

# The rural transformation of the two rice bowls of Vietnam: the making of a new Asian miracle economy?

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## ABSTRACT

This paper assesses the factors driving inclusiveness in Vietnam's rural transformation by comparing the two rice deltas of the country since reunification in 1975. In order to achieve this, a pro-poor institutional development approach based on Adelman is applied. We focus on asset-oriented, demand-generating and price-increasing interventions. Our findings point out that the experienced growth might be considered inclusive, but the dynamics of poverty reduction, income generation, and productivity-enhancement are substantially different in the two delta economies. This might have implications for the prospects of Vietnam's continuation in a 'growth with equity' model, if policies and innovations are not locally adjusted.

## KEYWORDS

Rural transformation; pro-poor growth; Vietnam; inclusive innovation; Ishikawa curve

## 1. Introduction

Despite the substantial improvements in poverty reduction, the persistence of structural inequalities in today's world urges us to reconsider the development strategies that countries are following. A major component driving the disparities between and within countries is the predominantly rural dimension of poverty. The World Bank (2014) reported that 78% of world's poor people live in rural areas, and hence the focus on rural, more specifically agricultural, transformation in developing countries is critical. Seeking an agriculture-led process of transformation (industrialization) ought to become a policy priority, though contemporary examples of such types of transformation in the literature are scarce. An exemplary case might arguably be Vietnam. This paper assesses the extent of inclusiveness of Vietnam's rural transformation since reunification.

Vietnam's GDP per capita (constant 2011 international dollars) has grown at a rate of 5.3% annually since 1990, while managing to reduce poverty without a substantial increase in income inequalities.<sup>1</sup> Headcount poverty (USD1.90PPP) decreased from 53% in 1992 to 2% in 2016, while income inequality, measured by the Gini coefficient, has remained at approximately 35 during the period (World Bank Indicators).<sup>2</sup> This poverty reduction was a result of improvements in the distribution across regions and sectors (McCaig, Benjamin, and Brandt 2009; Benjamin, Brandt, and McCaig 2017). Consequently, Vietnam has transformed from being amongst the poorest in the world in the 1980s, devastated

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by decades of violent conflicts, to a Lower Middle Income Country in 2011. This is remarkable indeed.

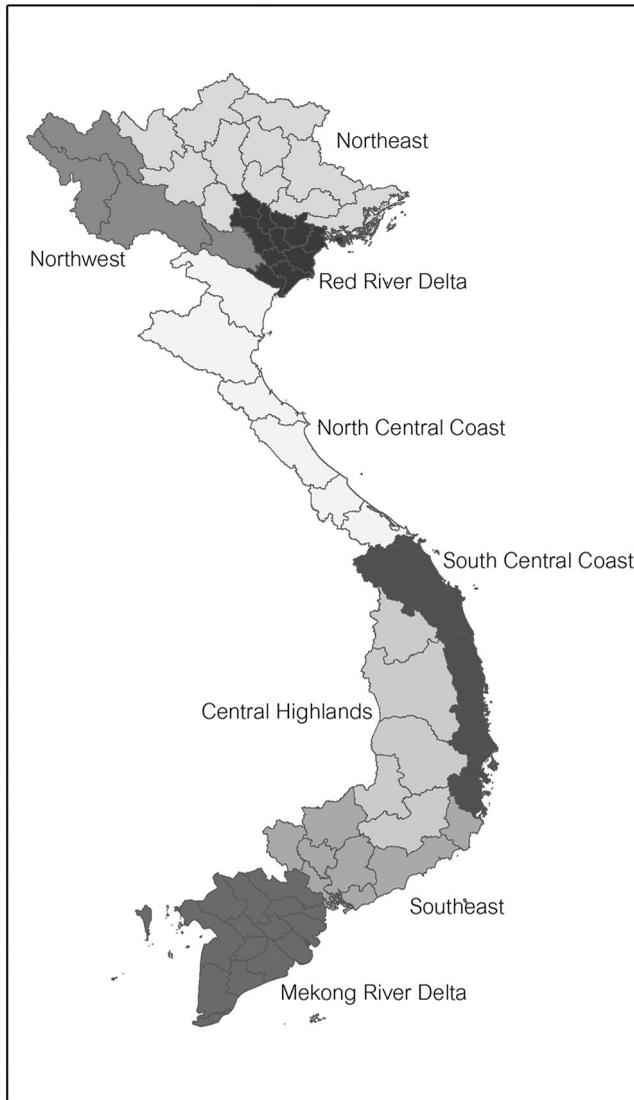
The main reason for the *initial* fall of poverty rates was increased earnings of agricultural workers (Benjamin and Brandt 2004; Ravallion and van de Walle 2008). Given that 70% of the population was employed in agriculture in 1990, the growth in the sector is reflected in the decreased rural poverty headcount ratio (based on real per capita income): from 70.9% in 1993 to 8.4% in 2006 (McCaig, Benjamin, and Brandt 2009). This means that absolute poverty in rural areas has almost been eliminated and living standards of the population improved. This seems to indicate that agricultural transformation has been not only a major driver of change in the economy but also, and most significantly, a substantial factor in poverty reduction.

