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ABSTRACT SUMMARY

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SUMMARY OF ABSTRACT

Benchmarking the best-practice contractual hog farms in Vietnam: An assessment using Data Envelopment Analysis (DEA)

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Abstract: Formal contract farming (CF) has been adapted in the swine industry for a couple decays in Vietnam. According to the MARD, by 2018, a total number of 3010 swine contract farms was accounted for 30.8% of total large-scale pig farmers. The proportion of total national pig herds under contract with foreign direct investment (FDI) firms reached 25.9%. Production contracts have been used dominantly for years. It specifies a nominal scale, which is much higher than that of independent commercial farms or HHs context. The nominal number of pigs fattened per-litter follows shelter format. A conventional single poly-slope finishing house is mostly built for around 400 to less than 650 fattening pigs per-litter while a double one is best suited for around a maximum of 1500 hogs. Companies evaluate farm's efficiency base mainly on the technical indicators (such as average growth per day) and are seeking for other methods to benchmark the best practice farms. It is note that, due to the shorts of data, attempt to calculate hog farms' efficiency is viewed only from the view of small-scale farmers in some geographical areas. Explanations of results in such studies are limited due to the problems of heterogeneity. This study sought the gap by using Data Envelopment Analysis **(**DEA) for ranking technical and allocation efficiency across homogenous groups of contract farms and provide managerial recommendations. Data included 2474 shelters belonging to 498 contractual farms performed in the year 2017 of a lead firm in Vietnam.

Finding show that, by 2017, a total of 170 thousand tons of live hog were gone back to the company for market outlet from 498 observed farm in the northern Vietnam. Total monthly pig heads sold out per month reached 110 thousand with its peak in December. Hog flows are controlled by number of piglet inflows under basic unit of shelters (pigpens). A single farm held an average of 5 shelters at the same time. Regarding technical efficiency of using labor and animal feed (the two key input factors), it revealed that average score of the technical efficiency associated with constant return to scale (TEcrs), and with various return to scale (TEvrs) were 0.909 and 0.899, respectively. Those varied slightly cross the farms. The number of units operating in the full efficiency were account for 14 farms of the entire year 2017. Value of scale efficiency achieved at 98.99 percent suggest that producers are close to the optimal level to maximize the number of hog outlet (output orientation). Except 5 observed farms were constant return to scale, 60 of the others would be alerted since their total weight out would decrease as the use of feed and labor go up. There are more than 400 farms can improve their performance by renting an extra labor in the local context. Rely on the DEA benchmarking, company can evaluate the works of certain managerial and technical staffs to boost the outcomes. In addition, the annual operational planning for hog outlet from out farm should also be adjusted to maximize overall yield of the company. Additionally, there encouragement policy for the optimal farms is recommended. This is a supplement measure to the current self-report scale point to get managerial score.

Key words: Contract farming, hog farm, benchmarking, DEA, Vietnam

Control rights transfer or stock listing: Which matters in privatization?*

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Abstract**:** Taking advantage of the time gap between privatization and stock listing observed in the Vietnamese privatization process, we extract the pure effect of privatization on firm performance and behaviors by isolating it from the stock listing effect. Results suggest that even partial privatization generates sizable performance effects. Privatized companies significantly curtail capital expenditures and employment, and labor productivity associated with privatization improves. Meanwhile, stock listing significantly decreases leverage. While a significant privatization effect is observed in both competitive and less competitive industries, the latter experiences larger performance improvements. We do not find clear evidence that stock listing improves firm performance.

JEL Classification: G32; G34; G38

Keywords: Privatization; Stock listing; Firm performance; Restructuring; Vietnam

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Strategic interaction among Japanese municipalities on public wage

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Abstract: Following the aftermath of the Great East Japan Earthquake's sequence of disasters, the Japanese central government introduced several policies to reduce public wages at the local level, as part of a thorough action plan to revive the economy and reconstruct damaged infrastructure. This paper empirically tests the strategic interaction among municipal governments in respond to the policies. It is found that the changes on public salary levels at Japanese municipalities are dependent on the salaries of their neighboring municipalities. Several estimation approaches have been performed, which provide consistent estimates. Strategic interactions among neighboring municipalities are stronger as the central government's top-down policy is effective. The paper also suggests that the yardstick competition could drive the strategic interaction in deciding those salary changes.

