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A ROBUST HARVEST: STRATEGIC CHOICES FOR AGRICULTURAL AND RURAL DEVELOPMENT IN VIETNAM

Research Topic

Accelerating Growth in Agriculture Productivity and Rural Incomes in Vietnam: Lessons from Regional Experiences

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RESEARCH TOPIC ACCELERATING GROWTH IN AGRICULTURE PRODUCTIVITY AND RURAL INCOMES IN VIETNAM: LESSONS FROM REGIONAL EXPERIENCES

Ian Coxhead • Kim N.B. Ninh • Vu Thi Thao • Nguyen Thi Phuong Hoa



FOREWORD

The Socio-Economic Development Strategy (SEDS) serves as the top-most national development document of Viet Nam. It provides a system of policies for national socioeconomic development at the overall, wholistic, fundamental and long-term level. SEDS reflects a system of fundamental development approaches and objectives, strategic breakthroughs, major modalities for and solutions to socio-economic development in a 10-year period of the country. It serves as the foundation for formulating sectoral strategies; socio-economic development master plans for regions and territorial areas; sectoral development master plans; and five-year and annual socio-economic development plans. The goals and directions stated in SEDS are translated into concrete programmes and action plans in individual planning periods to achieve such goals.

The 10-year Socio-Economic Development Strategy (SEDS) 2001-2010 was prepared on relatively solid scientific research foundations and through an open and participatory process. The United Nations Development Programme (UNDP), under Project VIE/99/002, supported the introduction of international experience and best practices into the SEDS 2001-2010 preparation process, and supported open and participatory policy consultations and discussions. Responding to the Government of Viet Nam's request, UNDP has been continuing to support the sound evidence-and best international experience-and knowledge-based; and open and participatory policy formulation of the SEDS 2011-2020 through the Project 00050577 entitled "Support for Formulation of Socio-Economic Development Strategy 2011-2020". The SEDS 2011-2020 is being developed and consulted for finalisation and will be submitted to the XIth Nationwide Party Congress for approval in early 2011.

Within the framework of the UNDP supported project 00050577 "Support for Formulation of Socio-Economic Development Strategy 2011-2020", a series of research have been conducted. Topics and results of the research have been consulted among SEDS Drafting team, policy makers, academia and international community. Research results have partly contributed to supporting the definition of evidence-based prioritized goals and break-through policy options and measures of SEDS 2011-2020 development process. This report was commissioned by the Development Strategy Institute (DSI) of the Ministry of Planning and Investment and UNDP. The report contains views of the consultant team and does not necessarily reflect the official views or positions of DSI or UNDP.

We are very pleased to publicly introduce the research paper to a wide range of audience for reference to the discussion and consultation process of SEDS 2011-2020 formulation.

Dr. Cao Viet Sinh Vice Minister Ministry of Planning and Investment

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The research was carried out by The Asia Foundation. The research team consisted of Professor Ian Coxhead, Department of Agricultural and Applied Economics at the University of Wisconsin-Madison, USA; Dr. Kim N. B. Ninh, Country Representative of The Asia Foundation in Vietnam; and Dr. Nguyen Thi Phuong Hoa and Ms. Vu Thi Thao, of the National Economics University, Hanoi. Simulation modeling was conducted in collaboration with Assoc. Prof. Dr. Nguyen Van Chan of National Economics University, Hanoi.

Additional research assistance was provided by Ms. Le Dong Tam and Ms. Thu Trang (Tracy) Phung of the University of Wisconsin, and by Ms. Le Thu Hien and Ms. Nguyen Thu Hang of The Asia Foundation's office in Vietnam. Dr. Bruce Tolentino and Ms. Nina Merchant of The Asia Foundation's Economic Reform and Development Program reviewed the report and contributed helpful comments. Finally, the research team would like to express its gratitude to the many Vietnamese officials, experts and researchers who graciously took the time to share their experiences and ideas. This report could not have been possible without their valuable insights.

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ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
AGE	Applied General Equilibrium
APO	Asian Productivity Organization
BAAC	Bank for Agriculture and Agricultural Cooperatives
BULOG	Indonesia's National Logistic Agency
BRI	Bank Rakyat Indonesia
CIEM	Central Institute for Economic Management
CPI	Consumer Price Index
DSI	Development Strategies Institute
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FIE	Foreign Invested Enterprise
GDP	Gross Domestic Products
GSO	General Statistics Office
HCMC	Ho Chi Minh City
HDI	Human Development Index
IRRI	International Rice Research Institute
LUC	Land Use Certificate
MARD	Ministry of Agriculture and Rural Development
MIT	Middle Income Trap
MOLISA	Ministry of Labour, Industry, and Social Affairs
MRD	Mekong River Delta
NIE	Newly Industrialized Economies
NFA	National Food Authority
NRA	Nominal Rate of Assistance to Agriculture
ОТВ	Overal Trade Bias
RCA	Revealed Comparative Advantage in Agriculture
R&D	Research and Development
RRA	Real Rate of Assistance to Agriculture
RRD	Red River Delta
SAM	Social Accounting Matrix
SE	Southeast
SEA	Southeast Asia or Southeast Asian
SEDS	Socio-economic Development Strategies
SME	Small Medium Enterprise
SOE	State-owned Enterprise