A major caveat in examining the Vietnamese case is that the starting point was a war-devastated country, which reunified in 1975. Obtaining food security and self-reliance became a major economic, and arguably political, priority. The international conditions were not conducive to relying on trade for food imports (i.e. a trade embargo with the US from 1975 until 1995, worsening of relations with neighbouring China and Cambodia). The northern Vietnamese government relied on the southern delta capacity to resume rice production to not only feed the local population, but also the northern rice deficiency.

Rice is the main staple and is cultivated throughout the country, but the main production is localised in the two rice bowls: the Mekong River Delta (MRD) in the South and the Red River Delta (RRD) in the North (see Figure 1). The rural poverty incidence, measured as headcount ratio, in 1992 was relatively similar: in the RRD it was 58.9% and 50.6% in the MRD (Dollar and Glewwe 1998, 50). Despite the fact that the relative incidence of poverty in these two regions is lower than elsewhere in the country, most of the rural poor lived there, because of the greater population densities of both deltas. Consequently, the rural transformation of these two regions would potentially have a larger impact for the poor, and hence became the target of government interventions, and the focus of this paper.

The overall transformation of the country, and what most of the literature focuses on, is the liberalization reforms known as Doi Moi from 1986. Prior to these reforms, during the period 1976–1980, the area under rice cultivation increased by 1%, but production stagnated at 11 million tonnes (Young et al. 2002). In 1981 the Vietnamese government approved Directive 100, which initiated the decentralization of power to farm households and away from producer cooperatives, to stimulate production (Fford and Sénéque 1995, 97). From 1986 the Government progressively dismantled a centrally planned economy, having at its core, rural-oriented development strategies (Timmer 2009, 42). This paper explores the effects these policies had on improving the living standards for the poor by identifying how the interventions favoured inclusive innovations via productivity improvements of the assets owned by the poor. The paper addresses the following questions: how *inclusive* were the processes derived from such interventions, in terms of across-the-board access to public goods, productive resources and opportunities to exploit them? Subsequently, which factors have been conducive to transformation? And more generally, how does the Vietnamese rural transformation relate to the experiences of East Asian Miracle economies from a developmental state perspective?

The paper proceeds by reviewing the major rural development policies and presents a pro-poor analytical framework based on Adelman (1986). This allows us to link these



**Figure 1.** Vietnam by regions. Source: Author's based on Vietnam's General Statistical Office Regional Division.

policies to concrete interventions for inclusive innovations via increases in the labour and land productivity of the rural poor. Our examination is based on a historical analysis of major primary and secondary sources. The paper concludes by reflecting on the resemblance of this transformation to the experience of the East Asian economies, where the state was an enabler of technological change (Amdsen 1989).

## 2. Development policy and dynamics for rural inclusiveness in Vietnam

Any economic policy core to the developmental strategy of the country has two fundamental components: the policy targets and the policy instruments to reach them.

**Table 1.** Summary of the initial policy targets, instruments and outcomes for rural transformation.

Policy target	Instrument	Outcome
Food Security – Expansion of rice production	Progressive liberalization of input and output markets Investment in irrigation and infrastructures Increased rice prices	From 1976–1980, area under rice cultivation increased but production stagnated 1988– 1995, rice production increased annually by 5% By 1990, rice imports ceased
Export expansion	Expansion of export quotas Currency Devaluation by 10 cent (1998)	By 1997, Vietnam has become the second largest exporter of rice
Diversification within agriculture	Possibilities of converting rice land into other agricultural purposes Promotion of other crops	Vietnam has recently become the largest exporter of cashew nuts and black paper; the second largest exporter of coffee and cassava, third in fisheries and fifth in natural rubber (OECD 2015, 23) Diversification of agricultural export bundle
Skill formation	Education for All Extension Services Vocational Training	By 2005, the participation rate of primary school-age children was almost universal (98%); (Kinh and Chi 2008), and primary completion rate reached 92.2% in 2014 (UNDP 2016) Extensive vocational training (in 2005, there were more than 1688 centres, which meant doubling from the previous decade) and access to technological improvements for cultivation Substantial increases in public spending on vocational, college and university, and intermediate professional schooling from 2006 to 2014 (UNDP 2016, 99)

Table 1 summarizes the main *initial* changes in policy objectives, instruments to achieve these, and general outcomes affecting the rural economy. These objectives were selected based on the necessity of improving both land and labour productivity. For the case of the latter, as will be discussed more in detail below, we summarize strategies that are complementary as they aim equally at those staying and those leaving the rural economy.

Besides obtaining food security and the much needed foreign exchange, another benefit of such processes in the agricultural sector is noteworthy: an internal geographical specialization. For instance, coffee is mainly produced in the Central Highlands, while cash crops such as rubber, sugar cane, peanuts, cashew nuts and fruit are grown north and east of Ho Chi Minh City; livestock and aquatic products in the Central Coastal region (Goletti and Minot 1997; Nguyen 2017 for an analysis of crop diversification). These changes both cater for the new diet patterns of the population (mainly livestock) and international demand. Forward and backward linkages are taking place as agricultural services and rural industrialization develop. For instance, for industrial crops, some production has been favoured via state-led processes of import substitution while other crops are more exposed to market-mechanisms (FAO 2006, 29).

