



Fig. 8. Plotting the coefficients' posterior distribution.

Discussion

As demonstrated in the example above, the bayesvl R package can be useful for social sciences and humanities researchers to gain familiarity with Bayesian statistics. First, the bayesvl R package allows users to visualize their model in the form of a Bayesian network, and makes it is relatively easy to code the graphical structures of any Bayesian network with only two commands: `bvl_addNode` and `bvl_addArc`. Bayesian network modelling is suitable for handling problems due to the veracity of data [25] as well as ensuring the examination of the models. As a visual presentation, researchers can visually inspect the formulated correlational structures [33, 34]. With the link to `ggplot2`, bayesvl allows quick and easy visualization of the data as well as of the posterior distribution. Good data visualization can help researchers quickly identify errors in the data [35] and point them toward possible causal/correlational structures in the data. Moreover, bayesvl can help researchers with the Stan code, especially new learners who are not familiar with the coding language of Stan.

B. Aczel, et al. (2020) [3] observed that selecting from a wide variety of inference tools in Bayesian analysis can be confusing and D. Spiegelhalter (2019) [2] also noted the daunting computational nature of modern Bayesian analysis, its lack of established and widely accepted criteria for significance, and its lack of user-friendly software. However, there have been many attempts to analyse the practice and philosophy of Bayesian data analysis to point toward a more established framework of Bayesian inference. For example, J. Gabry, et al. (2019) [36] argued that Bayesian data analysis, in practice, is an iterative process of model building, inference, model checking and evaluation, and finally model expansion. In each stage, visualization is indispensable. However, A. Gelman and C.R. Shalizi (2013) [37] argued that the most successful forms of Bayesian statistics do not support that particular philosophy but align more with a form of 'hypothetico-deductivism'. Similarly, S.E. Lazic, et al. (2020) [38] argued how a Bayesian approach can deal with the problem of pseudo-replication. In building this software package, we hope to contribute to the growing spread of Bayesian statistics

applications in the social sciences and humanities. We believe that an appreciation for testing and trying new methodologies will make social sciences and humanities studies more scientific and reproducible [39, 40]. Compared with the conventional frequentist regression, Bayesian regression modelling is better at dataset analysis of small sample sizes [41]. Moreover, the Bayesian approach offers a wide range of tools to construct, compare, and choose models based on their predictability performance [8]. In this new era of AI and Big Data, reproducibility and transparency are two values one must uphold, which will greatly reduce the cost of science [42].

COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

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Land system and agricultural economy during the Tran dynasty: new approaches

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Abstract:

In Vietnamese history, the Tran dynasty was peculiar in that its military triumphs and literati rule formed a spirit that could hardly be found in other monarchical ages. There is thoughtful research being conducted on military arts during the wars against the Mongol-Yuan invasions as well as a considerable number of studies on the Tran culture and civilisation. However, the view from economic and social studies is likely thin. The land system and agricultural economy, among key foundations of all medieval institutions including the Tran dynasty, remains unclear with several unanswered questions. Through new approaches, this paper attempts to demonstrate a new scientific understanding and fill the knowledge gap.

Keywords: agricultural economy, land system, military arts, Tran dynasty.

Classification number: 8.1

Introduction

The Tran occupies a significant position in the history of Vietnam with its incomparable socio-political achievements. However, most dedicated research has concentrated primarily on tactical shrewdness during battles against Yuan's invasions while some others extracted sophisticated cultural and civilisational manifestations of the dynasty. These studies lacked an appropriate socio-economic perspective in explaining much of these achievements. More analytically, the land management and agricultural economy, some of the core components of medieval politics that encompassed the Tran, need further critical investigations. From several alternative approaches, this article aims to introduce a fresh look at this complex and hopes to bridge the gap in the literature.

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Research results

Natural and human impacts on the topography of the Red river delta

According to recent bioclimatic findings¹, during the first three-to-four centuries of the second millennium AD that is, the same time period of Ly - Tran era (1009-1400) in Vietnam's history, southeast Asia unexpectedly became much warmer [1]. This development increased rainfall and effectively raised water levels in the rivers that created more and more distributary channels. The topography of the Red river delta was thus also restructured. Floods caused transient damages while

¹Bioclimatic is an interdisciplinary field investigating natural impacts on biological forms to identify the main ecological conditions in the past. One of the principal methods is to investigate old trees' rings.

speeding up the process of alluvial deposits that began to extend towards the southeast of the delta. By the thirteenth and fourteenth century, new habitat areas were formed along the coast, which makes up today's provinces of Nam Dinh, Thai Binh and Ninh Binh. The acceleration of alluvium deposit was also uneven with vestiges of scattering depressions and swamps sandwiched between the Red and Day rivers, especially in the low sections. More water resources and increasing cultivated landmass created favourable conditions for rice farming. Even wetlands were used for agricultural activities. For example, a large depression at the south of the delta became paddy fields for summer crops (*lua Chiem*).

The Nam Dinh province, at the end of the Ly and the beginning of the Tran, also suffered from this uneven topographical restructuring. Its districts, like today's Vu Ban and Yen Yen, were filled with ponds, swamps, and lagoons. Rising tides along the Red river still regularly reached Co Le pagoda, which was originally named Keo (Giao Thuy) meaning the intersection of salt water and fresh water at high tide. Therefore, although Tuc Mac village (Loc Vuong, Nam Dinh) was the homeland of the Tran, it was not until in 1262, forty years after the establishment of the dynasty, that the court built Thien Truong Palace². Most likely at the beginning of the thirteenth century, when the Tran was founded, residency was still sparse. Thien Truong Palace was only built with the arrival of Tran Nhan Tong in 1270 who was also the first retired emperor to live there after ceding the throne to Anh Tong in 1293. Despite

having close political associations with the Tran, vibrant social developments in the low sections to the south of the Red river from the end of the thirteenth century to the next were mainly because of economic factors, with the first being agriculture.

