



# Using comparative historical analysis to compensate shortcomings of cross-sectional methods in explaining causal mechanisms: Lessons from a study of rice farmers in Vietnam

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## Abstract

The benefits of mixed methods are well recognised. Using mixed methods, researchers are able to overcome shortcomings inherent in individual methods while enhancing the validity and reliability of their research findings. Mixed methods are commonly used in cross-sectional studies – to answer research questions, and/or explore contemporary social issues. However, when researchers are interested in understanding cause and effect relationships that happened over a long period of time, Comparative-Historical Analysis (CHA), which is longitudinal by nature, can be used in combination with mixed methods to understand the causal mechanism of a series of events, and generalise the research findings. Using a case study that involves technology transfer with the rice farmers in the Mekong delta of Vietnam, we describe how CHA could be used in conjunction with mixed methods to better understand why the decade-long mutual aid farming practice among rice farmers in the Mekong delta was abandoned after more than fifty years' existence. We recommend the use of CHA in conjunction with cross-sectional methods for similar social contexts, and suggest future research that aims to understand cooperative behaviours in farm settings.

**Keywords:** : Mixed Method; Comparative Historical Analysis; Causal Explanation; Generalizability

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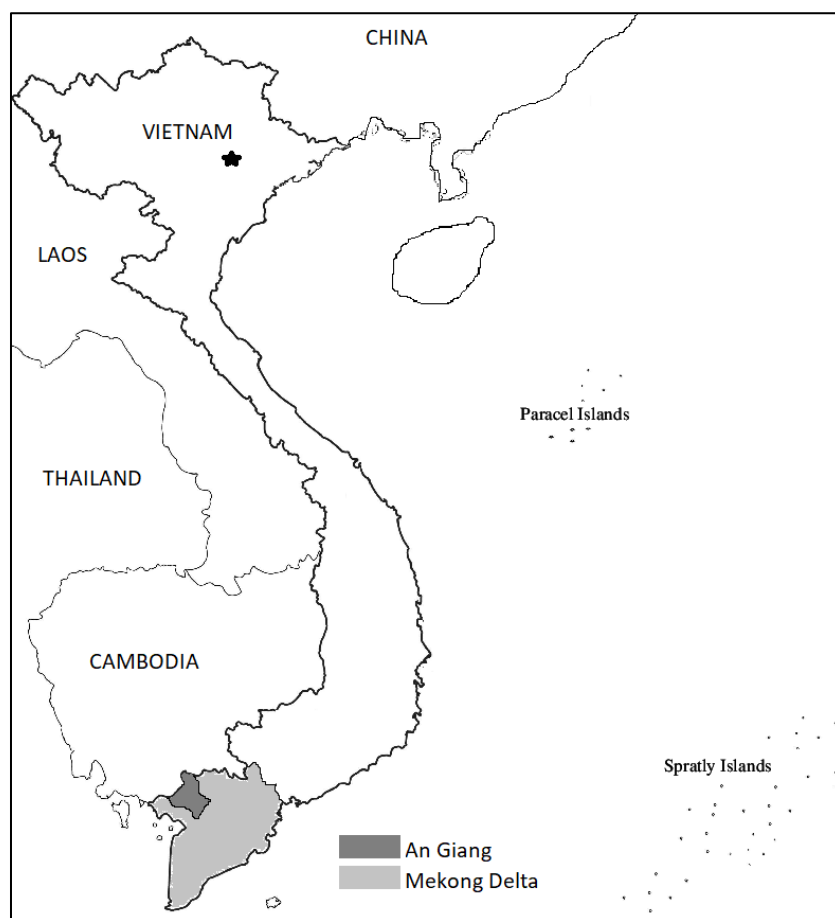
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## 1. Introduction

In Vietnam, rice production is prone to damage by rodent pests. In 1997, rodents were classified by the Ministry of Agriculture and Rural Development of Vietnam as one of the three most important problems that the agricultural sector faced (Singleton, 2003). In a recent consultation with rice farmers in 2017, rodents were mentioned as one of the most common pests (alongside with brown planthopper and golden apple snail) (Le, 2017). Farmers commonly rely on chemical and physical methods to control rodents, which are applied spontaneously and eventually less effective and are hazardous to the environment and human health (Palis et al., 2007, Singleton et al., 2010).

Ecologically based rodent pest management (EBRM) was promoted among rice farmers in the Mekong Delta of Vietnam, through use of a technology called the Community Trap Barrier System (CTBS). We introduced CTBS in An Giang province, in 2006 - as a pilot, and planned to scale up to other parts of the Mekong region (See project map from Figure 1 below). CTBS requires farmers to cooperate and work closely together to save costs and labour. If farmers used this technology, not only would their health and farming environment be protected, but also the costs they typically bear for controlling rodent would be reduced.



**Figure 1.** Map of Vietnam (with location of project site – An Giang)

As the project unfolded, we found that cooperation between farmers within groups established for project purposes was difficult. This made the adoption of CTBS at a larger scale challenging. To understand why cooperation among rice farmers is so difficult, despite their tradition of mutual aid (labour exchange), we employed mixed methods to understand the socioeconomic dimensions of the adoption constraints. However, as cross-sectional mixed methods do not allow us to clearly understand why farmers no longer cooperate, we used comparative historical analysis to understand the potential causal mechanisms leading to the discontinuation of the decades-long mutual aid practice, which, in turn, affects the expected adoption of the CTBS.

The goal of this paper is two-fold: 1) demonstrate how comparative historical analysis is used to overcome the shortcomings of cross-sectional mixed methods to understand the causal mechanism resulting in the present outcome (discontinued mutual aid practice among rice farmers), and 2) suggest that effective use of CHA makes generalisation of the research findings possible (when data are available). In conjunction with this purpose, our research questions are: 1) what is the causal mechanisms explaining the discontinuation of the decade long mutual aid practice among rice farmers in the Mekong of Vietnam, 2) could these causal mechanisms be generalised from the study site (An Giang province) to the Mekong delta region more broadly (under circumstances where data are available)?