Independently of these changes, rice remains the most important crop and occupies the majority of arable land in the two deltas, which, in turn, jointly account for 70% of all rice produced in the country (IRRI Vietnam). Improvements in production and land productivity, along with increases in real incomes for farmers, have been experienced in both deltas. The difference is, however, that the South has greatly outperformed the North. That is, not only have the paths of the deltas diverged; the differences are probably not about to disappear soon. In 2000 rice occupied 7.6 million ha and 94% of the total grain output, to which the South contributed 45% of the area, 50% of the output and

80% of the total rice exports (Young et al. 2002). Recent estimates value the contribution of the MRD's to total rice exports at 95% (Anh and Vang 2015).

The Vietnamese transformation in rice cultivation is put forward as a positive example in the literature (see for instance Nguyen 2013; Bordey et al. 2016). In these international comparisons, data for Vietnam is usually taken from the performance in the Mekong Delta. This comparative approach has its benefits but the implications of the analysis should be read with caution since, as this paper argues, the cultivation system and dynamics of transformation of the South are not representative of the whole rural, rice economy of Vietnam. More specifically, the cultivation, its total factor productivity gains, and their dynamic interaction with poverty reduction are substantially different. This insight is illustrated through a comparison of the two deltas.

Thanks partly to the significant improvements in data availability (national household survey data since 1992/1993), Vietnam, and its rural transformation, has received much scholarly attention (see, for instance, Tarp 2017 as one of the latest edited volumes on the subject). Given the fact that Doi Moi, and other major agricultural land reforms, preceded the first national household survey, the empirical findings are assumed as an outcome of the reforms. In other words, the major determinant of the outcomes in poverty and income inequality is the chosen development strategy. This naturally is a valid assumption if the initial distribution of assets and institutional structure is taken as granted (Adelman 1986, 56). But as growth accelerated in the 1990s, indicators (in income levels and poverty reduction rates) pointed to differences in economic performance, and hence in inequality, by regions. These differences were not only reflected in the expected growing rural and urban economic gap, but between rural areas within the country that had relatively similar initial levels in incomes. These imply that despite economic similarities, the interaction between policies and local conditions varied. This leads us to revise the assumption on initial conditions. In order to carry out the analysis, we take an institutional perspective, based on Adelman (1986), to examine the institutional and technological innovations driving this on-going success story more closely, while identifying constraints.

### 3. A pro-poor developmental framework: in search of inclusive innovations

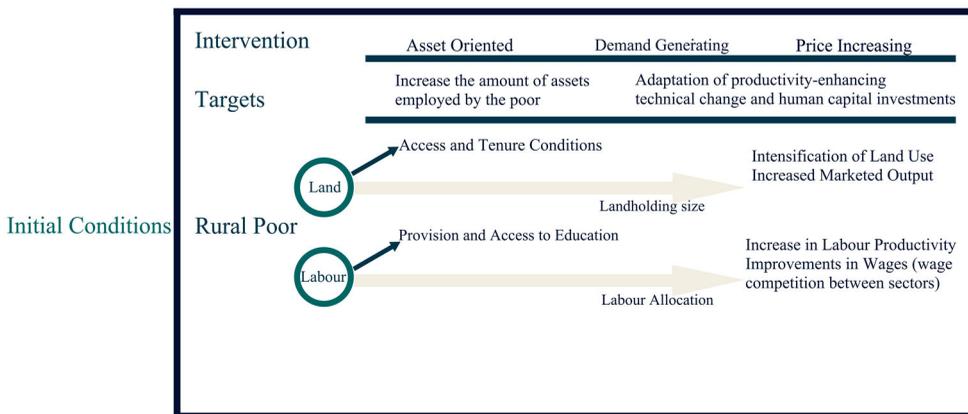
In order to understand how inclusive a process(es) of transformation has been, the literature resorts to diverse indicators of socioeconomic improvement. These, however, normally reflect outcomes. If measured over time and disaggregated by different categories (i.e. gender, ethnicity, geographical variables), they are helpful in identifying the marginalized, especially in economic terms, and potential inequality traps. The contribution is significant since due to market failures (land, labour, credit, education) and the evolution of institutions, *inequality traps not only affect the distribution but also the dynamics of growth and development*. This is why while the indicators we rely on are the same as many other academic contributions, the adoption of Adelman's framework allows us to identify the drivers and dynamics of change, especially those in the initial phases of the country's economic development.

According to Adelman (1986, 54): '[H]ow the poor fare during the course of economic development depends on how the distribution of assets, the institutions for asset accumulation, and the institutions for access to markets by the poor all interact with the

development strategies chosen’. This approach, as she defined it, is productivity oriented (Adelman 1986, 50) because the objective is to increase the incomes of the poor via improvements in productivity and their access to productivity-enhancing assets. Hence, understanding productivity gains of the assets of the rural poor become fundamental both for the short term (improvements in income and living standards) and the medium term (possibilities for socioeconomic mobility) of the individuals. The implications for the economy as a whole, if successful, might be structural economic change.