TAF	The Asia Foundation
TFP	Total Factor Productivity
TVE	Township and Village Enterprises
UN	United Nation
UNDP	United Nation Development Program
VASS	Vietnam Academy of Social Sciences
VLSS	Vietnam Living Standard Survey
VHLSS	Vietnam Household Living Standard Survey
WTO	Word Trade Organization
WDI	World Development Indicators

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EXECUTIVE SUMMARY

In 2011-20 Vietnam will enter the third decade of growth based on its reintegration with the global economy. The country that in the 1990s was counted among the world's very poorest is now poised to become a middle-income economy, having leapfrogged many others in the process. Two decades of growth at a pace matched by very few others, even in the dynamic East and Southeast Asian region, have brought about a sharp decline in the prevalence of severe poverty and enormous improvements in other fundamental indicators of health and wellbeing, such as life expectancy and infant mortality. The economy has been transformed by growth from overwhelmingly rural, agrarian and low-tech to a vibrant mixed marketplace with bustling cities, highly diverse industries and advanced information and communications networks. A decade ago international trade scarcely mattered to production or resource allocation, let alone daily life; now the global economy is ubiquitous and its influence is pervasive.

For all this progress, however, the wealth of today's Vietnam is still based on two fundamental endowments: labour and land. Economic surpluses generated by the use of these factors have produced savings and investment that increase domestic capital accumulation and attract foreign investments. An ever-higher proportion of young Vietnamese completes high school, college, and technical training programs. Globalization has brought technology transfers and linked the economy to global trade and information networks, and these have all dramatically enhanced the productivity of domestic resources. But investments in skills, technology and innovation take many years to bear fruit. By comparison with most of its East and Southeast Asian neighbours, Vietnam in 2010 has taken only the first few steps along this path. Despite rapid economic transformation, increasing the prosperity of the majority of Vietnamese workers in the current generation will continue for some time to depend mainly on the efficient and dynamic applications of their labour, land and other natural resources to greatest economic effect.

In this endeavor, farmers, workers and entrepreneurs will rely heavily upon the support and encouragement of the Vietnamese state. Growth and globalization increase the productivity of labour and land both in their current uses and also through the introduction of new and more productive applications. In industry, for example, there are new industries such as electronics; in agriculture, new crops or new technologies for producing existing crops. But the biggest constraint on growth-the scarcity of capital and skills needed to raise output per worker and yield per hectare-cannot be adequately addressed by private investments alone. There are many areas in which the social gains from investment exceed private returns, and which would thus be underprovided in the absence of state actions. These include many forms of public goods, such as irrigation and education, as well as the institutional setting in which market transactions can take place. The state also has a social obligation to ensure that the benefits of growth reach the poorest and are equitably distributed throughout the population. Ideally, these goals of growth, poverty alleviation and equity are reached through its long-term development strategies and its short-term responses to shocks from the world economy. The 2011-20 Socio-Economic Development Strategy, the third of its kind since 1991, is intended to provide a road map for that support.

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This paper, "A Robust Harvest" (SEDS-7), addresses issues in the modernization of agriculture and development of the rural economy. A companion paper, "Getting to Work" (SEDS-8) addresses labour and urbanization. In this project our assignment was to produce a research paper analysing international experiences and practices in (i) promoting higher productivity and agriculture sector competitiveness; (ii) stimulating rural economic development and; (iii) providing concrete recommendations on actions that can be taken to accelerate agriculture and rural development in the period to 2020.

In this extended executive summary, we first provide a discussion of the broad context of agricultural and rural development in the course of economic development, and identify the roles played by development policies. Second, we review the main findings and implications of the paper's core, the comparison of regional and Vietnamese experiences. Third, we broaden the focus to conclude with a discussion of the major goals and policy directions, as we see them, for Vietnam in its third socio-economic development strategy, for the decade 2011-20.

The context of agricultural and rural development

In low-income countries, agriculture accounts for a large share of GDP and an even larger share of the labour force. Because of this, agricultural development is a prime objective of any economic growth strategy, and it is well known that without agricultural growth, there is limited potential for sustained economic growth in the aggregate. The agricultural economy feeds the population, generates a surplus for investment in other industries, earns or saves foreign exchange through exports and import replacement, and enlarges the market for domestic producers of manufactures and services.

In the course of economic development, however, the role of agriculture evolves. First, the demand for most agricultural products is inelastic with respect to income, meaning that as incomes grow, consumer spending on non-food items rises as a share of their total expenditures, and that on food falls. As a result the prices of nonfood items typically rise relative to food prices. This causes resources like labour and capital to move from agriculture to more remunerative uses in other sectors. Second, capital deepening (the accumulation of capital per worker in the economy as a whole) typically raises labour productivity faster in non-agricultural than agricultural sectors. This is because initially the ratio of capital costs to total production costs is higher in non-agricultural sectors; therefore, additions to the capital stock have a greater relative impact on productivity in those sectors. Capital deepening is a consequence of overall economic growth, and as such it too, like the shift in consumer preferences, contributes to a faster rate of growth in non-farm industries. This effect is even more pronounced when we broaden the definition of capital to include skills ("human capital"). Non-agricultural sectors are typically far more intensive in the use of human capital than agriculture, so additions to the stock of skills, acquired through education and experience, normally cause the former sectors to expand relatively quickly.