## 2. Methodology

A cross-sectional study using mixed methods was undertaken to understand why farmers faced constraints in adoption of the introduced CTBS. In particular, we used focus group discussions to explore the main themes of the constraints, then based on themes identified, we conducted a household survey covering 240 farmers to explore the patterns identified, and individual interviews to obtain in-depth information. Eight months into project implementation, we conducted two qualitative studies, covering 106 farmers and governmental officials. This aimed to further explore the underlying constraints farmers faced in trialling the CTBS. Then CHA was used to try determine causal mechanisms. To better illustrate how mixed methods were used in combination with CHA to understand the research questions: as mentioned above, we briefly review below the pros and cons of each method we used in the mixed method. We also briefly review Comparative-Historical Analysis, to demonstrate why CHA is a convincing method that could be used to explain causal mechanism for events that happen over a long time period.

### 2.1. Review of methods

#### 2.1.1. Qualitative techniques

For qualitative techniques, we used focus group discussion, key informant interviews, informal individual interviews, participant observation and field observation, which are common in qualitative research tradition.

A goal of qualitative research is to understand “the nature of phenomena”, and is not necessarily interested in assessing the magnitude and distribution of phenomena” (Dewalt and Dewalt, 2012:2). Qualitative research is, indeed, a “naturalistic, interpretative approach” which enables us to understand the “meanings which people attach to phenomena (actions, decisions, beliefs, values etc.) within their social worlds”. It also helps understand the mental mapping process that research participants use to make sense of and interpret the world around them (Ritchie and Lewis, 2003:3). Qualitative techniques enable researchers to capture and describe various concepts and issues that can be integrated into the frameworks that account for people’s experiences and history. Qualitative techniques shed light on the motivations that connect people’s attitudes and behaviour, the discontinuities, or even contradictions, between attitudes and behaviour, or how conflicting attitudes and motivations are resolved and how a particular choice is made (Reinharz, 1992).

When reviewing the use of qualitative methods in sociological abstracts, Morgan (1996) found that the majority of the published research articles used focus groups combined with other methods, notably either in-depth, individual interviews, or surveys. Of the two, the use of focus groups combined with individual interviews is more straightforward because both techniques aim to collect qualitative data. Typically, researchers combine individual interview and group discussion because the former provides a greater depth while the latter provides greater breadth (Crabtree and Miller, 1993; Palis et al., 2002). Below, we briefly review each of the methods that we used – emphasizing both their advantages and limitations.

#### 2.1.1.1. Focus group discussions

Focus groups are “group discussion exploring a specific set of issues”. They are useful when researchers need to explore “people’s experiences, opinions, wishes, or concerns.” (Barbour and Kitzinger, 1999:4). With focus groups, we can create supportive environments “that nurture different perceptions and points of view, without pressuring participants to vote, plan, or reach consensus” (Krueger, 1994:6). With focus groups, researchers can observe interactions between group participants on a particular topic in a limited amount of time at their own discretion and facilitation ability (Krueger, 1994).

Morgan (1997) indicated that focus group discussion is preferred because (i) it allows collection of data pertaining to a wide variety of participants’ behaviours; (ii) it enables greater interactions with participants, and (iii) it creates a more open discussion with regards to the research issues. Thus, through the discussion process in our study, we were able to acquire the emotional dimensions from research participants regarding the issue of cooperation and associated rice farming issues. And this is how we initially understood the underlying factors that affect the cooperation among rice farmers at farm neighbourhood in our study.

Krueger (1994:10) argued that a focus group “taps into human tendencies” because attitudes and perceptions relating to concepts, services, or programs are developed in part through people’s interactions. A focus group is useful in that it can acquire these difficult-to-measure dimensions by creating an environment where enclosure of such attitudes and perception from group participants could be encouraged. However, focus group discussion method, according to Morgan (1997), has limitations on its own because it is limited to verbal and self-reported data, to within-group interactions, and it is in some way managed by the researchers.

### 2.1.1.2. Individual interviews

Individual interviewing is a commonly used method in qualitative research (Berg, 2007; Denzin and Lincoln, 2003; Kvale, 1996). Interviewing is used to obtain qualitative data through a social interaction, helping researchers acquire reported behaviour, attitudes, and beliefs, which contribute to deeper understanding of perspectives or experiences of research participants (Walker, 1985). Two typical types of interview we used include *key informant interview* and *informal individual interview*.

*Key informant interviews.* Key informants are individuals who have special knowledge, status, or communication skills. They are willing to share their knowledge and skills with the researchers. They are persons who have access to perspectives or observations denied to the researchers and they may be long-time residents in the community (Goetz and LeCompte, 1984). In our study, we used key informant interview to obtain better understanding of the issues around farmers' cooperation, especially the social, cultural and economic contexts which affect the way farmers cooperate for a particular purpose. Key informants are notably used to gather information, collect information not easily accessible to the researchers, and gain a particular understanding of cultural information. However, as information from key informants is "multisensorial, contextual, emotional, social, spiritual, and always, cultural" (Crabtree and Miller, 1993:73), it should be used with other qualitative inquiry techniques to enhance the validity of the findings.

*Informal interviews.* Melia (1997) suggested that data gathered from a seemingly natural conversation with the interviewee can be seen as an account of the interviewee's opinions and views, arrived at as a result of the interaction with the researcher. As such, in addition to formal interviews, we also conducted informal interviews, when possible during the field trips, to collect additional data. The informal interview was done in a naturalistic way – during farmers' gathering over dinners, so that individual farmers' reflections over a topic were not under psychological pressure. While collecting information using informal interview technique, we kept in mind the limitation of this technique as this technique, as suggested by Patton (2002), could harbour certain level of bias on the part of the researchers, including possible distorted responses due to personal bias, anger, anxiety, politics, self-serving response, or simple lack of awareness, as interviews can be greatly affected by the emotional state of the interviewee at the time of the interview and recall error.

### 2.1.1.3. Participant observation

Participant observation is the hallmark of anthropological methods (Bernard, 2012). A researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and their culture (Dewalt and Dewalt, 2002). In a similar manner, researchers can observe the participants in a natural context/setting and may see things they do not report. However, as argued by Tashakkori and Teddlie (2003), participants do not always do what they report that they do. People may try to show things they want us to see (front stage behaviour), rather than what they usually do or say with people close or familiar to them (family members, friends...). Goffman (1959) suggested that researchers ought to be prudent when observing participants because of this reason. In addition to this, participant observation requires much time to get rapport from farmers and people in the community which most of the project, including ours, do not have the luxury of time. So in our study, we

employ participant observation in specific activities related to rodent pest management, especially when farmers in our study set up and managed the CTBS, including daily check of the CTBS for rodents caught. Despite the above limitations, participant observation techniques helped us gain some valuable data that enabled us to validate the feedback we collected from the focus groups discussions and individual interviews with farmers in the study.