The pro-poor interventions can be, in turn, classified as asset-oriented, demand-generating, and price-increasing (Adelman 1986, 57–64). The result of these strategies is an increase in: (i) the quantity of assets owned by the poor, (ii) the volume of their marketed output, (iii) prices of the marketed services or output. In the case of the latter, this could be achieved by controlling wages or favouring the terms of trade as part of economic policy more generally. This paper, however, focuses on a particular mechanism to increase the price of the major assets of the poor – their labour – to increase productivity. In Adelman’s framework, this includes: ‘1) upgrading the quality of labor (sic) through investment in human capital; 2) increasing the amount of complementary assets employed by the poor (e.g. land or capital); or 3) introducing productivity-enhancing technical change (e.g. land-intensive innovations in agriculture)’ (Adelman 1986, 62). Within these mechanisms, we could thus identify the interventions and innovations that were conducive to the improvements in living standards of the poor, and by analysing the dynamics, identify the barriers and bottlenecks (a stylized version of the analytical framework is presented in Figure 2). This approach focuses on those innovations that can be conceptualized as inclusive, since they are those ‘[...] accommodating needs of lower income people, enhancing their capabilities, improving their welfare and potentially empowering them’ (Levidow and Papaioannou 2018, 209).

As clearly summarized by Chataway et al. (2014, 34), the innovations much of the literature discusses are capital and scale-intensive, and dependent on high-network infrastructure, skilled labour and its product portfolio. Whereas these innovations are becoming more prevalent for today’s Vietnam, those were not the ones explaining the



**Figure 2.** Productivity-enhancing pro-poor growth analytical framework. Source: Author’s based on Adelman (1986).

remarkable initial transformation of the country; they ought to have been related to farming and rural transformation under imperfect markets and weak institutional capacity. Consequently, instead of focusing on one particular innovation, we look closer at innovation dynamics, based on Nelson's definition of innovation systems which '[...] encompass the wide range of institutions that are involved in supporting and orienting the dynamics of economic activity where innovation is the key driving force' (Nelson 2011, 47). Similarly to Adelman, education is of vital importance in Nelson's understanding. One of the main characteristics of the poor is the relative lack of relevant skills for the *modern* economy and limited access to education. Consequently, in assessing the interaction between productivity improvements in agriculture and poverty reduction, we need to identify the exact interventions for a positive impact on the poor. The next step is to discuss how the interventions altered: (i) the assets owned by the poor; (ii) price (see productivity) of those assets. In a rural economy, land is a fundamental asset for the poor.

#### 4. Distribution of assets – the land question

When discussing land from an institutional perspective, two overarching components become central: (i) land tenure conditions and (ii) the size distribution of landholdings. The 1993 Land Law, which followed the 1988 'Resolution 10', and was revised in 1998, formalized the farm household as the main unit of agricultural production and provided for the allocation of land use rights (LUCs) to households. These land use rights give households farm decision-making rights related to the purchase and use of inputs, the sale of outputs, and to some extent the use of land. Under the 1993 Land Law, these land use rights can be transferred, exchanged, inherited, leased, and mortgaged. These land reforms aimed at an equitable distribution and efficient use of land, which are not necessarily complementary objectives (as we will discuss below). In order to achieve these objectives, and curb the possibilities of re-polarization in land distribution, the state established a limit for annually cropped land of 2 ha in the central and northern provinces and 3 ha in the southern provinces, and for perennial cropped land the limit on holdings is 10 ha (Marsh and MacAulay 2006, 3). The lease of land was set at 20 and 50 years, respectively.

The de-collectivization of farming has thus been highlighted as the main driver of the transformation (see seminal work by Pingali and Xuan 1992). This is only applicable to the North, however, where collectivization started in 1955 (e.g. White 1970). In the South, there is a commonly shared understanding that collectivization was weak and that most farmers went back to farming the land they had historical rights to, or that they had handed over to the cooperative or collective (Beresford 1985; Kerkvliet and Selden 1998; Dang 2018). Collectivization had barely affected 6% of the farmers there (Pingali and Xuan 1992). From an analytical point of view, it might be problematic to attribute causality to a non-significant phenomenon, unless one is to argue for a counterfactual according to which it was the non-collectivization, along with the opening up of the economy and the liberalization of markets (releasing artificial distortions in prices, eventually lifting rice exports quotas, etc.), that facilitated the transformation. This, however, meant that there were pre-existing conditions in place prior to the reforms, or even to reunification in 1975. Nonetheless, this might initially be considered counterintuitive as

the common and widespread perception of South Vietnam was as a land of large landholdings, absentee landlordism, rubber plantation economy, etc. (Wiegiersma 1988). Consequently, the initial land distribution would be a fundamental factor influencing the dynamics of the transformation at household level. Elsewhere we have argued that the land reforms and technological advances during the 1960s and early 1970s facilitated the processes (López Jerez 2018, 268–274). But in this paper, we will focus mainly on the dynamics after Doi Moi.

For the North, land tenure conflicts were, on the whole, less problematic than in the South. But as tenure became increasingly secure across the deltas, landholdings size greatly determined their differentiation. In the RRD, at the beginning of Doi Moi, the landholding size was 0.2 ha on average (Kerkvliet and Selden 1998), in contrast to the 1.2 ha in MRD (World Bank 1998).