Keywords: Local employee wage; municipalities; strategic interaction, yardstick competition.

A Comparative Study of Legal Frameworks for Cryptocurrencies: Lessons for Vietnam

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Abstract: The 4.0 Technology Revolution has been profoundly affecting all aspects of socioeconomic life. Intangible technological content can appear as assets and commodities, becoming investment tools or means of payment, including cryptocurrencies such as Bitcoin, Ethereum, Litecoin, Monero, and Ripple. However, the perception of cryptocurrencies is still in a formative stage, and this has led to different approaches to cryptocurrencies being taken in each country. There are countries that accept them as a means of payment,but also countries that do not recognize them and even forbid their circulation. Cryptocurrencies are not legal tender in any jurisdiction.

In this context, many activities related to cryptocurrencies take advantage of loopholes such as tax evasion, technological complexity, and public ignorance, to raise capital illegally or to deceive and misappropriate, causing damage to organizations and individuals and complicating the socioeconomic situation. Therefore, a study of legal frameworks that can be applied to cryptocurrencies is essential.

In Vietnam, cryptocurrencies are a social phenomenon and cryptocurrency transactions are common. As they are in many countries of the world, cryptocurrencies are creating difficulties and challenges for the Vietnamese legal system. Though cryptocurrencies are not legal tender in any jurisdiction, there is a growing trend in which countries perceive cryptocurrencies as something requiring regulation. As such, it is necessary to build a legal framework for cryptocurrencies to contribute to protecting the rights and legitimate interests of domestic and foreign investors in Vietnam by limiting, effectively preventing, and controlling risks and misuses. This thesis argues that the government should recognize cryptocurrencies as a type of asset, accept cryptocurrency exchange services, manage intermediaries under specific regulations to protect the legal rights and interests of related entities, and mitigate risks for society and its citizens.

Specific characteristics of biochar from slow pyrolysis and its potential for agriculture use and carbon sequestration

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Abstract: The global temperature has been continuously increasing, which causes many negative impacts on the weather system. To reduce the risk of global warming, the Intergovernmental Panel on Climate Change (IPCC) has approved biochar utilization as one of valuable solutions towards "carbon dioxide removal and negative emissions" (IPCC, 2019). Biochar is a material created in conditions of high temperature and low or absent oxygen (Lehmann and Stephen, 2009). Lehmann and Joseph summarized four biochar functions for the soil, including soil improvement, climate change mitigation, energy production, and waste management (Lehmann and Stephen, 2009).

This analytical study on slow pyrolysis biochar was conducted with different feedstocks: rice husk, cedar wood, moso bamboo, and pyrolysis conditions at the following temperatures: 400°C, 600°C, 800°C and resident times: 1 hour and 2 hours. The purpose of conducting experiments in these various conditions was to find the difference in their characteristics. The results showed rice husk biochar had higher pH & EC, larger ash and silicon contents but less carbon content compared with the others. While wood biochar had high carbon content but contained fewer other elements than the others. Bamboo biochar had potential in enhancing the potassium content and water-holding capacity of soil. Bamboo biochar produced at 600 °C proved to be the best temperature in increasing soil potassium (K) and water-holding capacity. The 600-1 (600 ℃ with one hour resident time) biochar had the highest potassium content (4.87%), with the second-largest water holding capacity of 3.73 g g^{-1}, whilst the 600-2 one had the second-highest potassium content (4.13%), and the largest water holding capacity (4.21 g g^{-1}) & cation exchange capacity. The release of K in 600 °C biochar was larger and slower than that of the 400 °C and 800 °C ones. Results also indicated that the physicochemical characteristics of bamboo biochar, such as yield, pH, surface area, water holding capacity, and K content, were significantly impacted by temperature, retention time, or a combination of these parameters. Outcomes from this study are valuable references for specific characteristics of biochar from slow pyrolysis and bamboo biochar production targeting agricultural soil amendment, particularly when it is directed at increasing soil K and water holding capacity.