Due to these two fundamental shifts, in the long run the value of farm production typically grows less quickly than does aggregate income, or GDP. The trend is typically exacerbated by a faster rate of technical progress in non-agricultural sectors relative

to agriculture, as this also draws resources away from farm production. Over time, therefore, the sector releases labour for employment elsewhere, and gives up land to urban expansion, industrial and services sector uses (including recreational and tourism activities), and increasingly also for purposes of environmental conservation. Diminished employment of land and labour is replaced by increased use of capital inputs such as fertilizer and irrigation, by improvements in agricultural technology, and in some cases by changes in the organization of production (for example through the establishment of large-scale corporate farms to replace small-scale family farms). These shifts in input use and organization structure mirror the increasing capital-intensity and skill-intensity of the economy as a whole, and permit agricultural output to continue to expand, even as total farm employment and cultivated area decline.

If economic growth inevitably causes the relative decline of agriculture, is there anything (other than a prolonged macroeconomic collapse) that can reverse this trend? The answer is yes: international trade and investment. Higher export prices or greater export opportunities can cause the agricultural sector to expand, or at least slow the rate of its relative decline. In Vietnam, for example, globalization in the past 20 years saw massive output expansion in several areas of agriculture and aquaculture, most prominently rice, coffee and seafood, in which the country has clear comparative advantage. Prior to doi moi these products were only lightly traded. The opening of the Vietnamese economy to a global market where prices were far higher induced a big expansion in production and export supply.

Finally, government policies can have a tremendous influence on the rate of agricultural growth. These operate through multiple channels: infrastructure, technology, land use, sectoral prices, and the macroeconomic environment. Many cross-country studies have confirmed the overriding importance of policies affecting sectoral incentives-both direct policies and indirect, for instance through exchange rates-as the key factors affecting agricultural investment, production and employment.

Agricultural output growth has three broad sets of drivers: growth of land and other resource endowments and technological innovations; increases in prices and other sectoral economic incentives, including improved macroeconomic conditions; and reform of laws affecting land and other factor markets. In developing Asia, all three sets of drivers have been influential in raising rural incomes, though in different proportions depending on the country and the time. Infrastructural investments raised the productivity of land and brought farmers and markets together, allowing for specialization by agro-ecozone. The Green Revolution and other technological improvements raised yields, especially during the 1970s and 1980s, and this helped raise rural incomes, especially where local adaptive research systems were effective. Sectoral and macroeconomic policy reforms that raised effective prices received by farmers for their output were very important in improving the terms of trade between agriculture and the rest of the economy. In contrast to these trends, the degradation of agricultural land wealth through over-farming and unsustainable practices has reduced farm incomes in some parts of the region.

Markets, policies and agricultural growth

In an ideal world, when the productivity of labour, capital or land begins to differ between sectors or industries, their market valuations also change. Differences in returns then induce a reallocation in which some workers, or some capital or land, changes from a low-productivity activity to one with higher productivity (and thus higher remuneration). In reality, of course, markets are incomplete or operate very imperfectly, and in any case many attributes of land and the rural economy that are valued by society as a whole are not valued the same way by markets (infrastructure and environmental services are examples). These forms of market failure result in discrepancies between individuals (or firms) and society at large as to the most desirable output level of each good and the allocation of labour, land etc. to industries, and these discrepancies motivate agricultural policy interventions in pursuit of social efficient solutions. Thus we commonly expect the state, for example, to provide many forms of infrastructure on the grounds that if it does not do so, nor will private investors, and the economy will be worse off. Provision of public goods is an example of public policies with positive development impacts. However, the ideal policies cannot always be enacted, for many reasons. Moreover, not all policies result in efficient resource allocation and positive impacts; this is especially true when agricultural incentives are affected indirectly by development policies targeting non-agricultural objectives, or by macroeconomic or exchange rate measures. Southeast Asian developing countries such as Indonesia and the Philippines offer many examples of the unanticipated negative side-effects in one sector of development policies implemented in others. Thus the agricultural and rural economies that evolve over time reflect a broad and complex set of factors, and persistent differences in returns to land and labour between agricultural and nonagricultural uses are the norm rather than the exception.

In transitional economies (including Vietnam), agriculture's development is also greatly influenced by legislative reforms which restore markets as primary determinants of prices, restore autonomy over resource allocation decisions, and/or relax institutional controls over the use and disposal or fixed assets, such as land. These reform processes are usually implemented along with others that increase the country's international exposure through trade and international capital flows. The move away from autarky and administered markets raises domestic prices of products in which the country has comparative advantage, and lowers prices of those for which the rest of the world is a lower-cost producer. Producers and consumers in the domestic economy are differentially affected, and some groups may be made worse off while others gain.

From agricultural growth to rural development

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In a developing economy, nearly all rural incomes are linked either directly or indirectly to agriculture. Farm income growth thus spills over to the rural economy as a whole. Agricultural growth makes a direct contribution to the welfare of rural populations by raising the incomes of farmers and their families. It also generates indirect economic benefits that extend well beyond farm gate into the broader rural economy. The additional rural gains come through increased demand from the farm sector for labour and agricultural services, and from expenditures within the local economy by

those whose incomes have been boosted in this way. Therefore, a strategy for rural development-that is, for a broad rise in rural incomes-can be based on sustained growth in agricultural earnings.