## 5. Two deltas, two induced models of technological innovation?

The economic development literature normally discusses structural change by focusing on processes of industrialization, often neglecting the developmental role of agriculture. Economic structural change is, however, not linear, which implies that a growing industrial and service sectors does not necessarily connote an equally modernizing agriculture (see for instance the work of Andersson and Palacio (2016) on inter-sectoral dualism in explaining income inequality and structural change). In this paper, the processes of structural change (and the extent of the dynamics of inclusion over the long-term) are arguably dependent on an intermediate state: the transformation from traditional to more productive forms of agriculture and modern (rural) industry.

For Vietnam, once access to land was mostly secured, given the limited opportunities of employment outside agriculture at the time, the poor would have benefited the most from labour-intensive agriculture. But only if the outcome meant greater marketed output and real incomes. This process is in line with Ishikawa's (1978) claim of positive agricultural transformation in East Asia, the so-called Ishikawa's curve, which depicts a backward-bending relationship between labour and land productivity. Based on the experience of East Asia (mainly Japan and Taiwan), Ishikawa (1978) identified two phases of the transformation: (i) a positive relationship between labour intensification and land productivity *initially*, (ii) a decline in labour intensity associated with improvements in labour productivity. For the second phase to be transformative, agriculture productivity ought to have increased previously, along with the saving capacity of farmers to further investments (both in agriculture and for the expansion of the industrial sector). Thus, income per capita in agriculture must increase (Booth and Sundrum 1984, 16–17).

Young et al. (2002) carried out a comparative study of the two rice deltas and found that, in 1989/1990, the average yield was slightly higher in the Mekong River (4.5–4.1), whereas rice-cropping intensity was higher in the Red River (1.59–1.47). Despite these similarities, rice production per household (kg/year) was 4.4 times higher in the South, and the amount sold was 27 times larger than in the North. This was just the beginning of an growing outperformance by the MRD compared to the RRD, in yields, land intensification, and labour productivity.

During the 1990s, the differentiation between the two rice economies consolidated. The households that benefited most followed two characteristics: they were in the South and

had more irrigated land (Glewwe, Gragnolatti, and Zaman 2000). This development relates to the extent of the agricultural transformation. Crop production grew annually by 8.9% in the South compared to 2.7% in the North (Benjamin and Brandt 2004, 17, 20). Consequently, the surplus capacity of an average Southern household was significantly larger than in the North. A household in the North barely sold 162 kg of rice compared to over 7 500 kg in the Mekong in 1992; by 1998, more than two-thirds of all farm output was marketed in relation to one-third respectively. Furthermore, the increases in rice production did not hinder the growth of other crops (such as coffee, fresh fruits, and aquaculture) in the South, while in the North non-rice crop production grew at a slower rate than rice.

The output growth in the South was due to land intensification. The land frontier was practically closed. It is estimated that only 10% of the increases in cultivated land came from marginal lands. The rest was a result of greater cropping intensity and higher yields (Young et al. 2002; Benjamin and Brandt 2004; Kontgis, Schneider, and Ozdogan 2015). Water control and investments in canals and embankments were necessary to allow farmers to move from one single cropping of rice to two, and a third irrigated lowland rice crop (Tan et al. 2004). The cultivation of the latter, from the previous deep-water ecosystem, allowed the farmers to increase annual production to 10 tonnes/ha of paddy compare to the 2–2.5 previously (Khiem and Khai 2008, 3). The study of these authors shows that the yields of all three crops increased substantially from 1995 to 2004. More remarkably, the third crop (Autumn Winter), though seemingly not encouraged by the government, was planted as a response to favourable market prices and environmental conditions. Rice was not the only crop with supply elasticity, for instance, fruit trees expanded rapidly as demand for fresh fruits domestically and internationally increased. In coastal areas, granted authorizations by local authorities, a shift from rice wetland to shrimp took place. Nearly 2,00,000 ha were converted from mono-shrimp to rice-shrimp cropping in 2000 and 2001 (Khiem and Khai 2008, 5).

Evidence from Vietnam's General Statistics Office (GSO) data reflects that the rural economy of the Mekong started to structurally transform. In 1990, the value of agriculture production accounted for 80% of GDP, rural industries 9%, and services 10%. By the year 2000, the proportions were 70%, 16%, and 14%, respectively (Khiem and Khai 2008, 5–6).

These improvements were achieved by intensifying land use (multi-cropping) and technologically induced increases in land productivity. The better use of fertilizers (i.e. urea), pesticides, more efficient nitrogen application and cultivation of higher yielding rice seeds were conducive to improvements in land productivity (see detailed study by Tan et al. 2004). But as inputs became costlier (for instance, wages, petrol and imported fertilizers), investment in labour-saving technologies took place.