A Vietnamese historic solution to a dense geography of rivers was levee and dike construction. It prevented floods and expanded the area for rice cultivation on riverside spillways during rainy seasons. However, it was also dike and levee constructions that separated paddy fields from annual fertile alluvial deposits, causing the soil to quickly exhaust. Meanwhile, most of the silt in the hundreds of billions of cubic meters of water of the Red river system that flows into the sea each year was settled to the bottom, which caused the flow to rise and threatened the levee lines. Levee breaches occurred whenever there was an extensive flood and causing severe damage to local communities was an inevitable consequence of this solution. River bottoms became fuller over time, and more silt rushed to the sea mouths effectively creating dunes and mudflats at the river mouth and slowing down flood escape. Many depressions in the delta, formed by the rapid rate of alluvial deposits, still exist after thousands of years despite not receiving more alluvium. Maintaining dikes and levees became important administrative works as they became higher and bigger. Officials in charge also gained more significant roles.

Carrying the flood preventive methods of the Ly (1009-1225), the Tran attached special importance to dike and levee constructions. According to the record of March 1248 (imperial year *Mau Than*) in the Complete

²This differs from the circumstance under the Ly. Chau Co Phap was elevated to Thien Duc palace in 1009, right after the establishment of the Ly.

Annals of Dai Viet (*Dai Viet su ky toan thu*), the court “ordered constructing dikes, called cauldron dike (*de quai vac*), from upstream to the coast, to prevent floods. Setting up dike and levee construction supervisors (*Ha de chanh pho su*) to oversee... [the] construction of cauldron dike started from then on” [2]. This record also shows that the Tran had assigned the work of building flood preventive systems to specific *lo*³ (with rivers flowing through) in order to have an extended dike and levee system from upstream to the river mouth. According to experts, by the end of the fourteenth century, dike and levee constructions on the Red river delta were completed. Along with the construction, the Tran established supervisors who were responsible for managing, speeding up the construction, and maintaining the dikes. In the *lo* with dikes, each *phu*⁴ were to have two supervisors and deputy supervisors (*Ha De Su*)⁵. This local official position was carried forward into later eras.

Types of land ownership

Land ownership is the key to understanding socio-economic foundations. One of the notable types of land management in Vietnam’s history is village public ownership of land. This type of ownership appeared very early and existed until the mid-twentieth century. Under the Tran, public ownership in villages held an important position as it was the economic foundation for harmonious village-state relationships and the

basis for a welfare centralized state (*tap quyen than dan*).

Public land ownership in villages: under the general progress of land ownership and the historical reality in Vietnam, the size of land under the village public ownership dwindled over time and gave way to land privatization.

There is not enough historical evidence to fully restore the image of village public ownership under the Tran, but we can be quite certain that it was no smaller than that under the early Le (1428-1527) era when public ownership of land remained an economic pedestal for the centralised government. From the Le to the Nguyen, from official historical records as well as other types of historical documents like stele (*bi ky*), genealogy (*gia pha*), and land registration (*dia ba*), village public ownership was often called *cong dien* (公田) or “public arable land”. Under the Tran, this usage was still very rare. The term appeared mostly in oft-cited *An Nam chi nguyen* (安南志原)⁶ by Cao Hung Trung. In *Cong Phu* (貢賦, on tribute and tax), it is noted that the “Ly - Tran period had two types of public land ownership”⁷. One of those was recorded as *Quoc kho dien* (国库田) or “national treasure land”, which is a type of *cong dien*. In various studies about Ly - Tran’s land management, authors often categorise this as *state-ownership* and argue that it was actually *Cao Dien* (梟田), a type of land specifically cultivated by

³*Lo* is an administrative unit. The Tran Dynasty divided the country into 12 *lo* to manage.

⁴The lower level of *lo* was *phu*.

⁵*Ha De Su* (河堤使) is often mistaken as a court official. This was only a minor administrative position in each *phu*, *lo* with levee cutting through. However, the role was highly important in supervising overall levee constructions and maintenances.

⁶The original title could be *An Nam Chi* (安南志), however, there are also different titles. Here, we use the version that was referenced by Emile Gaspardone in his work in 2017, which has been translated and published by the Publisher of Hanoi National University of Education.

⁷“李陳之時公田有二名”, see Cao Hung Trung (2017), *An Nam chi nguyen*, Hanoi National University of Education, Hanoi, p.485 (for original kanji, see p.82).

prisoners [3]. This is, in fact, a conflation.