However, raising agricultural profitability is not the only path to rural development, as comparative experiences clearly reveal. In those regional economies that successfully pursued labour-intensive industrialization, the outmigration of workers from agriculture increased the land-labour ratio and reduced rural dependency ratios. The first of these allowed for farm consolidation and the reallocation of control over land to the most productive managers. The second raised per capita incomes by reducing the numbers of those depend on agriculture. In the most successful economies (such as Thailand, Malaysia, Korea and Taiwan) the growth of non-farm sectors raised wages economywide, thereby increasing the incomes of farm workers as well as remittance flows from rural-urban migrants. Regional experience shows that sustained rural development has been driven by a mix of internal dynamics (agricultural growth) and external forces (rising labour productivity and remittances), a further reminder of the integration between agricultural growth and that of the economy as a whole.

Lessons from regional experience

Southeast and East Asian developing economies display a wide variety of agricultural and rural development experiences. Almost all have some degree of relevance to Vietnam, since within the region Vietnam is a latecomer to modern economic growth. Our paper reviews regional experiences, with detailed case studies of some especially important lessons. From this review, we can distil the following set of insights.

- 1. Globalization is the most important step to raising incomes. The most important measure for pro-poor growth is to open the economy to global interactions through trade and investment. This move benefits the aggregate economy and in the case of countries with comparative advantage in labour-intensive and agriculture-based industries, increases the return to the two factors of production, land and labour, from which nearly all the income of the poor is derived. After a later start than its neighbours, Vietnam has made great progress on globalization. This move alone has sustained a very high rate of economic growth and rapid poverty reduction, and as such represents an enormous achievement in economic growth and development. Countries, like Myanmar, that are reluctant to engage with the global economy experience far lower growth rates as a result.
- 2. The gains from globalization are conditional on the openness of domestic markets. The growth dividend of globalization is greater, the more flexible and adaptable is the economy. Specialization, which enables an economy to exploit its comparative advantage and thus capture the gains from trade, requires that resources be easily reallocated across sectors and space. If this cannot happen, or if it is difficult and costly to achieve, the gains from globalization are correspondingly smaller. The capacity to reallocate land and labour is essential to overall growth, and especially to the creation of new opportunities for the poor. China's growth has been phenomenal, but even so it has been accompanied by rapidly rising

inequality, in large part because of restrictions on the movement of labour, which has "trapped" a large part of the rural population in low-productivity jobs or forced them into illegal internal migration, exposing them to exploitation and insecurity. The highly unequal distribution of gains between urban/coastal and rural/inland provinces has retarded China's agricultural and rural development. In Thailand, by contrast, an open domestic labour market helped spread the gains from urbanbased industrialization deep into the countryside, through large-scale migration and remittances.

- 3. Sectoral incentives must be addressed both at sectoral and subsectoral levels, and in macroeconomic policy. Globalization in the economies of Southeast and East Asia has necessitated a leveling of the playing field between industry and agriculture, and policies for macroeconomic stability have helped ensure continuing investment and growth. Even so, many subsectoral distortions persist-in some export "cash cows" (like coconut in Indonesia) and in some import-competing crops, like sugar in Thailand. Subsectoral policies divert resources away from more productive uses, generate rents that privilege specific groups or corporations, and thus harm overall agricultural and rural development. The trajectory of reform in sectoral incentives must be to level the playing field at both sectoral and subsectoral level unless there is a compelling social or environmental reason to do otherwise. Such claims should be subjected to impartial cost-benefit scrutiny.
- The state should play an active role, but should not supplant the market. 4. Everywhere, the state has a vital role in the provision of public goods. But too much state engagement in rural development crowds out private actors. This is especially true of state-owned enterprises (SOEs), which typically enjoy subsidized capital and institutionally advantaged access to licenses and the political process. Their presence in markets for private goods such as those for agricultural inputs and outputs and services discourages entry by private actors. This reduces private investment, which then places a larger burden on the state to act as financier of agricultural and rural development. Furthermore, the lack of accountability that is also characteristic of SOEs creates opportunities for inefficiency and corruption. These generate waste that further raises the costs of rural development. Regional experience shows clearly that state-owned agricultural traders with social mandates (such as price stabilization) can fulfill those mandates only in non-crisis times, i.e. when stabilization is not needed. BULOG in Indonesia and the National Food Authority (NFA) in the Philippines are examples of state agencies that have failed, in costly and occasionally highly damaging fashion, to achieve goals of price stabilization, protection of the poor, and rural development.
- 5. Capital is essential, but the state need not be the sole provider. Capital is required to finance the expansion of any industry. When agricultural and rural markets were underdeveloped, state institutions for credit and savings mobilization were virtually the only players in the formal capital market. In most countries, however, the era when the state was best able to mediate savings mobilization and the

allocation of credit for investment has long gone. Policy reforms in all of Vietnam's regional neighbours since the 1980s bear this out. The new paradigm for rural credit combines state agency (and regulation) with private actors. Many new marketbased institutions for capital mobilization and allocation can be seen in the region. None are perfect, but most exhibit superior performance and sustainability when compared with state-dominated institutions. The BAAC in Thailand, microfinance agencies like the Grameen Bank in Bangladesh, and Indonesia's BRI are all hybrid models to be studied.