### 2.1.2. Mixed methods

Despite the advantages mentioned, qualitative research is less convincing when it comes to attempting inference and extrapolation beyond the study site. Thus, use of select quantitative techniques to complement the qualitative counterpart is a good option. When reviewing recent social and behavioural researches, Tashakkori and Teddlie (2003) found that mixed methods have been used extensively to solve practical research problems despite ongoing debates and controversies inherent in each method. Three points that mixed methods appear superior to the use of one single method are mixed methods 1) provide better answer to the research questions, 2) allow better inferences, and 3) offer a demographic presentation. McDowell and MacLean (1998) argued that – if the two methods are properly used, quantitative methods can help generalise and are externally valid while qualitative methods can particularise and become internally valid.

Despite the strength of mainstream quantitative methods, which allow detection of patterns and generalisability, quantitative methods offer less when it comes to exploring cultural issues that could be better captured with qualitative techniques. Jackson, when conducting a study on method issues in survey research with older minority adults, found that despite integrity in the assessment process, the method was unable to reflect cultural roles and racial issues. (Jackson 1989, cited in Weitzman and Levkoff, 2000). In our study, for instance, quantitative analysis, using both descriptive and inferential statistics, allowed identification of whether there is a significant difference between two study sites of the province on variables such as farmers' age, years of experience, years of schooling, farm sizes, yield per crop, daily communication channels – to name a few. Nevertheless, when it comes to understanding farmers' difficulties in daily rice production, norms of reciprocity (at home and farm neighbourhood), and why mutual aid rice farming practice was discontinued, qualitative research allows us deeper understanding of these underlying issues – through consultations with farmers.

When researchers wish to understand for a present outcome that results from a series of events happening over a long period of time (decades), cross-sectional mixed methods can offer a large amount of information, including the ability to generalise, but they are less convincing in explaining causality. Therefore, this mixed method approach failed to provide us a plausible and consistent pattern of evidence that explains how the mutual aid practice was discontinued, particularly with our case where changes to the mutual aid tradition had happened over a period of more than fifty years. Hence, the decision to explore the use of Comparative Historical Analysis (CHA).

We review briefly below the benefits of CHA. After that, we explain how CHA was used in our study as an additional method, to understand why farmers failed to cooperate in adopting CTBS.

### 2.1.3. Comparative-historical analysis

*"...[O]nly history can show us of what elements it is formed, on what conditions each of them depends, how they are interrelated; only history, in a word, can bring us to the long chain of causes and effects of which it is the result." (Durkheim, 1956:152-153)*

Comparative-historical analysis (CHA) is broadly defined as a method "characterized by the use of systematic comparison and the analysis of processes over time to explain large-scale outcomes such as revolutions, political regimes, and welfare states." (Mahoney, 2004:81). In essence, it involves explanation of causal mechanisms that produce outcomes of interest, analysis of historical sequences and temporal unfolding process, and systematic comparison of similar and contrasting cases in a particular context, typically for a small number of cases (Mahoney and Rueschemeyer, 2003).

Despite CHA not offering a common statistical language to describe methods and report results, such an absence does not mean CHA does not have deliberative techniques. Indeed, when combined with longitudinal and cross-sectional analysis, CHA offers possibilities of testing theoretical implications (Lieberman, 2001).

There are three key techniques that support the causal analysis (at a macro level) in CHA – nominal, ordinal and narrative analysis, and each analysis has its own characteristics, strengths and weaknesses. Selection of one method or a combination of methods is dependent upon researchers (Mahoney, 1999). (See Mahoney (1999) for a methodological review of macro-causal analysis techniques used in works employing CHA, and suggestion for approaches to macrocausal analysis).

Despite causal explanation using qualitative data remaining a controversial issue, more acceptance has been gained as methods have become available, allowing analysis that supports causal relationships (Maxwell, 2004). Miles and Huberman suggested that constructing a causal network requires one to bring analysis to the inferential level - associate the data into a single summative, cohesive form to establish conclusion. They advised: "if you've done it right, you will have respected the complexity of local causality as it has played out over time, and successfully combined 'process' and 'variable' analysis" (1994:160).

Arguing the ability of qualitative research in making causal explanations, Maxwell (2012:40) stressed that it is important to understand the research context to be able to make causal inferences. He wrote: "the social and cultural contexts of the phenomenon studied are crucial for understanding the operation of causal mechanisms". Pawson and Tilley (1997:xv) also summarised this stance in their argument "mechanism + context = outcome". Maxwell (2004a:251) suggested a group of strategies that could be used for causal explanation. He stated that the methods he suggested are associated with quantitative approaches. Thus, it is "legitimate and feasible" to use them to make causal inference in qualitative studies. He groups the methods into three groups – Group 1 including strategies that are usually associated with variance approaches, including Intervention and Comparison techniques. Group 2– Observation and analysis of process, including intensive, long-term involvement, rich data, narrative and connecting analysis techniques, and Group 3 – Developing and accessing alternative explanations, including modus operandi approach, searching for discrepant evidence and negative cases, triangulation, and member check techniques.

Mahoney (1999:1168), quoting Campbell (1975), wrote that “narrative can be used to assess rival explanations through a ‘pattern matching’ procedure in which hypotheses are evaluated against multiple features of what was originally treated as only a single unit of observation.” In this study, we employed a combination of the following methods: Comparison, intensive, rich data, narrative and connecting analysis, searching for discrepant evidence and negative cases, triangulation, and member checks. These methods allow us to verify the causal mechanism for the discontinuation of the mutual aid farming practice using data that are available from literature.