Quoc kho (国库) in *Quoc kho dien*, as an official terminology, appeared very early in China's history and up until now it is still used with much of its original meaning: "national treasury" or *kho dun quoc gia*. The term is often used to refer to important national resources, assets, or incomes. There are no Chinese classics nor historical documents that saw "land" itself as part of "national treasure". *Quoc kho dien* so far only appeared in Cao Hung Trung's *An Nam chi nguyen*. It is likely that the author used the word *Quoc kho* to mean tax collected from a popular type of land ownership during the Ly - Tran period, which was also the primary source of state income. Under the Tran, this type of land was exactly public village ownership. Profits from the tiny *Cao Dien* could not be the major source of income of Dai Viet. With all the detailed tax rate recorded by Cao Hung Trung, it is hard to see "national treasure" merely represented an income from a small proportion of land with little economic significance. *Quoc kho dien* should be matched with something worth calling "national treasure land". It must be the vast area of public ownership in villages. When discussing Vietnam's history during the Tran, Chinese authors, who have sufficient semantic awareness, have already considered *Quoc kho dien* as lands that were publicly owned and as the main source of national income⁸. It is also quite clear that they do not see *Quoc kho dien* as state-ownership.

State-ownership of land: lands owned by

the Tran are often referred to as, *quan dien*, *quan dia* (官田, 官地) or "official lands". State ownership of land appeared very early in China⁹ and can be used as a reference for understanding Vietnam's circumstances. State-owned lands came from different origins but were directly managed by the state. Under the Tran, official lands were largely inherited from the previous dynasty and were partly formed through reclamations and plantation building with the labours of prisoners, civilians, and soldiers. According to the Complete Annals of Dai Viet, Emperor Tran Thai Tong (1218-1277) captured many of Champa's soldiers and prisoners and brought them back to Dai Viet after the battle in 1252 [2]. Most of them were sent to wastelands for reclamation and then established Cham villages. The land, however, was put under state direct management [4]. This was the aforementioned *Cao Dien*, which located near the capital¹⁰ and served as a place for exiles. After five years of its establishment, in 1230, the Tran issued the legal document *Quoc trieu thong che* and

⁹*Quan dien, quan dia* (官田, 官地) are the types of ownership that appeared very early in China. By Sung era (960-1127), with the needs for a centralised economic and military forces, the court extended these types of ownership and since then, *quan dien, quan dia* gradually were separated from other types of public ownership, *cong dien* (公田). *Quan dien, quan dia* were extended in four directions: 1) Reclamation of low depressions; 2) Compulsory acquisition of private lands; 3) Set up management system over deserted lands and confiscate those belonged to run away; 4) Confiscating lands of criminals. Together with various methods of development, central courts also sold *quan dien* to private owners. By the time of the Ming (1368-1644) and Qing (1644-1911), these types of ownership were scaled down significantly. They only existed as assets of royal members, such as *Hoang trang* (皇莊) under the Ming, *noi vu phu quan trang* (內務府官莊) under the Qing, lands granted to public schools (官立学校), and plantation (屯田) in the frontiers. See 辭海 (1989), 縮印本, 上海辭書出版社, Shanghai Dictionary Publisher, p.1143.

¹⁰*Cao Dien* (臬田) is an area belong to today's Dong Ngac, North Tu Liem district, Hanoi.

⁸郭振鐸, 張笑梅 (2001), 越南通史, 中國人民大學出版社 (Quach Chan Dac, Truong Tieu Mai (2001), *Vietnam thong su*, People's University Publisher (China), p.23.

accordingly, “prisoners who are sent to *Cao Dien* will have their faces inscribed with six characters, live in *Cao* commune, work on public land, each has 3 *mau*¹¹, and pay 300 *thang*¹² of rice annually” [2]. This equalled the amount collected from mid-range types of land, like *Chuoc dao dien*.

Lands under state ownership during the Tran were utilised for various purposes. They could be used for building palaces or *hanh cung* (行宮). Several palaces were erected outside the capital Thang Long, including Thien Truong, Vu Lam, and the recently discovered Lo Giang palaces (today’s Thai Binh). Besides, the Tran continued using those that were constructed under the Ly such as Ly Nhan (today’s Ha Nam) and Ung Phong (today’s Nam Dinh). Except for the Thien Truong palace, which was considered the “second capital” and was the residence of retired emperors, other palaces were relatively small and equalled the size of one or two communes. The lands for palace constructions were considered court private property. The people living there (and possibly the surrounding areas) were granted special privileges in order to serve the royal families, princes, and nobles.

Another important type of land that was state-owned was *son lang* (山陵) or “mausoleum”. By the time of monarchical absolutism, almost every dynasty attached great importance to the constructions of mausoleums and organizations of rituals practices. Tran’s mausoleums were available in many places but were mainly concentrated in two major districts: Thai

Duong, Long Hung (today’s Hung Ha, Thai Binh), and An Sinh (today’s Dong Trieu, Quang Ninh). The area of *son lang* in Thai Duong equalled only to the area of a village and the land was primarily cultivated by the Thai Duong villagers. They were granted the same rights and duties as others who were exempt from taxation and forced labour (*dan tao le*) in order to serve the monarch. Profits from these lands were mainly used for annual rituals and as a stable source of income for the communities who helped organise the events.

In 1344, the Tran established the positions of plantation chief and deputy chief (*Don dien chanh su* and *pho su*) at *ty Khuyen Nong* (Agricultural Encouragement Office). This was an administrative decision aiming at specialising the management of *don dien* (屯田) or “plantation”¹³, another type of land that was state owned. Tran’s plantations came from different origins, but the most common were production concentrated areas that were reclaimed and maintained by prisoners. There was no record of the Tran using military forces for labours on plantations. Most likely with the policy of *ngu binh u nong* (the rotation between army service and agricultural production), the standing army was not large enough to be deployed in economic activities.