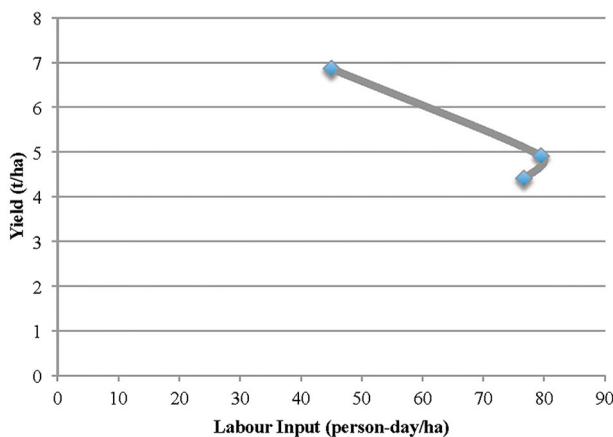
Mechanization, up to the early 2000s, was not necessarily carried out by individual farming households, but at community level and through marketed mechanized services. Until 1989, the government had a policy of 'technical duality', which encouraged mechanical equipment in the phases of pumping, milling and threshing, while in potentially labour-saving/displacing processes (i.e. land preparation), animal assistance was to be preferred instead (Young et al. 2002, 15). Labour was initially relatively cheap, and the government needed to get people employed. The result was that in the North, in 1977, there were only about 10,000 tractors, which provided mechanised land preparation for only 16% of the area. In contrast, the South reported 27,500 tractors for 30–40% of the area

(Young et al. 2002, 16). Since 1988, individual ownership of machinery is allowed and this has resulted in greater mechanization in the MRD, in contrast to the RRD, which even today lags behind. But this phenomenon of differentiation is not necessarily an exclusive outcome of lack of opportunities or disposable income to purchase mechanical tools. The intensity of the rice cultivation in the Northern delta constrains mechanization. Due to the short growing season, direct seeding was not adopted. According to Young et al (2002, 16), if the spring crop is direct seeded, half of the months for the high-value crop would be lost. The possibility of obtaining three crops (two rice and one upland crop) is only possible by transplanting both rice crops. This is partly why rice cultivation in the RRD remains both land and labour-intensive, but with low levels of labour productivity.

For the MRD, labour input per ha, after the initial increase to intensify land use, has been reduced from 90 person days to 70 person days (Khiem and Khai 2008, 9), as well as for hired labour per ha (from 25 to 20 persons day per ha per crop) (Young et al. 2002, 16). The introduction of labour-saving innovations (like direct broadcast seeding, which has meant that rice is not transplanted in the MRD) was conducive to such a transformation. These positive changes were reflected in, for instance, the reduction of total labour use from 2001 in the winter-spring crop while yields went from 5.5 tonnes paddy /ha to 6.5 tonnes paddy/ha within three years in the MRD. The overall result has been an increase of value added per agriculture worker (3.6 million VND/cap in 1985–6.9 in 2001) and a release of labour from agriculture. The on-going transformation of the MRD seems to be following the Ishikawa's curve, as illustrated in Figure 3.

The RRD is the most intensively cropped agricultural land in Vietnam (Son et al. 2004). The production reaches approximately 20% nationally and the rice is mainly for local consumption. The land under cultivation has not changed much since colonial times, approximately 600 000 ha, while the harvested area, thanks to improvements in irrigation and water control, is about 1 million ha.

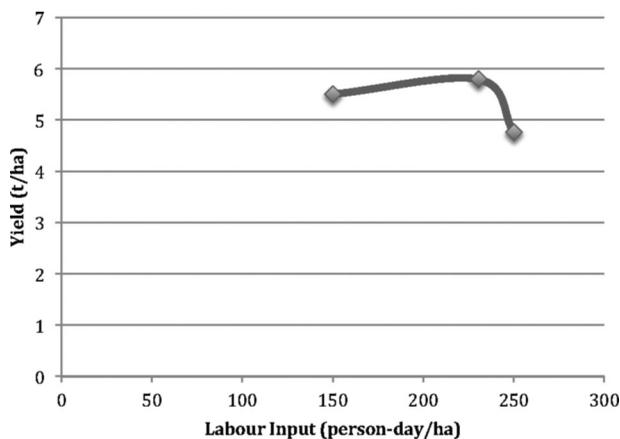
The response to de-collectivization was positive. Crop income increased by 7.2% from 1993 to 1998. This is thanks to a significant improvement in yields, from 2.4 tonnes per



**Figure 3.** A Possible Ishikawa Curve in the Mekong River Delta. Source: Cultivation year 1991–1992 in Young et al. (2002, 18); Cultivation year 1996–1997 in Tan et al. (2004); World Bank report (2016): labour input is an average for the MRD (29), while the yields are based on average from the original report the WB is based on (Bordey et al. 2016, 45).

ha in the period 1975–1979 to 4.9 in 1995–1999, which meant a two-fold increase of production reaching around five million tonnes of rice (Son et al. 2004, 218). Greater irrigated area (about 75% in the late 1990s) and use of agrochemicals, alongside the traditional use of manure, determined this change (Son et al. 2004, 219). As detailed empirical research has shown (Son et al. 2004 and Cuc and Rambo 1993), the cultivation in the delta is adjusted to the high labour availability per unit land, making the RRD one of the most labour-intensive rice cultivation areas in the world (see Figure 4). All rice is transplanted, which leads to high cropping intensity and good-quality crop care (Son et al. 2004, 240). Consequently, the research based on experiments in the area showed that only smaller increments were likely to occur to narrow the yield gap (Son et al. 2004, 240). The difficulty today, as in the past, is the excessive land fragmentation.