We examined farming related factors that were mentioned in the literature as being those affecting the mutual aid farming practice among rice farmers to understand and identify potential causal mechanisms. These factors included a) increased use of modern rice varieties, b) improved access to reliable irrigation water, c) increased labour shortage, d) increased mechanisation, and e) promulgation of various land policies. Although these variables were mentioned in literature, these were not mentioned systematically and consistently during our field study as factors affecting the mutual aid farming practice. Thus, based on these factors, we developed a causal chain model to validate with farmers during our consultation with them. The changes in the mutual aid farming practice occurred over a long period of time, since before the 1950s until the 1990s. Therefore we paid attention to important time/events in the farming history when the potential factors came into existence that challenged/affected the continuation of the mutual aid farming practice among the rice farmers in the Mekong of Vietnam. The results are presented in the next section.

### 3. Results and discussions

Before presenting the causal chain model explaining how the mutual aid farming practice was discontinued using CHA, we present below a) a short background on the mutual aid farming practice of the rice farmer in the Mekong delta, and b) the farmers’ profile (established from our household survey in An Giang province).

#### 3.1. Brief history of mutual aid farming practice among rice farmers in the Mekong delta of Vietnam

Rice farmers in the Mekong delta of Vietnam have had a long history of collective farming, manifested in the establishment of mutual aid groups to support each other in day-to-day farming activities (Kerkvliet and Porter, 1995, Kirsch, 1997, Pingali and Vo, 1992 and Wiegersma, 1988). Farmers were organised into groups to help each other in heavy farm work such as land preparation, transplanting, irrigation, and harvesting (Hickey, 1964). In the Mekong delta, this self-help practice dated back to the French colonial era (Kirsch, 1997), continued during the post-colonial period (Wiegersma 1988), and thrived even during the collectivisation period from 1976 to 1988 and in the post-collectivisation period after 1988 (Pingali and Vo, 1992).

By 1954 (the end of the French colonial period), around 40% of the rice land areas in South Vietnam were held by only 0.25% of the rural population. Large landholdings belonged to both French and Vietnamese owners (Pingali and Vo, 1992). Land reform was attempted in 1955. This aimed to redistribute the land from the rich to the poor. By 1961 (6 years after that), according to Salter (1970), a total of 148,400 families



(about 800,000 tenants) were given land as a result of the 1955 land reform. Collective rice farming, which was popularised before 1954, remained active during this period despite growing disputes over irrigation which were notably common (Wiegersma, 1988).

By 1970, as a result of the 1955 land reform, landowners had relatively small holdings (86% of the land being 7.5 hectares or less in size); very few large landowners remained (Salter, 1970) and mutual aid was maintained. In 1970, the second land reform in South Vietnam (known as "Land-To-The-Tiller") was implemented. This attempt at land reform aimed to further reduce the land concentration of landlords. According to Wiegersma (1988), collective rice farming continued during this period.

By 1975, the Southern and Northern part of Vietnam was reunified. The political regime in South Vietnam was changed to socialism. According to Vo-Tong Xuan (1995), during the collectivisation in the South (from 1975 to 1988), collective rice farming practices manifested in mutual aid groups were even more common because of the need to support labour-intensive activities such as land preparation, irrigation, and harvesting as a result of collectivisation.

By 1988, a new land law was published, recognising the land rights of farmers. Trading of farm land started in the context of a more liberalised market and open economy. As a result, poor farmers sold their lands, especially those experiencing economic constraints and/or natural disasters. This situation, over time, resulted in increased land concentration, which is still common and ongoing. In addition to changes within the farming system and use of new farming techniques (due to new high-yielding rice varieties) which resulted in increased labour shortages at peak times, land concentration was also found to be associated with the discontinuation of collective rice farming practice because changes in land ownership broke the links in collective rice farming networks which were based on kinship, house neighbourhoods and friendship relations.

### 3.2. Profile of farmers surveyed

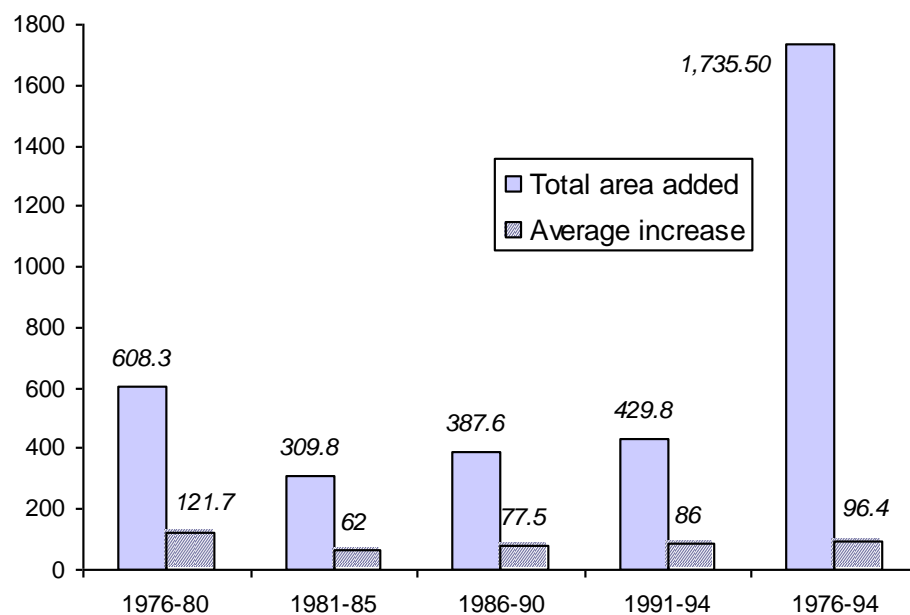
Of the sample of 240 farmers who were selected randomly for the household survey, approximately 70% of farmers were less than 50 years of age with an average rice farming experience of 19 years. Most of the farmers are Kinh people. The majority had completed primary school education (69.7%), followed by secondary education (19.8%), and high school (4.7%). Likewise, a majority owned rice lands (96.5%) and some had rented fields (3.5%). The average farm size was 2.96 hectares (ha) but varied from 0.18 to 27ha. Rice was the main crop for 99% of farmers. Four modern rice cultivars - IR50404, AG24, OM2514 and IR64, were mainly used. Cucumbers were grown as a cash crop by a small number of farmers. Most of the farmers used hired labour and machinery for their rice production. Mechanical services that support threshing, transportation of produce, and so forth, are widely available in the community.