Additionally, “official lands” or *quan dien*, *quan dia* also included lands that were temporarily awarded or distributed to

¹¹One *mau* was equal to ten *sao*. One *sao* was equal to 360 square metres.

¹²One *thang* was equal to 0.6 kg rice.

¹³*Don dien* (屯田) or “plantation” appeared first during the era of Three Kingdoms (220-248). Believing the words of a servant named Cuc De (枣祗), Cao Cao deployed his army into land reclamations and agricultural production. This was then extended by later monarchs. There were two types of plantation: *quan don* (军屯) which was used for military purpose and *dan don* (民屯) for civil purpose.

royal members, nobles, and court officials with public achievements. This type of land was also included by Cao Hung Trung in *quoc kho dien*, hence, a type of *cong dien*. Awarded lands were called *Chuoc dao dien* (斫刀田¹⁴). Etymologically, the name derives from Le Phung Hieu (982-1059), a court official with public achievements under Ly Thai Tong (1000-1054). He was mythologised as a brave general who could throw a blade as far as 10 miles, hence “*chuoc dao*” or “cutting blade” emerged. The court then rewarded him with the title of land magistrate, or *quan dia* (官地), and the land remained state-owned.

In principle, other than tax obligations, the state had the right to demand further profits from the cultivators living on awarded lands. However, many local documents (folktales, steles, or *minh van...*) recorded only a small amount (estimated from the total income of *quoc kho dien*) needed to be paid to the state. This shows that the court paid great attention to people’s livelihood, as Hung Dao Vuong (1229-1300) told Tran Anh Tong in 1300. Many documents also show that awarded lands were not permanent.

There were other types of awarded lands such as *Thai ap* and *Thang Moc ap*. The first written document referring to *Thai ap* is Hung Dao Vuong’s “*Hich Tuong Si*” (proclamation to the army) which was recorded in the Complete Annals of Dai Viet by the time of his death in 1300. The word *Thai ap* is mentioned twice in the document for symbolic purposes as my *Thai ap* (余之采邑) [2]. In reality, *Thai ap* mainly functioned as a temporal residence

for royal members and nobles outside the capital. Owners of *Thai ap* were granted lands and several households for tax collection and services. According to Ngo Si Lien, the Tran ordered “royal members [to] stay in their *Huong ap* [*Thai ap*], when they have an audience with the king, they come to the capital, and then return to their own palaces; Quoc Tuan in Van Kiep, Thu Do in Quac Huong, Quoc Tran in Chi Linh are all like that” [2].

If *Thai ap* was awarded according to position and title, *Thang Moc ap* was largely used either as a reward or compensation to defuse conflicts among royal members and nobles. *Thang Moc ap* had no uniform regulations and was granted and regulated on an ad hoc basis. Like *Thai ap*, the receivers were not given full control. Other than a small area for palace constructions, they could only collect taxes and mobilise service workers. Ownership still belonged to the state. Thus, this type of land management is not much different from the system under the Ly. Beside *Thai ap* and *Thang Moc ap*, there was *Thuc ap* (食邑). This was the type of land that the state granted to royal members and nobles so that the latter could reap some needed profits from collecting taxes or mobilising labour forces. Normally, such profits would belong to the state.

Depending on the nature of public ownership or state ownership, the court may allow turning a portion into private ownership or grant permission to collect tax. On this occasion, *Thai ap* and *Thang Moc ap* were not privately owned by royal families and nobles. This practice differed completely from European enfeoffment¹⁵.

¹⁴In the historical accounts of the Ly - Tran era, authors often cited a passage translated from *Dai Viet su ky toan thu* and explained this as *Thac dao dien* (lands gained by throwing blade). In fact, *Dai Viet su ky toan thu*, *An Nam chi nguyen* and *Nam ong mong luc* (by Ho Nguyen Trung) all recorded this as *Chuoc dao* (斫刀), which is a type of weapon.

¹⁵Several research have categorised *Thai ap* and *Thang Moc ap* together *dien trang* as types of private ownership. See, for example, *Dai cuong lich su Vietnam* by Truong Huu Quynh, Dinh Xuan Lam, Le Mau Han, Hanoi Education Publisher, 1998 (this book has been republished several times).

Because the Tran did not have a consistent system for land management, it is quite difficult to gather comprehensive information about *Thai ap* and *Thang Moc ap*. Based on scattered records in ancient texts¹⁶, fieldwork collections¹⁷, private ownership of land can be summarised as follows.

Private land ownership: private land ownership had already gained significance under the Ly. By the time of the Tran, this form of ownership developed even further. Private land were recorded in historical documents as *dan dien dia* (民田地) or *danh dien* (名田) [2]. Private ownership led to the expansion of the land market. Since the Ly, land trading activities were already vibrant. The court had to issue many decrees and regulations to settle ownership disputes or land-related conflicts. The Tran also paid attention to the format of official documents. In 1227, the court decreed that all applications and documents must be signed by having a handprint on half of a paper sheet (押手半紙法) [2]. After ten years, the regulations were tightened yet again and according to which testaments, land purchase documents, or money borrowing must have witnesses. Witnesses hand-printed (押手) on the first three lines followed by seller's handprint on the next four [2].