- 6. There is no technological silver bullet. New agricultural technologies are an important path to improved productivity, but investment in the promotion of new agricultural technologies won't necessarily deliver sustained agricultural development if the sectoral incentives remain misaligned. The Philippines' Masagana-99 program succeeded in increasing adoption of high-yielding rice varieties, but sectoral incentives that undermined agricultural profitability meant that growth of the sector could not be maintained.
- 7. In R&D, public-private partnerships are both desirable and necessary. The State has an important role to play in R&D for agriculture, and Vietnam is lagging in this respect relative to its neighbors, despite large investments in recent years. The quantity and productivity of R&D can be enhanced by public-private partnerships; these are common in the case of export crops such as oil palm in Malaysia. Until quite recently, however, the private sector contributed almost nothing to R&D in Vietnam. This is more likely due to a lack of incentive-compatible opportunities than a reluctance to commit resources. When private sector actors are willing to commit resources but are constrained by institutional barriers from doing so, money that could contribute toward economic development is "left on the table" that is, resources are wasted.
- 8. Land tenure security is essential to sustained agricultural growth. Regional experience shows very clearly that "security" need not imply complete individual discretion over land, so long as the incentives for efficient land use and investment decisions are correct at the margin. Thailand's land tenure system is less than fully formalized yet there is an active land market, so that problems of fragmentation and the allocation of land to the most efficient managers can be overcome. However, the lack of secure title to land is a constraint on long-term credit, which reduces long-term productivity.

Vietnam's experience in regional and historical perspective

Vietnam's growth since the early 1990s has been based on productivity gains in agriculture, investment in industry, and the movement of workers from agriculture to industry-with a generous additional contribution from foreign donors. This has been a successful recipe for growth in the transition to a globalized market economy. There is potential for growth on this basis to continue for some time. Quantitative evidence summarized in our paper shows that the efficiency of agricultural production remains low. There is plenty of potential for additional foreign investment, in industry as well as

in other sectors. The supply of workers from agricultural and rural areas to industry/ services and urban areas seems still to be very elastic, indicating a continuing surplus of rural workers in occupations with low productivity or les than full-time hours.

However, this "transitional" growth cannot be sustained indefinitely, and even a rapid rate of overall growth based on the reallocation of underutilized resources plus inflows of external capital can be improved by attention to microeconomic and macroeconomic fundamentals. This motivates further attention to economic reforms. Moreover, regional experience demonstrates very clearly that countries that do not anticipate the ending of this "easy" stage of transitional growth and take appropriate measures can suffer sudden stops— as did Thailand in the late 1990s, for example, and Indonesia in the early 2000s. These sudden stops are one manifestation of a set of phenomena jointly referred to as the "middle income trap", which is essentially the outcome of a loss of momentum in reform. Already, there are numerous voices warning of the impending threat of such a problem in Vietnam. For both of these reasons, it is timely to appraise current agricultural and rural development policy.

Vietnam's agricultural growth in the past two decades has been at a respectable rate by comparison with its regional neighbours. But unlike most of those neighbours, Vietnam's agricultural sector growth has been dominated by one-time improvements, most especially from the reintroduction of markets to the commercial rice economy in the late 1980s and early 1990s. Those reforms generated one-time gains; future growth of the sector will have to come from other sources. Evidence from numerous recent studies of productivity in Vietnamese agriculture identifies continuing inefficiency in resource allocation as a constraint on potential growth in the sector. There is substantial scope for policy reform to generate further gains. Some of these will be won through technical innovations; some through provision of complementary infrastructure such as irrigation; some through better information flows via extension services, and some through the acquisition of skills by farmers. But researchers are in wide agreement that efficiency gains to be won by continuing to liberalize agricultural land use and permitting the emergence of a more competitive and decentralized land market are very large – perhaps dominating all others. A more open market for land will not only encourage agricultural investments, it will also permit farmers to seek the highestvalue use for their land.

Second, there is a great deal of room for efficiency improvement in market access. Currently, state-owned enterprises dominate both input supply and the post-harvest processing and marketing of much agricultural produce, and these enterprises are known to be highly inefficient. The result is that Vietnamese farmers pay too much for inputs such as fertilizer, and an unnecessarily large share of the price of their marketed output is absorbed by inefficient intermediaries. Consequently, farm incomes are lower, and linkage effects on the welfare of the rural population smaller, than they could otherwise be. Dynamically, the absence of a vigorous private sector reduces the capacity of agriculture to discern and exploit opportunities to add value, capture new markets, and reorganize itself in response to new challenges. Addressing these problems will require, in part, continued vigorous growth of private sector and cooperative organizations in which incentives for efficient behavior dominate economic decision-

making. State endorsement of hybrid public-private sector partnerships, and active support for the transition away from SOEs, will be a necessary part of the solution.

Third, Vietnam's land-labour ratio is one of the lowest in the world, and this is a key factor responsible for depressing farm incomes and constraining their growth. Farm land fragmentation (especially in northern provinces), land size limits, and imperfect land markets preventing consolidation and expansion are all constraints operating on land. Labour, too, is in many instances prevented from departing the industry for more productive employment elsewhere. This is due to credit constraints and migration costs, risk aversion, and adverse labour market conditions in potential outmigration destinations. A sound long-term development strategy for the country as a whole must include facilitating mobility in factor markets. Policies to reduce population pressure and raise labour productivity on limited agricultural land must eventually come to terms with the need for continued, and possibly rapid, demand-driven transfer of population to urban areas. Alternative strategies are likely to fail any reasonable cost-benefit test on the efficient use of public funds.