### 3.3. Factors that affect the continuation of the mutual aid farming practice

As mentioned earlier, to establish a causal mechanism to explain why the mutual aid farming tradition among rice farmers in An Giang was discontinued (albeit more than fifty years' existence), we examined the following factors: irrigation, rice varieties, farm labour, mechanisation, land and rice market policies.

### 3.3.1. Irrigation

There was a steady increase in the area under irrigation in the Mekong, particularly after the reunification of the country - from 1976 to 1994 (See Figure 2 below). As part of the Mekong delta, An Giang also saw an increase in investment in irrigation systems which increased the number of crops per year. While improved irrigation provided farmers with reliable water access, it challenged their mutual aid farming practice because as more areas have reliable water access, more farmers needed to keep their already limited family labour to maintain their own farm and more importantly, to observe the irrigation schedule so that they did not miss irrigation water. During peak times in the season when labour was needed for intensive crop care, exchange of labour became even more difficult. This effected the practice of mutual aid farming.



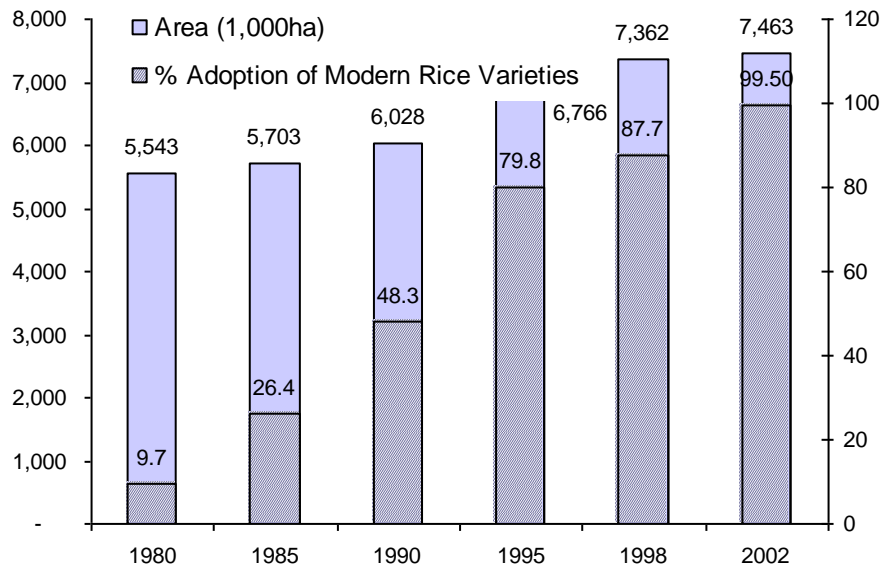
**Figure 2.** Expansion of irrigation in Mekong delta (1976 – 1994) (Source: Pingali et al., 1997)

### 3.3.2. Increased use of modern high-yielding varieties

The high-yielding rice variety, namely IR8, which was referred by the Western media as “miracle rice” was first introduced into the Mekong delta in 1966 (IRRI 2006:40). In Vietnam, this new rice variety is called “Than Nong” (*God of Farming*) (Tran and Kajisa, 2006). IR8 is a non-photosensitive, short-duration, high yielding variety. It was introduced to Vietnam with a whole package of cultivating techniques that showed farmers how inorganic fertilizers, herbicides, and insecticides were used (Vo, Tong-Xuan 2005). IR8 yielded an average of 4 tons per hectare, which far outweighed the traditional varieties which produced only 2 tons per hectare (Tran and Kajisa, 2006). This new variety had a very high rate of adoption - from 1% in 1968 to 33% in 1975. The total rice area was also increased because the introduction of non-photoperiod sensitive,

short-maturing modern variety enabled farmers to grow two crops per year (Tran and Kajisa 2006). By 1975, high-yielding rice varieties were adopted across an area of about 600,000 ha in the Mekong delta (Pingali et al., 1997). By 1993, up to 2.1 million ha of irrigated and rainfed land of this region used high-yielding rice varieties, of which approximately one-third of this area could produce two or three crops per year (Pingali et al., 1997). See Figure 3 below.

As a province in the Mekong, farmers in An Giang also adopted high-yielding rice varieties. It was, therefore, clear that increased reliable irrigation and increased number of crops per year (thanks to the introduction of short-maturing varieties) added more difficulties to farmers' coordination of farm labour within their mutual aid groups.



**Figure 3.** Adoption of high yielding rice varieties in Mekong delta (1980 – 2002) (Source: Tran and Kajisa, 2006)

### 3.3.3. Farm labour and mechanisation

Labour practices and mechanisation both changed considerably after the north and south of Vietnam were reunited in 1975. In 1976, collectivisation was started in Southern Vietnam. Labour exchange (mutual aid practice) became even more important as farmers increased rice production (albeit with more difficulties in labour coordination). Mechanised operations for land preparation and threshing also became popular because individual ownership of tractors, tillers, threshers, pumps, and draft animals were no longer allowed to support the collectivisation effort. In 1977, there were 27,520 tractors in operation in the southern Vietnam, which supported the land preparation for about 30–40% of the rice production area (Pingali and Vo, 1992). In 1983, mechanisation had increased markedly. Large tractors had increased in number by 60% and small tractors by 50% as compared with numbers in 1975 (Dao, The Tuan et al., n.d). By 1988 when decollectivisation was initiated, labour exchange (mutual aid) was even more popular. However, it was still

not enough to meet the labour demand due to increased use of modernised rice farming practices plus improved irrigation. According to Pingali et al. (1997), the need for additional labour during peak times of the season was high, particularly around harvest time. Labour shortages were common and wage rates became higher.

It was apparent that agricultural modernization had affected the way labour was traditionally used. An Giang, which was one of the main areas of rice production, was also subject to increased demand for farm labour and increased mechanisation which further hindered the coordination of labour within mutual aid groups (in association with increased irrigation and modern varieties).