A distinctive aspect of land trading was that the Tran were also involved in these activities. In 1254, the court sold *quan dien* (鬻官田) to

villagers at a price of five “strings” of money (*xau* or *quan*, 五鎰) per *dien*¹⁸. There is not enough historical evidence to gain a deeper understanding of the court's selling prices in comparison with market prices, but some documentations may allow us to have an estimation of the monetary value of a *mau*. From the inscriptions on steles at the The An pagoda built in 1209 (the 5th year of Tri Binh Long Ung), there is some information about a Nguyen family who donated more than a hundred *mau*. To buy this land, he originally paid a thousand *quan*. Thus, each *mau* costed about ten *quan* (double the court's price of five ‘strings’ or *quan*). In 1291, when Dai Viet suffered from a famine, rice became expensive and one *quan* could only buy three *thang* of rice. The price of a *mau* of land in the middle of the thirteenth century thus only equalled fifteen *thang* of rice¹⁹.

Private ownership also includes the public land that was subjected to various encroachments and reclaimed areas along riverbanks. This was a major policy of the Tran as the court encouraged nobles to take part in reclamations. Lands that were privately owned in Dai Viet thus existed in various forms and scales. Based on varying local documents such as steles or genealogy, we can notice that small and medium-sized owners make up a significant proportion of

¹⁶Mainly from documents like *Dai Viet su ky toan thu*, *Lich trieu hien chuong loai chi* (by Phan Huy Chu), *Kien van tieu luc* (by Le Quy Don), *Nam ong mong luc* (Ho Nguyen Trung).

¹⁷This was published in Truong Huu Quynh's *Che do ruong dat va mot so van de lich su Vietnam*, Nguyen Thi Phuong Chi's *Thai ap - dien trang thoi Tran (the ky XIII-XIV)*, Social Science Publisher, Hanoi, 2002.

¹⁸*Dai Viet su ky toan thu* (1993), 2, p.171. In Tu Nguyen, the character *cuong* (鎰) means ‘string’ of money. Most research has translated this as ‘*quan*’. Under the Tran, one *quan* was worth 10 *tien*, each *tien* worth 60 *dong*. To exchange, people stringed together 600 *dong* which was equivalent to a *quan*. The character *quan* (貫) meant a string of money.

¹⁹Fifteen *thang* was equal to over ten kg of rice, at the same time, a servant was only worth one *quan*, *Dai Viet su ky toan thu* (1993), 2, p.202.

private land ownership. What is quite special, unlike in other East Asian countries, is that women owning private land was a common phenomenon. The documents also show that, under the Tran, measuring units were quite arbitrary. Besides standard units such as *mau* (*dien*), *sao*, and *thuoc*²⁰, there were also unconventional units based on popular usages such as a *khom*, *bon khom*, *thua*, and *phan* [3]. This shows that land management and control was not entirely centralised. Most likely, state data on arable lands was based primarily on local informants. Lands that were privately owned were often small and their whereabouts were estimated using nearby locations. We often encounter descriptions such as the (private) land “near the east of Dao Thu” (*Dong can Dao Thu*), “near the west of Dang Tinh” (*Tay can Dang Tinh*), or “near the south of Chang Tu” (*Nam can Chang Tu*). They were all relatively small ownership such as “1 *sao* 9 *thuoc* near the east of Vu Mai”, or “4 *sao* 5 *thuoc* near the west of Nguyen Lanh”.

The development of private ownership of land inevitably led to land accumulations, which effectively produced large-scale landowners. Among them, ordinary landowners (without titles) who owned up to hundreds of *mau* were not rare. There were wealthy owners who donated large areas of land to pagodas such as Nguyen Truong Le, from Van Dong village who contributed 75 *mau*, or a dancer from Hoa Lu who offered 20 *mau* to Quynh Lam pagoda.

The most notable example of large-scale

private landownership under the Tran was *dien trang*, which are the private estates of royal members, nobles and court officials. *Dien trang* emerged after 1266 when the court encouraged nobles to reclaim riverside and coastal lands and set up private estates there. Ngo Si Lien made a detailed comment that “royal members often send their servants to build coastal levee to prevent saltwater, and to reclaim the land after two to three years, let them marry each other and stay there, and set up many private lands” [2]. By the end of the Tran, Ho Quy Ly implemented a series of reforms including the policy of *han danh dien*, and, according to which, except for the emperor and the chief princess, all landowners could own a maximum of 10 *mau*. Surplus lands must be submitted to the state and became *quan dien* (官田). Ngo Si Lien explained that it was because royal members and nobles had accumulated too much private land [2]. The policy of *han danh dien* thus was a political move to restraint emerging economic forces among nobles by extinguishing *dien trang*, a type of private ownership and at the same time to increase the size of state ownership.

Pagoda ownership: this was also a type of ownership with lands came from many origins. First, it was the property donated by Buddhist devotees, which was a very common practice. Almost every pagoda under the Tran had land donated by Buddhist followers. The size of the land was also very diverse. Usually, each land donation ranged from a few *sao* to a few *mau*. For example, Van Hue Vuong Tran Quang Trieu alone contributed 4,000 *quan* of money and 300 *mau* to the aforementioned Quynh Lam pagoda, while Bao Tu Hoang Thai Huong

²⁰One *thuoc* was equal to 24 square metres.

offered more than 50 *mau*. These lands were all privately owned and distributed differently across locals. Pagoda lands, most times, were also granted by the court or donated by emperors, queens, royal members, or high-ranking court officials. Despite not having coherent regulations, it was quite common for the court and court officials to donate land to pagodas. Although pagoda land ownership was quite large, it had little impact upon Tran's land managements. The size of land ownership was more of an expression of Buddhist socio-political influences in the contemporary society rather than an economic foundation for ecclesiastical power as in Europe.