Added to the relatively small landholding sizes that still characterize the RRD is the extent of land fragmentation. The World Bank (1998, 10) reports that farms in the RRD comprised, on average, eight or nine non-contiguous plots, often no larger than 200–500 m<sup>2</sup> each (see also Duong and Izumida 2002; Markussen and Tarp 2017). This excessive fragmentation, and its negative effect on production, arguably resulted from ‘equitable’ allocation of land after the 1988 reform (Marsh and MacAulay 2006; Hung, MacAulay, and Mash 2007; Markussen and Tarp 2017). The fundamental cause might not be the allocation per se, but the excessive population pressure that the region still suffers. Indeed, the reform did not alter the fragmentation, but it was not the fundamental cause. This fragmentation was present in colonial times too (López Jerez 2018). There was and is very little new land that could be put under cultivation, and that available in the 1990s suffered from poor drainage and required pumping. According to Young et al. (2002, 11), subsidies for electric power for pumping were phased out, which made some of the reclamation unprofitable.



**Figure 4.** Labour and Land Intensification in the Red River Delta. Source: Cultivation year 1995–1996 in Young et al. (2002, 18); Cultivation year 1996–1998 in Son et al. (2004); World Bank report (2016): labour input is reported for the RRD (29) while the yields are for the whole country (27, which could be an underestimation).

These different processes in the deltas have been reflected in diverging rates of growth in cropping income (McCaig, Benjamin, and Brandt 2009). These authors conclude: ‘Over the entire period [1993–2006], income from the cropping sector grew almost twice as fast in the rural south as in the north. This gap may help to explain why economic growth did not have a more favourable impact on inequality levels in the north’ (McCaig, Benjamin, and Brandt 2009, 26). The difference is that the South experienced a 95% increase in real income per capita (14.3 per year), versus 55% in the North (9.2 per year) during the 1990s (Benjamin and Brandt 2004). Considering that Northern rural households’ initial average income was 87% of the Southerners’, the difference grew.

In sum, despite the relatively small differences in income and cultivation indicators by early 1990s, the reform benefited both deltas, but the potential for poor farmers in the South was greater since once land access was relatively secure, the arable land/labour proportions, in non-fragmented landholdings, facilitated the intensification of land use. Supported by access to inputs (mechanical and chemical) and extension services (on better use of fertilizers, herbicides and seeds), a predominantly middle-size group of farmers have benefited from the policies to promote exports and diversification within the rural economy. With varying degree of reach (Le Coq and Trebuil 2005; Benjamin, Brandt, and McCaig 2017), the transformation of the South seems to be following the more inclusive rural transformation witnessed in the East Asian cases. The factor proportions (à la Hayami and Ruttan [1971] 1985) were not the same though. Labour was relatively scarcer than land for rice cultivation, which could have led to labour displacement. The fear of polarization meant that the government set restrictions on land consolidation, which has not been modified until the 2013 Land Law (promoting larger commercial farms under strict regulations). The North is a land scarce, labour abundant region, with a cultivation system precisely adjusted to those factors. The transformation from Doi Moi seems to indicate that the possibilities of increasing yields are limited. A consolidation of land would be necessary, alongside labour-saving technologies. The literature seems to indicate that land is kept as a safety net (World Bank 2016, 5), and hence the interaction between off and on-farm employment opportunities for the rural population becomes even more fundamental for furthering the transformation of the rural economy.

### **5.1. Labour-enhancing interventions: possibilities for investments**

In 2015, agriculture employed 44% of the population, indicating that labour has been employed elsewhere, but as a sector, it remains significant in the economy. In comparative terms, agricultural employment remains high in relation to, for instance, China, though lower than in neighbouring Cambodia. In the two deltas, rural employment is significant: in the RRD it has decreased from 77.2–42.6% during the period 2001–2011, while in the MRD it has reduced from 79.2 to 62.2 (OECD 2015, 55). Given the overall economic structure of the economy of Vietnam, with agriculture counting for 18% of the GDP in 2016, the importance of how labour-absorbing the sector *still* is, is fundamental; even more so, when we consider the possibilities for technological improvements as the means to increase incomes of the rural poor (for those owning land user rights) and the evolution of rural wages. Both seem to have improved since 2010, boosting further the reduction of poverty and keeping income inequalities levelled (Benjamin, Brandt, and McCaig 2017; World Bank 2018). An example of an inclusive innovation is Sustainable Rice

Intensification (SRI), which was initially supported by Oxfam and Vietnam's Plant Protection Department, and since 2007 launched further by the Ministry of Agriculture. According to a CGIAR Research Report (2013, 13), one million farmers, especially women, have benefited from this initiative leading to a saving of inputs (i.e. water, seeds, and fertilizers) while increasing yields, and hence incomes by each cropping season.

But for Vietnam to further its process of structural change, labour should be released from agriculture. Two dimensions become critical: the skills of the released labour and the economic conditions of those that remain. This is when the interventions facilitating skill formation for those who remain and for those released becomes more significant. In the ideal process, those who remain are part of a productivity-enhancing agriculture sector (that is, when labour and land productivity are increasing), and for those who leave, their incomes improved. We have already addressed the former; in this section, we shall address the latter by examining the interventions addressing education.