The current strategy for agricultural and rural development-the so-called Tam Nong resolution-incorporates elements of all the above recommendations. In order for the Tam Nong strategy to be effective, however, it must be seen as one component of an integrated and coordinated development strategy. Agricultural growth generates job growth and rural development. But urban-based job growth also increases rural incomes, when labour is free to migrate. The task of creating jobs, alleviating poverty and raising incomes in Vietnam is too big to be left to agricultural development alone. In an era of tight public sector budget constraints, choices on the allocation of funds for development, job creation and poverty alleviation must be made above the level of any single ministry.

In sum, we believe that the long-term development strategy for Vietnam should be to ensure continuation of transitional growth; to take measures to anticipate the need for more skills-based, less resource-driven growth in the future; and to alleviate poverty and ensure that all Vietnamese, even the poorest, have a reasonable chance to participate in growth. Because the majority of the country's poor and least productive workers are found in the rural economy, it follows that raising the productivity and earnings of agriculture is central to achieving all three of these development goals. In order to do so, we suggest that Vietnam's policymakers focus sharply on three key strategic options in the decade ahead based on our careful consideration of regional experiences and analysis of Vietnam's agricultural and rural development:

- 1. improving incentives for efficient resource allocation within the agricultural economy and reducing institutional obstacles to least-cost input supply and profitable post-harvest processing and trade;
- 2. leveraging public investments in infrastructure, R&D, and rural credit through partnerships with the private sector; and

3. ensuring that labour and other resources can move freely in and out of the rural economy in response to productive opportunities.

1

1. INTRODUCTION

Scope and goals of the research

This document reports on the research project "Accelerating Growth in Agriculture Productivity and Rural Incomes in Viet Nam: Lessons from Regional Experiences," undertaken for the 2011-20 Socio-Economic Development Strategy.

The main task of the assignment is to produce a research paper analyzing international experiences and practices in (i) promoting higher productivity and agriculture sector competitiveness; (ii) stimulating rural economic development and; (iii) providing concrete recommendations on actions that can be taken to accelerate agriculture and rural development in the period to 2020.

Vietnam's agricultural and rural economy is enormous in relation to the economy as a whole, so the potential subject matter of this paper is very broad in scope. In order to keep the focus tight, we place boundaries on the work by focusing above all on the first-order development aim of poverty alleviation. We then identify and trace the most important influences on this process, from initial conditions such as land and labour endowments as well as from institutions, policies, and global markets.

Our goal is to yield insights into agricultural and rural development that will inform and assist Vietnam's policy community as they prepare for the next ten years of development in the 2011-20 Socio-Economic Development Strategy.

This paper has been written jointly with SEDS-8, on labour and urbanization (see Coxhead et al. 2009). In a country where three-quarters of the population are classed as rural inhabitants and 50% of the labour force is counted as working in agriculture, there is inevitably a large degree of overlap in the subject matter of papers on agriculture/rural development and on labour/urbanization. We take advantage of this overlap by cross-referencing SEDS-7 where appropriate.

2. AGRICULTURAL AND RURAL DEVELOPMENT: AN OVERVIEW

2.1. Agriculture and economic growth

In low-income countries, agriculture accounts for a large share of GDP and an even larger share of the labour force. Because of this, agricultural development is a prime objective of any economic growth strategy. It has long been established that without agricultural productivity growth, the potential of an economy for sustained economic growth in the aggregate is limited (Timmer 1988). The agricultural economy feeds the population, generates a surplus for investment in other industries, earns or saves foreign exchange through exports and import replacement, and enlarges the market for domestic producers of manufactures and services (Mellor and Johnston 1984).

In the course of economic development, however, the role of agriculture evolves. This is largely in response to two tectonic shifts that accompany rising per capita incomes. Both these shifts have the effect of reducing agriculture's prominence in the economy.

First, the demand for most agricultural products is inelastic with respect to income, meaning that as incomes grow, consumer spending on non-food items rises as a share of their total expenditures, and that on food falls-even though the actual value of such expenditures typically continues to grow (this is known as Engel's Law). As incomes grow, demands for a wide range of non-food items such as clothing, motor vehicles and consumer appliances, and most especially those for services such as housing, health, education, entertainment and recreation, all rise faster. As a result the prices of these items typically rise relative to prices of farm goods, and this in turn raises the productivity of factors (labour, capital, land and skills) employed in their production.

Second, capital deepening (the accumulation of capital per worker in the economy as a whole) typically raises labour productivity faster in non-agricultural than agricultural sectors. This is because initially the ratio of capital costs to total production costs is higher in non-agricultural sectors; therefore, additions to the capital stock have a greater relative impact on productivity in those sectors. Capital deepening is a consequence of overall economic growth, and as such it too, like the shift in consumer preferences, contributes to a faster rate of growth in non-farm industries. This effect is even more pronounced when we broaden the definition of capital to include skills ("human capital"). Non-agricultural sectors are typically far more intensive in the use of human capital than agriculture, so additions to the stock of skills, acquired through education and experience, normally cause the former sectors to expand relatively quickly. Indeed, the lack of skilled workers is typically a major constraint on the industrialization of low-income, agrarian economies.