Land policy and agricultural economy

Under monarchical absolutism, in many countries, especially eastern countries, the central court had a special power allowing it to assume the supreme ownership of the land²¹. Unlike territorial sovereignty, which is the sovereign rights of the state over an entire territory that any country would have with the formation of the modern state, the supreme ownership of the land is a concept used to refer to state supremacy over the entire land as a means of production, an important type of asset that evolved together with an increasing role of the state in managing agricultural economic activities. In various eastern countries, necessities for constructing and maintaining irrigation systems were an important factor that contributed directly to

this power evolution [5]. In Vietnam, until the early Le (1428-1527) when the state was powerful enough to put all lands under its command, the state could promulgate *quan dien*²², taking away from villages the rights to manage and distribute land. With that, the supreme ownership of the state over land was officially established²³.

Under the Tran, taxes collected from public ownership which occupied much of the entire arable land were the major source of state income. The tax rates were defined according to land qualities (upper, middle, and lower land) and calculated based on *mau* as the measuring unit. However, from various historical documents, under the Tran, calculations of land area were not standardised. *Dien* as a measuring unit was also annotated as *mau*, but it did not have consistent dimensions²⁴. Thus, until the end of the Tran, the court had not conducted a national land measurement. Most of the figures for tax purpose may have been submitted by local self-governing apparatuses.

²²Perhaps, the adage "land of the king, pagoda of the village" (*dat vua, chua lang*) came from this.

²³Inherited the socio-political legitimacy of the Tran which had been accumulated through various achievements such as fending off foreign invasions, organising irrigation systems and general development of Dai Viet, in 1397, Ho Quy Ly ordered "each landowner has to report the amount of land they own, with his name put on the land. Lands without report or commitment will be confiscated as *quan dien*", *Dai Viet su ky toan thu* (1993), 2, p.293. This was one of the key steps in establishing the supreme ownership. The Ho was defeated against Ming invasions, and thus it was until the early Le, when this authority was fully established.

²⁴Stiles at Long Dau Pagoda erected in the twelfth year of Hung Long (1304) noted: "an arable land of 63 *dien* 83 *sao* in Dong Ha, Da Ly. Used 31 *dien*, 91 *sao*... for traffic... used 15 *dien* 95 *sao* 10 *thuoc* 7 *tac* for *sa mon*". The milestone at Da Boi also recorded: 12 *dien* 11 *sao*... however, these information do not allow an exact estimation of how many *sao* per *mau*.

²¹The supreme land ownership (最高土地所有权, Верховная Собственность на землю) was a complex historical process. In Vietnam's medieval history, not until the early Le when this type of ownership was fully established.

The Complete Annals of Dai Viet recorded in 1242 that:

“[the court] divide the country into twelve *lo*. Set up [the administrative positions of] *An Phu*, *Tran Phu* with a chief and deputy officer. In communes, set up *dai* and *tieu tu xa*. [Court officials] from fifth rank up is *dai tu xa* and from sixth rank down is *tieu tu xa*. There are people who are simultaneously in charge of 2, 3, 4 communes, together with *xa chinh*, *xa su*, *xa giam*, and *xa quan*”.

Based on this record, official historical accounts under the Tran assumed that the court had set up heads for each commune by that time. They were *xa quan*. The state intervened in village politics, however, further research showed that this initial assessment may not be accurate. First, with the position of fifth rank and sixth rank, *dai tu xa* and *tieu tu xa* were unlikely the heads of a village. Under the Tran, they were equal to *Luc Bo Lang Trung* (the head of a Ministry Office), *Thiem su* or *Tri Phu*, and *Tri Chau*, which were positions much higher than that of a village head. It is likely that the above passage only implies certain court positions in charge of managing village-related affairs. There was an equivalent unit of “*xa*” named “*huong*” with administrative tasks that were all undertaken by local self-governing apparatuses. Thus, by now, the rights to manage and distribute lands that were publicly owned remained within village politics.

Even though the Tran did not have a strict land management system as that under the Le, the court could still infiltrate village politics. First, it did so by controlling the number of males in the populations. Immediately after it

was found, the Tran set up local census records to manage the male population. According to Phan Huy Chu, soldiers had no salary. They performed their duties and once finished they went back to self-sufficient cultivation. These soldiers were given some portion of public land as a reward. Sometimes, the court may even intervene directly in the distribution of arable land. The Complete Annals of Dai Viet recorded a typical example of this. In 1337, when mentioning the merits of the servants, retired emperor Tran Minh Tong did not agree to award a title to Hung Hieu Vuong’s boat keeper Pham Ngai, but later granted him 5 *phan* of a *suat* of arable land [2]. *Phan* and *suat* were some of the measuring units back then. As it required an official decree to grant a mere portion of arable land to a servant, we can argue that land ownership still largely belonged to villages, not the court.

The ability of the central court to control villages also manifested in the practice of rewarding court officials with a tax portion. In *Lich trieu hien chuong loai chi*, when discussing salaries of court officials in 1244, Phan Huy Chu commented: “Perhaps [we should base on] public land tax rate, set up standards, just like recent practice of *ngu loc*?” [6]. According to this policy, the court used *quoc kho dien*, the income from taxing public land, as a reference to determine reward and pay scale. Phan Huy Chu’s comments can be substantiated by historical evidence of official tax collectors who “relaxed taxation... people are all grateful” (according to the myth of Tran Nhat Hao, Tran Khanh Du). Similarly, to show their benevolence, royal members and nobles also lowered both tax and service requirements thresholds. Thus, under the Tran, the public

land owned by villagers still accounted for a large proportion of the entire arable land of Dai Viet and its tax contributed significantly to state income. The court did not interfere in the management and distribution of village public land but has a certain level of control over these affairs.