### 3.3.4. Land and rice market policies

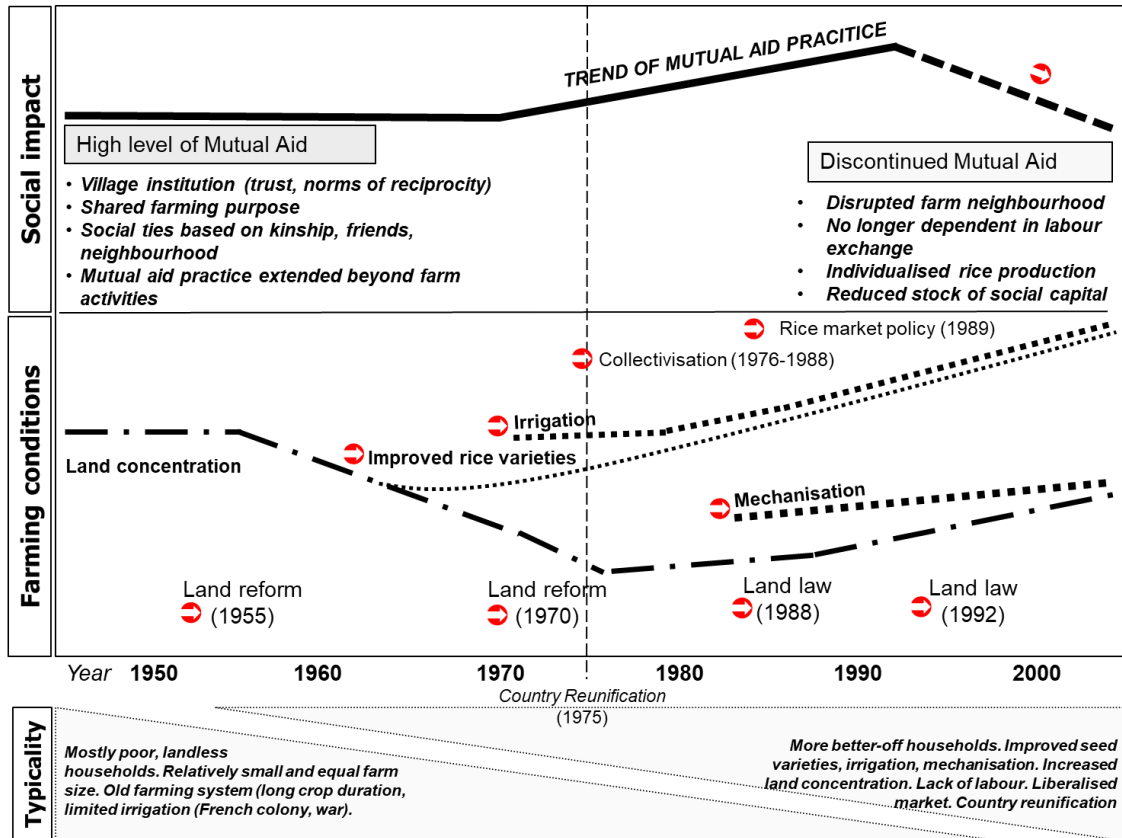
In 1989, the government of Vietnam initiated the *open door* policy. Pingali et al. (1997) documented the following major policy reforms during this period, which were noted to have liberalised the rice market:

- Land reform (1988) - farmers enjoyed a longer-term use of their land and inheritable leases;
- Contract system abolished (1989) - replacement of the contract system with a fixed land tax system where farmers were no longer asked to sell a large part of their produce to the state at low prices;
- Output market was privatised;
- Input supplies was decentralised (to provincial level); and
- Subsidy of food grain (that were previously exclusive to government employees and army) was abolished.

As part of the Mekong, An Giang is not the only province that was subjected to the impact of these policies. These policies, indeed, resulted in an impact that took place at varied pace at different provinces of the region, depending how these policies interacted with the above-mentioned factors such as the increased use of modern rice variety, and/or access to more irrigation.

### 3.4. Specification of the causal chain model using CHA

Before specifying a causal chain for how mutual aid farming practice was abandoned – as a final outcome, we first developed a chart depicting the trends of how mutual aid farming practices were implemented over time – as recorded in the reviewed literature (maintained, developed, or discontinued). The period we examined was from the 1950s to its complete abandonment in the 2000s (See Figure 4 below). It is important to capture these trends alongside the key socioeconomic and political factors as these factors could have potentially affected the practice of mutual aid traditions. Depicting the trends also enabled us to check the correlations between the trends and the potential impact of the above mentioned factors as these factors arose. For instance, we contemplated whether land reforms had effects on the maintenance of the mutual aid farming practice; how these effects took place and whether they affected the mutual aid practice positively or adversely?



**Legends:** ➡ Indicates times when the events occurred and were supposed to have triggered the influence on the practicing of mutual aid farming

**Figure 4.** CHA model for changes in mutual aid farming practices and potential factors and events

Based on the trends of mutual aid practices that were depicted against factors supposed to affect mutual aid practicing (including improved irrigation, improved access to modern seed varieties, increased mechanisation and labour, and liberalised market), we specify a causal chain model to explain the process of how the mutual aid farming practices developed over the period of about sixty years – from its prosperity in 1950s until its complete abandonment in 2000s. After postulating the causal model using qualitative data and statistics from the literature, we conducted consultation with farmers to validate the hypotheses we set – alongside key factors that were supposedly responsible for trends in aid mutual practices. The benefits of consultation with farmers was significant, allowing us not only to check the hypotheses of the causal model but also understand factors affecting the trends of mutual aid practice which were not captured in the literature. This allowed us to elaborate the transitional changes that occurred as a result of and between social events, leading to eventual outcomes (See Figure 5), which enabled us to answer the research question number 1.

As indicated in Figure 4, several factors affected mutual aid farming practice, in a cumulative manner, over the period from 1950s to 2000s. One factor may affect the trends in two opposite directions. For instance, the

four land reform efforts - two in 1955 and 1970 under the South Vietnam government, and two in 1988 and 1992 under the Vietnam government, resulted in opposing trends in terms of land distribution among rural people in the Mekong delta. While the first two reduced land concentration among the few rich people and more landless poor had access to agricultural land, the second two allowed opportunity for increased return of land concentration as poor people could sell their land and the better-off could accumulate land, which changed remarkably the social relations at farm level.