Due to these two fundamental growth-related shifts, in the long run the value of farm production typically grows more slowly than does aggregate income, or GDP (this relative change occurs even as the absolute (monetary) values of production

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and farm incomes increase). This trend is typically exacerbated by a faster rate of overall productivity growth in non-agricultural sectors relative to agriculture, as this also draws resources away from farm production. Over time, therefore, the sector releases labour for employment elsewhere, and gives up land to urban expansion, industrial and services sector uses (including recreational and tourism activities), and increasingly also for purposes of environmental conservation. Diminished employment of land and labour is replaced by increased use of capital inputs such as fertilizer and irrigation, by improvements in agricultural technology, and in some cases by changes in the organization of production (for example through the establishment of large-scale corporate farms to replace small-scale family farms). These shifts in input use and organization structure mirror the increasing capital-intensity and skill-intensity of the economy as a whole, and permit agricultural output to continue to expand, even as farm employment and cultivated area decline.

If economic growth inevitably causes the relative decline of agriculture, is there anything (other than a prolonged macroeconomic collapse) that can reverse this trend? The answer is yes: international trade and investment. Engel's Law describes what happens in a closed (autarkic) economy, or one where trade is of only minor importance. But what if instead, the market for a country's farm output is the global economy? In this case, the condition determining demand for agricultural outputs is not the income of domestic consumers, but the country's comparative advantage in the world market. Higher export prices can cause the agricultural sector to expand, or at least slow the rate of its relative decline. In Vietnam, for example, globalization in the past 20 years saw massive output expansion in several areas of agriculture and aquaculture, most prominently rice, coffee and seafood, in which the country has clear comparative advantage. Prior to doi moi these products were only lightly traded, and mostly within the Soviet bloc at prearranged prices that did not reflect world market valuations. The opening of the Vietnamese economy to a global market where prices were far higher induced a big expansion in production and export supply.

Finally, policies adopted by government, especially those affecting agricultural prices or input costs relative to those in other sectors, can have a tremendous influence on the rate of agricultural growth or relative decline. We return to this subject later in the paper.

If the agricultural economy is subject to so many potentially contradictory forces, what is the net outcome of a development process for agricultural incomes? This question is particularly important because as agriculture is typically the main source of rural income, sustained productivity growth in the sector is typically the key to raising rural incomes and thus reducing poverty. One way to see all the influences at work is through a decomposition of labour productivity within agriculture, or output per farm worker. Let YA be the value of farm output, the product of physical output QA and farm gate price PA; LA be agricultural labour, and HA be land. Then we have:

$$\frac{Y_A}{L_A} = P_A \cdot \frac{Q_A}{H_A} \cdot \frac{H_A}{L_A}$$
(1)

This expression says that the productivity (in value terms) of farm labour (YA/LA) is equal to the product of farm gate price, yields (QA/HA, or agricultural land productivity) and the area of land per agricultural worker. Decomposing output per worker in this way focuses attention on the internal dynamics of farm productivity (rise in QA/HA) and prices (PA) on the one hand, and on the transfer of resources into or out of the sector (rise or fall in HA/LA) on the other. In value terms, rising average labour productivity indicates rising value of labour's marginal product, which in a market economy is the basis for the wage offered to rural workers².

The above expression can be converted into the form of growth rates of its components³. Doing so reveals that the growth (in percentage terms) of the value of output per agricultural worker is equal to the sum of percentage growth rates (denoted by G) of each term on the right hand side; that is,

G(income per farm worker) = G(price) + G(yield) + [G(land) – G(labour)].

From this we can see that over time, the growth of income per farm worker is the sum of growth in output prices, yield increases, and the difference between the growth rate of land area and that of the farm labour force. Agricultural productivity growth, if it can be sustained, will also be the key to raising rural incomes and reducing rural poverty, through multiplier effects.

In developing Asia, all three components of the above expression have been influential in raising rural incomes, though in different proportions depending on the country and the time. The Green Revolution and other technological improvements raised yields, especially during the 1970s and 1980s, and this helped raise rural incomes despite a prevailing macroeconomic and trade policy bias against agriculture, high dependency ratios, and low rates of non-farm employment growth. Since then, sectoral and macroeconomic policy reforms that raised effective farm-gate prices have been very important in improving the terms of trade between agriculture and the rest of the economy. And in those economies that have successfully pursued labour-intensive industrialization, the outmigration of workers from agriculture has increased the land-labour ratio. In addition to these products of agricultural dynamism, growth of non-farm sectors has raised wages economy-wide, increasing farm incomes and remittance flows from rural-urban migrants. In contrast to these trends, the degradation of agricultural land wealth through overfarming and unsustainable practices has reduced farm incomes in some parts of the region.

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²One way to read the expression is to note that wage benchmarks are typically determined outside of agriculture. Then the ratio HA/LA adjusts endogenously, through intersectoral migration, to bring farm wages into line with non-farm wages. ³Formally, for any variable X, let G(X) = dX/X, i.e. the proportional growth rate of X. Then for any set of variables W, X, Y, Z, if X = WYZ, then G(X) = G(W) + G(Y) + G(Z).

Markets, policies and agricultural growth

In a textbook economy with complete and competitive markets and no policy interventions, the exchange of productive resources between agriculture and the rest of the economy satisfies the condition for economic efficiency. At the margin, the economic return to a worker or a hectare of land should be the same in all uses. If this condition is not met, then reallocating workers or land from a lower-value to a higher-value use results in gains to individuals and to society. This reallocation would be undertaken by the market, i.e. by an implicit (and occasionally explicit) process of bidding by employers for the services of workers and land.