With such importance, the tax rate stipulated in *Quoc kho dien* was highly detailed, clear, and coherent. According to Cao Hung Trung (2017) [7], it was divided into three levels:

- Best quality type (*thuong dang*): sixteen *thach*, eighty *thang* each *mau*
- Medium quality type (*trung dang*): four *thach* each *mau*
- Poor quality type (*ha dang*): three *thach* each *mau*

It is difficult to estimate with these measuring units. According to several calculations, a *thach* (石) is equivalent to nearly 40 kg of grain. Hence, the corresponding tax rate for each *mau* of the best quality is about 650 kg, the medium quality is about 160 kg and the poor quality is about 120 kg. Applying traditional methods, average yields of the best quality type could reach 600-800 kg per *mau*; for the medium type, it was 400-500 kg per *mau*; and for the poor quality type, it was about 300-350 kg per *mau*. The first two types allowed two crops per year²⁵. Thus, with the above tax rate, villagers only had to pay roughly 25-30% of the total harvest [8].

As a reward, the court could temporarily

grant rights to collect taxes and mobilise labour to royal members, mandarins, and those with public achievements. Grantees were responsible for a “relaxed rulership” (*khoan thai suc dan*) in order to create a harmonious society (*tren duoi dong long, an hem hoa muc, ca nuoc chung suc*) in the times of hardship.

Quan dien and *quan dia*, state-owned lands, were utilised for various state activities such as ritual ceremonies, building mausoleums (the land of Son Lang), exiling criminals (*Cao Dien*), and settling prisoners (plantations). Yields from these lands were fully owned by the state and mainly spend on on-site expenditure. These types of land were also used as rewards to royal families, mandarins, those with public achievements, and pagodas. The aforementioned *Chuoc Dao Dien* was still part of public ownership. In fact, the recipients of the land could pass it on to the next generation, but not entirely as a private property because the court could retrieve it in case descendants committed a crime and were thus not entitled to transferring or trading rights. This can be understood as a conditional type of land distributions and rewards. According to Cao Hung Trung, the nature and tax rate of rewarded lands under the Tran was similar to *Chuoc Dao Dien* under the Ly. Taxes collected from this type of land are prescribed as follows:

- Best quality type (*thuong dang*): a *thach* each *mau*.
- Medium quality type (*trung dang*): a *thach* each three *mau*
- Poor quality type (*ha dang*): a *thach* each four *mau*.

As mentioned above, a *thach* weighed approximately 40 kg. Accordingly, medium

²⁵According to several *Bi ky* and Le Quy Don's *Van Dai loi ngu*: a *mau* of land of good quality (in the eighteenth century) could yield 25-30 *ganh lua*, which is roughly one ton or 600-800 kg of grain.

and poor quality types were taxed, respectively, at 13.3 kg and 10 kg each *mau*. This may be because of productivity issue, but this tax rate was significantly lower than those imposed on other items of *quoc kho dien*. It can also be understood that this tax rate was the portion that awardees had to give back to the state (exemptions were often stated beforehand) and this low tax rate was in fact a preferential policy towards royal families and nobles. The court selling lands to private owners in 1254 was evidence of state-ownership, and it also shows that *quan dien* was still abundant and the state was not seriously interested in preserving this type of ownership.

While considering the public ownership of land in villages to be the major source of national income, the Tran respected village autonomies. Like other monarchs in medieval Vietnam, it was a type of hydraulic state. The state contributed to organising, constructing, and maintaining irrigation systems while playing an important role in fending off foreign invasions. For this reason, the state gained tremendous supports from villagers. Along with the consolidations of political and economic strength, the Tran also came close to the full domination over the entire public land, especially the public land owned by villages. The first to claim the supreme ownership of public land was Ho Quy Ly who was then followed later by early Le emperors.

During the Tran, private ownership was also encouraged. The state protected both private ownership of lands and paddy fields. There was a rare event in the history of Vietnam's monarchical absolutism when the state had to

compensate when taking land from villagers for levee constructions. Normally, to carry out welfare projects such as levee constructions, the state could requisite all necessary resources. But in this case, the institution of private land ownership was preserved. In 1248, the court ordered each *lo* to construct flood preventive levees from headwaters to the coast and to "measure how much land needed to be taken from villagers" to compensate according to market rate" [2]. Thus, not only were villagers compensated for the land taken for levee constructions but also reimbursed at market prices. This shows a rather favourable attitude in the court's policy towards private owners. This also shows that, under the Tran, supreme ownership of the state over land had not yet formed.

To encourage the development of large-scale private land ownership, the Tran also mobilised royal families and nobles in the reclamation of riverside and coastal areas to set up manors (*trang vien*). Politically, allowing "royal members, princes, princesses, concubines" to set up private estates was a solution to unite royal forces and sustain their loyalties. This was quite a unique policy under the Tran. However, over time, corruptions among nobles exposed various shortcomings of the system, which eventually intensified oppositions against the court.