Since the 1990s, Vietnam has invested in guaranteeing access to education for all. The results have been remarkable in relation to countries of similar income per capita levels (Kinh and Chi 2008). For primary level, the dropout rate decreased from 12.7% in 1989–1990 to 6.58% in 2004. Localities mobilized more than 1.7 million out-of-school children to attend schools, and more than 1.2 million adults were provided opportunities to attend literacy classes. Vocational education was facilitated and the number of those following short training course increased from 95,500 (1993) to 128,700 (1994). In rural areas, research shows that socioeconomic characteristics of the households played a fundamental role in the likelihood of children dropping out of school at a young age (Bélanger and Liu 2008). The differences have grown within the rural areas, and between rural and urban citizens (UNDP 2016).

This might be affecting migration patterns as well. Recent research shows that migration is coming from wealthier rural households, partly as a risk-coping mechanism. Simultaneously, the occupation of migrants in 2014 has become more balanced as unskilled workers (26.5%), mid-level occupations (20.6%) and skilled handicraftsmen and related skilled manual workers (17.9%), which might indicate that segregation is likely reproduced at destination (Narciso 2017, 148). One of the latest reports by the World Bank (2013) indicates that there are education premiums in the labour market and hence, investing in education in rural areas could facilitate the process of equalizing the differences in economic processes within the country.

The implications of education are not exclusive to the quality of the labour coming from rural areas to find new 'urban' occupations. Van de Walle's (2003) research suggests strong complementarities between household education and irrigation expansion in Vietnam, which, as already indicated, has been a major force in land use intensification and the possibilities of farmers to benefit from the market expansion. Similar conclusions for the 2000s are found in Do (2015). While private investment in agriculture accounted for 56% all agricultural investments in 2008 (OECD 2015, 15), concerns are brought up as agricultural research is carried out by state research agencies with limited funding and struggling to meet the requirements of farmers and private enterprises (OECD 2015, 27). This could present a serious challenge to further the inclusiveness within the rural transformation in Vietnam.

## 6. Summary and conclusions: in the formation of a developmental state?

When new commercial and/or technological opportunities arise for populations with unequal possibilities of responding to them, inequalities widen (Adelman 1986, 55). This is representative of the long-term evolution of the Deltas (the growing differences), and it is equally significant for the understanding of the transformation for each region.

In the case of the South, we could argue that the measures taken facilitated a process of 're-distribution before growth' (Adelman 1986, 57). While, due to the war and displacements, this process has been cumbersome especially in Western provinces, the literature agrees that there was a consolidation of a middle-class of farmers who clearly became part and parcel of the transformation. This has meant that the possibilities for increasing the value of the farmers' assets in the South have been greater, on average, than in the North. Access to credit (though still combining informal and formal financial institutions), and other assets (such as education, both formal and vocational) are assisting in the process. The investments in infrastructures, with 90% of the rural population having access to electricity and almost all of the population to roads (OECD 2015, 26), have facilitated the process.

For the farming households in the RRD, however, the fact that income inequality between rural households is not driven by the size of landholding but by off-farm opportunities is indicative that the transformation is currently stalling (since employment in agriculture remains significant) (Markussen and Tarp 2017).

There is no doubt that Doi Moi and the consequent land reforms, alongside investments in productivity-enhancing in land (direct and indirect) and access to education for all, have been conducive to the inclusiveness of the development path so far. These initial interventions might be classified as both asset-oriented and demand-generating, as access to land was a priority and expansion of markets sought. But does this make Vietnam a developmental state?

A major challenge in assessing whether a state might be considered developmental is that this is often deducted from outcomes. The (Asian) Developmental State (Johnson 1982) has been criticized for its lack of functionality as it is unclear whether, especially in cases of failure, it is the ideology or structure of the state that fails (Andersson and Gunnarsson 2003, 133–137). Similar to the successful East Asian economies, Vietnam has favoured trade as an engine of growth, but in the initial phases of transformation, the importance of self-sufficiency and food security led to reforms and interventions to facilitate farmers' access to land and productivity-enhancing investments, which resembles the 'growth with equity' model for East Asian Economies (Fei, Ranis, and Kuo 1979; Booth 2002; Andersson and Gunnarsson 2003; Timmer 2005). The technological and institutional innovations and interventions of the Vietnamese state have been a catalyst of the remarkable economic performance and poverty reduction since the 1980s. It is, however, too soon to assess the role of rural inclusiveness for the continuation of the transformation. Vietnam is a Lower Middle-Income Country that so far has managed to increase GDP/cap, reduce poverty and contain the increase of overall income inequalities. The improvements in the deltas have been more substantial than in other rural areas, which brings us to the regional and, especially, ethnic component of Vietnam's current economic inequalities. Minority groups, often located in remote and mountainous areas, remain relatively worse off than all other populations in the country (Benjamin,

Brandt, and McCaig 2017). To maintain the inclusiveness in rural transformation, interventions need to address the differences in the possibilities of the poor (still rural) to be part and parcel of furthering the economic development of the country.

## Notes

1. The exception was in 2010, when the Gini Coefficient reached 39.3, and since then it has remained at ca 35 (World Bank Indicators).
2. Reported figures of poverty and inequalities do vary across publications because of the use of different estimators (consumption, expenditures or real income) and data sources (Household Living Standards Surveys in Vietnam had two distinct periods for panel data analysis: the first two waves of 1992–1993 and 1997–1998, and from 2002 every two years). Independently of the differences, they concur in the remarkable poverty reduction.

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