dataset <code>crop_yield.csv</code> is required, which is shown in the <code>Data_and_covariance</code> folder. First, a Jupyter notebookdata_analysis.ipynb contains the exploratory data analysis on this dataset, which shows the results of the data section of the survey. Some summary statistics were instead obtained from the code provided in the model, as there were some instances filtered, which are included here. Second, the <code>cov_calculate.py</code> file can be used to compute a required covariance matrices yourself directly from the provided data. These are also provided, but can be calculated manually.

The price-yield covariance and correlation matrix are obtained by setting first both COVARIANCE_PRICE_YIELD and NEGATIVE to False and saving the matrix under_PQ. Second, the covariance matrix of price-yield against price is obtained by setting COVARIANCE_PRICE_YIELD to true, but keeping NEGATIVE false, and this should be saved with the suffix _PQ_P. Finally, setting both to true yields the price yield against the negative of the price, all needed to run the model. Running this may take a while, so it is advised to simply use the provided matrices.

3 Running the models

The single product model, which code is given insingle_product.py, can be run for each product individually, by changing the crop_type variable to the desired crop type. To save the figures, a folder is required named Figures. Note that for the organic implementation is not included here. Running this for different crop types will produce all results that were used in the thesis for the

single product model.

For the multi-product model, all results can simply be obtained by running the multi-product.py file. Similarly, all figures will be saved in the Figures folder. Lastly, the results from the credibility model can be obtained by running the organic_implementation.py file. Together, this is all the code used to produce the results.

Have fun running the code!