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Improving urban consumers’ access to safe vegetables: Case for factories and workers in Hanoi, Vietnam

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Abstract

Low- and mid-income workers in Hanoi often depend on traditional markets to purchase reasonably priced vegetables. However, these markets lack formal food safety and quality controls, potentially exposing consumers to food safety and hygiene risks. Accessing safe vegetables poses a challenge for these workers, as supermarkets or farms with reliable safety standards are often financially inaccessible, lack market linkage (i.e., farms may not have contact with companies), or show limited interest (e.g., from supermarkets) in investing in worker market segments. Large factories that employ many low- and mid-income workers are interested in helping their employees access safe vegetables and expect investments to enhance worker health and satisfaction (better health, labour quality, worker loyalty). These companies are confronted with costs and risks related to investing in supporting vegetable access. Our NIFAM (Nutrition Intervention Forecasting and Monitoring) project aims to support decision-making for sustainable food environments and nutrition outcomes through transdisciplinary modelling methods. We collaborated with local stakeholders and experts to model three scenarios, wherein companies i) invest in having a safe vegetable selling point on the factory campus (FarmStand), ii) help to connect farmers with companies (ConnectFarm), or iii) choose not to take any action (DoNothing). We generated a graphical impact pathway to express the business case for companies, including all costs, benefits and related risks of the possible investments. We translated the model into a simulation in the R programming language. We used Monte Carlo simulations to forecast the Net Present Values (NPV) and calculated the value of information (VoI) for all input variables. Our model results indicate that companies should be willing to invest in farm stands on their premises. FarmStand offers the greatest benefit to companies’ NPV and workers’ health. Compared to DoNothing, the decision is worth a median value of about 11.600 USD y⁻¹. The ConnectFarm option is worth less than one-third of FarmStand. Narrowing the knowledge gap of high VoI variables (the farmer’s revenue shared with the company and relative percent vegetable benefits if only connecting farmers and consumers) and monitoring the implementation pilots will help us reduce uncertainties and ensure our robust prediction results.

Keywords: Food environment, food safety, healthy diet, low-income