In terms of tax policy, many researchers have argued that it was not until the eighteenth century that monarchies in Vietnam began to tax private land, however our primary sources show that taxing private land began from the Ly. The Complete Annals of Dai Viet notes

that: “In August of the first year of Hoi Phong [1092], there was a bumper crop. Establish land record, collect three *thang* per *mau* to provide food for the army” [2]. In the *Cong phu* section, when mentioning tax rate during the Ly - Tran era, Cao Hung Trung wrote: “[with] people’s land, collect three *thang* per *mau*” [7]. In 1402, Ho Han Thuong raised the tax rate from three up to five *thang* per *mau* [2]. This was accompanied with a tax regulation imposed on male owners based on their volume of private land. This regulation is similar to the tax rate during the early Tran era, according to which “male landowners pay by grain, people without land are exempt. [The rate is] a *quan* per one or two *mau*, two *quan* per three *mau*, three *quan* per five *mau* or more” [2].

The above information, which was collected from different historical periods and primary sources, shows that three *thang* per *mau* was a very low tax rate and it was the rate imposed exclusively on private ownership. Describing the method of tax collection, the Complete Annals of Dai Viet and *An Nam chi nguyen* all identified *trung to* or ‘attendant taxation’ (徵租), and this was to show some kind of leniency on landowner rather than exercising absolute power. Compiling land registrations at the end of the eleventh century was also recorded as *dinh dien tich* (定田籍) or “written record of the land registration”. This implies that low first tax collection was only symbolic. This was the first step towards the establishment of the supreme ownership of land by monarchies in Vietnam.

Pagoda owned land was a relatively special type of ownership. Pagodas had a huge amount

of land, but they hardly had any economic influence under the Tran. Lands were gained primarily from political and religious reasons. The court also used lands that could be taken from state-own to support Buddhism. Buddhist devotees, including court officials and nobles, donated their lands to show their respects and to wish for future blessings. All these lands had private origins. Pagodas had many types of ownership, but they only mirrored existing land management with little actual impact on the system of land ownership.

According to many calculations, in between the thirteenth century and mid-fourteenth century, the population of the Red river delta had doubled and the density of residence in the region could be up to 150-180 people per square kilometer [9]. The relatively open land policy created opportunities for many village landowners. A consistent policy of the Tran (until Ho Quy Ly’s reform) was to encourage the process of land accumulation. With this, there were emergences of landowners who owned hundreds of *mau* [3]. The number of wealthy landlords was quite large during the battles against Mong - Nguyen and Tran Hung Dao as they had to count on them to support his armies. During the Bach Dang campaign, a unit of the imperial army had already marched to the battlefield, but the military supplies and provisions did not arrive in time. Some wealthy villagers in Thuy Nguyen (today’s Hai Phong) were willing to contribute their own rice stocks. Many of the large landowners were nobles and court officials especially since the court encouraged the reclamation and establishment of private estates.

The development of the sub-agricultural economy and the relatively large-scale landownership conditioned the development of the commodity economy. Vibrant market systems created a vivid economic picture in rural areas. In 1293, Yuan emissary Tran Cuong Trung (Tran Phu) after returning from the mission, wrote a book entitled *An Nam tuc su* (contemporary An Nam), which provided many vivid vignettes of everyday lives under the Tran. Describing commodity markets, he observed markets had two sessions every day with hundreds of commodities on display [10].

Originating from the idea of “relaxed rulership as the root” (*khoan thu suc dan lam ke sau re, ben goc*), the Tran regularly implemented welfare policies to support people during the times of hardship. Responding to droughts and floods, the court often exempted or reduced taxes. Large-scale exemptions were recorded in 1290, 1307, 1343, and 1362. The high-ranking court official Tran Khac Chung asserted that when floods occurred, the king must come to rescue his subjects and that was truly the kingly ethics. However, these policies only lasted until the mid-fourteenth century. After that, Tran nobles moved away from their people. Private estates gradually lost the character of a dynamic economic model and became a place of labour exploitation. During the late Tran, Dai Viet entered a period of turmoil.

Conclusions

The land management under the Tran differed significantly from both previous and subsequent eras. The changing topography

of the Red river delta and agricultural circumstances were results of both natural evolutions and human activities, including the unusual rainfall in the thirteenth century and the attempts to construct levees on most major rivers. Controlling floods was a critical task, hence the state set up supervising positions of *Ha de chanh su* and *pho su* in the *lo* with rivers passing through. These local officials had a very important role. By this time, the state, however, had not assumed supreme control over lands. The public land ownership in villages remained the main source of national income. The *quoc kho dien* mentioned in Chinese national archives included this type of land. Because of this, the court set up *dai tu xa* and *tieu tu xa* to infiltrate and oversee village affairs.

A special feature of land ownership under the Tran was that it quickly evolved thanks to various court’s incentives. Private ownership contributed significantly to Dai Viet’s economic strength. Pagoda ownership was also not insignificant. However, this development was conditioned by enormous Buddhist socio-political influences. It was not at all the same as in Europe, where land ownership made up the economic power of the church.

Historical studies often mention two prominent socio-economic features of the Tran, including *dien trang*, *thai ap* ownership and slavery system. However, further study show that the “serf” was not heavily exploited as in medieval Europe. With pro-agricultural and lowering taxation policies based on the idea of “relaxed rulership as the root”, the

Tran relied on village units as the foundation for the harmonious relationship between the state and its people and the model of a welfare centralised state.

COMPETING INTERESTS

The author declares that there is no conflict of interest regarding the publication of this article.

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