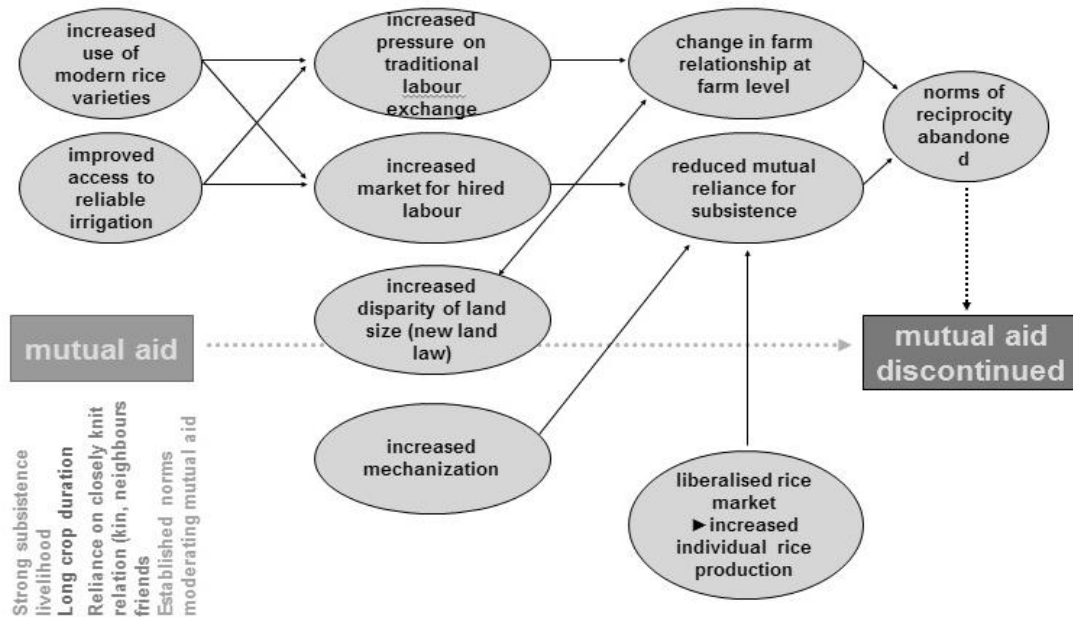
Mutual aid groups were primarily based on kinship, neighbourhood, and/or friendship. Increased land transactions, particularly after 1975 when the country was reunited, resulted in changes in land ownership which affected the relationships among members within the mutual aid groups. Increased crop intensification also added difficulties to the practicing of labour exchange because modern rice varieties shortened crop duration while more reliable access to irrigation demanded faster and synchronised land preparation to make use of water. These together made coordination of labour between members within mutual aid groups difficult, let alone changes in group membership as a result of change in land ownership, which challenges mutual trust. In the face of increased crop intensification, labour shortage became more common, which opened up chance for labour market to meet the demand of farmers, particularly at peak times (land preparation and harvesting). Farmers became less dependent on labour they used to rely on from the mutual aid groups.

When collectivisation was abolished in late 1980s, alongside rice market liberalisation, demand for rice surged for both domestic consumption and exporting. Rice production was freed up from the labour forces that used to be traditionally supplied by mutual aid groups, making rice farming a more individualised rather than group-based mode of production. The abandonment of mutual aid practice means the trust, norms of reciprocity, and networking, which fostered cooperation among rice farmers, were no longer maintained for the purpose of rice farming, bringing to an end the decades-long mutual aid farming practice in the Mekong delta of Vietnam (See Figure 5 below).

We found from our analysis that mutual aid farming practices among smallholder farmers declined if the need for maintaining subsistence was not strong along with farming conditions that were not favourable for them to exchange labour. Both *needs* (for mutual aids) and *conditions* (facilitating realization of the *needs*) were equally important. When one factor was changed, the other was altered. In the case of Mekong, the *need* for mutual aid had lasted for a long period of time (since before 1950s) until it was challenged by the introduction of a new modern rice technology package (1960s), improved irrigation systems (1970s), increased mechanisation (1980s), and the abolishment of collectivisation, release of a new land law, and rice market liberalisation (late 1980s). These events gradually and in aggregate weakened the practice of mutual aid traditions, resulting in a process of gradual abandonment of this collective rice farming practice by the 1990s with complete abandonment by the early 2000s, across the Mekong region.

We found that mutual aid practices, relied on close social ties based on kin, friends, and neighbours, had played a vital role in maintenance of the mutual aid tradition. In the context of wartime and livelihoods hardship, cooperation among rice farmers was fostered by the high need for mutual support for subsistence, which was nourished by mutual trust and norms of reciprocity. Farmers did not limit their mutual aid

practices to rice farming works. They helped each other in non-farm works such as house repair, house and bridge building, as well as other rural works as needed. They also helped people outside their groups, particularly those who were too poor to afford daily meals, and those who were in especially difficult circumstances. The rural activities of mutual aid groups had the added element of *helping those in need* into the rice culture in the Mekong delta of Vietnam which has remains. For example, charitable activities such as rice for the poor, food for patients, and free ambulance service for poor patients far away from district and provincial medical centres are typical examples of a *helping hand* which dated back to the time of mutual aid practice.



**Figure 5.** Causal chain model for discontinuation of mutual aid among rice farmers (Source: Le Anh Tuan, Alison Cottrell and David King, 2014)

However, over time, because of increased reliable access to irrigation and improved seed varieties, farmers had to start cropping at almost the same time, and to harvest earlier. The new synchronised and shortened production pattern made labour exchange among members of mutual aid groups challenging. The lack of labour, as a result of increased crop intensification, opened up a market of hired labour, particularly at peak times of the season, which, in turn, challenged the age-long need for mutual aid.

### 3.5. Generalisation of the findings

Now, we turn to the second research question – can the findings of this causal mechanism be generalised beyond the study site (An Giang province) to the Mekong delta region? Before discussing the generalisability of findings, it is worth reviewing the premise on which the generalisation effort within this study is grounded for this qualitative analysis using CHA.

A goal of science is to generalise its findings to populations and times (Smith, 1975). In quantitative methods, generalisation is grounded on the concept of probability sampling, which is essential to its task. What about its qualitative counterpart?