The impact of cooperative participation on income: The case of vegetable production in Vietnam

(Presented in the 2021 Annual Conference of the Agricultural Economics Society of Japan-AESJ)

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Abstract: In relation to socio-economic development in Vietnam, cooperatives play an increasingly important role. Cooperatives have contributed to creating an important source of income, providing cheap goods and services for members, and supporting members to access new sources of credit capital and production techniques. In general, a cooperative organization is expected to encourage farmers to increase incomes as well as improve crop productivity and lower production costs.

This study primarily aims to evaluate whether participation in cooperatives causes farmers to improve their income by using a Propensity Score Matching (PSM) method to control for differences in farmer characteristics in Vietnam. Survey data used in this study were randomly selected from 148 households in three communes in Moc Chau district, Son La province, Vietnam, with 55 cooperative members from three targeted cooperatives and 93 nonmembers. Data collection included each farmer's specific characteristics and information about agricultural production, including cost, price, and quantity of harvest for each agricultural product reported by the household in 2019. There are some previous research on the roles of agricultural cooperatives in over the world, however, not many studies on the role of cooperatives in Vietnam, specifically vegetable cooperatives. Therefore, the impact of agricultural cooperative membership on income between cooperative membership and non-membership will empirically evaluate in this study.

The findings of this study confirm that agricultural cooperatives have positive effects on member farmers to enhance income and that participants—on average—have a higher income than nonparticipants. Our analysis also explores the factors that influence farmers' decisions on whether to participate in an agricultural cooperative, such as ethnicity, age of household head, labor involving vegetable production, and extension service access. Finally, with the great potential in vegetable cultivation in Son La, Vietnam, and the importance of agricultural cooperatives in building brands, the origin of goods, forming a value chain, the Vietnam government needs to support the cooperatives in expanding the market to obtain suitable output and higher prices. It should provide extensive services as well as training policies that farmers can easily access and help them yield higher economic benefits in agriculture.

Mineralization process in pore rock using random walk with absorption.

Authors: Linh Thi Hoai Nguyen, Tomoyuki Shirai, and Takeshi Tsuji

Abstract: The mineralization process in pore media caused by carbonate precipitation has attracted a lot of interest recently due to its important applications such as gas geological CO2 storage, geothermal power. In this study, we proposed a mathematical approach called Random walk with absorption as a tool for studying the quantity of pore space, fluid flow, and mineralization process in porous media. This algorithm is easy to implement and may be used as a potential alternative for the Lattice Boltzmann simulation. This method can also be used to generate artificial porous rock samples.

Numerical Simulation of Unsteady Rayleigh-Bènard Convection in a Square Enclosure using Lattice Boltzmann Method

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Abstract**:** In this study, the unsteady Rayleigh-Bènard convection phenomena was investigated numerically using lattice Boltzmann method. Two-dimensional square cavity structure was prescribed as the associated simulation domain. Unsteady heat and mass transfer system were invoked by applying time-periodic hot temperature condition at the bottom boundary, while the top wall was maintained at constant cold thermal condition. The vertical walls were set to be perfectly insulated. The effects of amplitude and frequency of the hot-wall oscillation towards the fluid flow and heat transfer characteristics were examined in detail. Numerical simulation results revealed the strong dependence of the instantaneous heat and mass transfer characteristics upon the hot-wall temperature oscillation condition. In general, the behaviour of the flowing entities within one-cycle of the oscillation was identified by the appearance and disappearance of the secondary circulation flow at the bottom-right margin of the domain. Correspondingly, the amplitude and frequency of the hot-wall temperature oscillation were found to be decisive upon the flow and heat transfer characteristics of the system. Oscillation with high-amplitude and low-frequency was generally preferable to enhance the heat transfer performance of the Rayleigh-Bènard convection system. The findings of this study can be regarded as the preliminary guidance for further examination of unsteady Rayleigh-Bènard convection system in more complex flow arrangements.

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