Kuzel (1999) argued that qualitative research does not aim to generalise or predict. In fact, as Schofield (2002) noted, generalisation in qualitative research is still under ongoing disputes. However, interest in the issue of generalisability has been significantly increased in educational research and evaluation. Marshall and Rossman (1999) argued that despite qualitative studies are not generalisable in the probabilistic sense, their findings are transferable. The reader, can make decisions about usefulness for other settings, considering that the study is bounded and situated in a specific context. For Payne and Williams (2005:305), “the extent of the grounds for generalisation depends both on the characteristics of what is being studied and, crucially, on the similarities of the research site to the sites to which generalisation is to be attempted”. Mason (2002), on the other hand, maintained that to achieve generalisability, one needs to think carefully and strategically throughout the whole research process.

In fact, qualitative researchers can use statistical sampling procedures if the group they study has the same characteristics as the population to which they plan to generalise. Nevertheless, qualitative researchers frequently encounter cases where probability sampling is not appropriate because in some cases only a few subsets of population characteristics are relevant to the research issues under consideration. Thus, criterion-based selection is commonly used by qualitative researchers when it comes to choosing a group, or a site, to study (Goetz and LeCompte, 1984).

One approach that is at times used to increase the generalisability in qualitative research is to study the typicality (see Goetz and LeCompte, 1984; Patton, 2002). Schofield (2002) argued that choosing sites based on their fit with a typical situation is a guiding principle to increase the potential applicability of research. Nevertheless, she noted that choosing a typical site does not mean that site is typical on every dimension of the study. Therefore, if employed, researchers should attempt the use of thick description to identify what is typical in the context of the study.

To explore the possibility of generalisation of our findings, we conducted an extensive review of literature to check whether there was any information related to irrigation, rice varieties, farm labour, and mechanisation, land reforms, and rice policies that were existent in the literature for each of the province in the Mekong. This aimed to attempt a generalisation of the findings from our study site (An Giang province) to the Mekong region of Vietnam. Payne and Williams (2005:306-7) suggested five ways to keep the generalisation modest:

- 1- Select the breath of generalisation based on the nature of the phenomenon and assumption about the wider population.
- 2- Consider time factor since current studies may become outdated if claim is made about the future.
- 3- Characterise the research topic as accurately as possible to avoid under- or overclaim.
- 4- Claims should be made to basic pattern, or tendencies to allow other studies to comfortably fit to the current research findings.



- 5- Nature of the generalisation will be “conditional upon the ontological status of the phenomena in question”. Thus, the following social characteristics could be considered for generalisation: physical objects and their social properties; social structures; cultural features and artefacts; symbols; group relationships; dyadic relationships; and psychological dispositions/behaviour.

As CHA requires rich data in order to establish a plausible causal mechanism. Depending on the nature of the research questions, data should be sufficient to establish a pattern of findings, particularly when generalisation of the findings is attempted, which requires availability of data also for geographical area to which the generalisation is intended. In this study, we lacked data for some provinces, for which we attempted generalisation because the literature we had did not have the required data, particularly for the period from 1950–1975 which was wartime. Nevertheless, as the key factors used in this study, including irrigation, rice varieties, labour and mechanisation, land reforms and rice policies are quite similar between the study site and other provinces in the Mekong delta, our generalisation attempt is plausible.

As Kvale and Brinkmann (2002:262) suggested, *analytical generalisation* could be used to account for the degree of generalisation because this type of generalisation allowed “reasoned judgment about the extent to which the findings from one study can be used as a guide to what might occur in another situation. It is based on an analysis of the similarities and differences of the two situations”. Kvale (1996:233), by presenting “supporting evidence and making the arguments explicit, the researcher can allow readers to judge the soundness of the generalisation claim” (cf. Yin 1994). Easton (2003) argued that when a causal explanation is defensible in one case, the constituents used in that explanation could be used as a basis for theoretical development beyond the case.

In line with the above suggestion, we used the above four illustrative factors for pattern checking. We also combined the causal explanation with generalisation methods in qualitative analysis and found it is possible to generalise the findings from An Giang province (study site) to the other part of the Mekong delta that shares similar social and political dimensions. We noted, in particular, that although we could establish the order of occurrence for the case of An Giang, we could not do that for each of the other provinces in the Mekong delta because of lack of data from the literature. For example, modern rice varieties became popular in Can Tho province in the 1970s, but not in An Giang until the early 2000s. Nevertheless, despite uneven timing of occurrence of factors in provinces (to which generalisation is attempted), mutual aid farming practices were discontinued. Mutual aid farming practices were no longer needed because of the impact of the key social factors that were identified above, including irrigation, rice varieties, farm labour, mechanisation, land and rice market policies.

#### 4. Conclusions

In this study we presented how comparative-historical analysis (CHA) (longitudinal) was used to complement a mixed methods (cross-sectional) approach to answer our two research questions: 1) understand the causal mechanism for discontinued mutual aid farming practice, and 2) generalise the findings from the study site (An Giang province) to the Mekong delta region of Vietnam. The analytical

process of the CHA method allowed us to use both qualitative data and statistics from literature to establish a causal model and validate it through consultation with farmers – to establish a causal model hypothesis and confirm it for a period of more than fifty years. Using CHA, we were able to establish a causal explanation for a particular present social outcome that has long historical roots, and also enhance the validity and reliability of the findings by using a cross-sectional mixed methods approach. CHA also enabled reasonable generalisation of the research findings, particularly for our case where data are limited from literature during wartime.

Another important implication from our study is that understanding of why rice farmers no longer cooperate at farm level, as they used to do in mutual aid groups, suggested that challenges that may be inherent in development effort that expect farmers' collective actions, such as cooperation among farmers in an agricultural extension program. As analysed above, a strong need grounded on shared purpose is an important element that accounts for cooperative behaviours among rice farmers. The conditions that support the realisation of such need is also essential, which makes these two factors a *necessary and sufficient condition* accounting for cooperative behaviour – as evidenced by the case of mutual aid farming in the Mekong. We believe that this condition also holds true even for the case where an individual farmer intends to adopt a new technology for their rice production. Both the need and conditions should be enhanced with social marketing effort and measures for site-specific condition improvement, respectively. Future research may consider using CHA for other social issues that have deep root in farming traditions, combined with use of contemporary knowledge of decision making to promote cooperation among farmers, and between them and their business partners.

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