This description is, of course, deceptively simple. In such a textbook economy, the returns to land and labour in each alternative use would automatically include values placed by society on intangible or hard-to-measure characteristics such as ecosystem services, environmental protection and ecotourism values, the cohesion and vitality of rural communities, and the quality of life, providing a complete accounting for what has been labeled the "multifunctional" nature of agriculture and rural areas (DeVries 2000).

In reality, markets are incomplete or operate very imperfectly, and many attributes of land and the rural economy that are valued by society as a whole are not reflected in market returns. This results in discrepancies between individual and social optima where resource allocation is concerned. Likewise, government policies that constrain land use or distort market prices also influence resource allocation. Thus the actual operation of agriculture and the nature of the rural economy reflects a broad and complex set of factors, and persistent differences in returns to land and labour between agricultural and non-agricultural uses are the norm, rather than the exception. In most emerging economies, patterns of agricultural development observed through time reflect the continuously evolving interplay of markets, institutions and policies against a backdrop of aggregate economic growth and development that determines the broad pattern of structural change in production, trade and consumer demand.

In transitional economies (including Vietnam), agriculture's development is greatly influenced, in addition, by legislative reforms which over time restore markets as primary determinants of prices; return to individuals or firms a degree of autonomy over labour use, production, and other resource allocation decisions; and/or relax institutional controls over the use and disposal or fixed assets, such as land. These reform processes are usually implemented alongside others that increase the country's international exposure through trade, international capital flows and even labour export, with effects as noted above. The move away from autarky and administered markets normally raises the prices of products in which the country has comparative advantage, and lowers prices of those for which the rest of the world is a lowercost producer. Producers and consumers in the domestic economy are differentially affected, and some groups may be made worse off while others gain. Finally, global markets, by comparison with most administered price systems, tend to be highly volatile, as seen in the recent gyrations of the world rice price. This volatility reduces the predictability of farm incomes, a move that can limit the choices of poor, riskaverse producers but which may increase the profits of large, diversified enterprises.

Thus it is not only average prices and incomes, but also their volatility, which must be considered when evaluating the agricultural development consequences of liberalization and globalization.

Agricultural growth and rural development

In a developing economy, nearly all rural incomes are linked either directly or indirectly to agriculture. Farm income growth thus spills over to the rural economy as a whole. Agricultural growth makes a direct contribution to the welfare of rural populations by raising the incomes of farmers and their families. It also generates indirect economic benefits that extend well beyond farm gate into the broader rural economy. The additional rural gains come through increased demand from the farm sector for labour and agricultural services, and from expenditures within the local economy by those whose incomes have been boosted in this way. Therefore, any strategy for rural development-that is, for raising rural incomes-must be based firmly on sustained growth in agricultural earnings. However, raising agricultural profitability is not the only path to rural development, as we shall see shortly.

A survey of empirical studies finds rural non-farm income multipliers associated with agricultural growth in the range 1.5–2.0 (FAO 1998, Box 15). These numbers indicate that for every 1% increase in agricultural output, there is an associated additional 0.5%–1% increase in incomes and/or expenditures elsewhere in the rural economy. Over two-thirds of the additional expenditure is from increases in household consumption demand (Rosegrant and Hazell 1999). Are these rural income multiplier numbers large in relation to other sources of economic growth? Unfortunately, this comparison has not received much attention from researchers. Remittances by Mexican workers in the U.S. were found to have increase local spending by as much as \$2.90 for every \$1 in remittance receipts-and as high as \$3.15 in rural areas (Adelman and Taylor 1992), but it is not clear that this finding is applicable in other developing economies. Quantitative estimates of multiplier effects are clearly important to try to obtain, however, because they are crucial to the cost-benefit analysis of any proposal for investment in agricultural modernization- especially where public sector funds are concerned.

2.2. Raising rural incomes: a framework for analysis

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If the fundamental goal of development policy in a low-income country is poverty alleviation, all policy evaluations should include the question "will this help reduce poverty?" In practice, most poverty is rural, so this question can frequently be focused more tightly on the welfare benefits to rural populations. Agricultural development (and policies that support it) is an important path to rural income growth, but it is not the only one. In this subsection we develop an analytical framework that identifies the main influences on rural incomes, their driving forces, and the policies and institutions that operate on them. In section 2 we will use this framework as the basis for a review of agricultural and rural development experience in developing Asia, and in section 3 it will inform our review of the Vietnamese experience.

Figure 1 presents a stylized account of the determination of rural income and wellbeing. Taking this to be the primary objective of development policy, we place it at the top of our diagram. Rural income is subject to direct influence from four distinct sources. Three of these are shown in rectangles in the second row of the diagram; the fourth source is direct transfers from (or tax payments to) government, which appears at the foot of the diagram. In the center of the figure we have net agricultural income, which is a direct determinant of farm incomes and, through multipliers, an indirect determinant of much non-farm rural income. In the discussion below we will refer to this set of influences as the agricultural dynamism channel. To the right of this, we have incomes from control over land and other natural resources. These affect rural incomes directly (for example when forest resources are harvested and sold, or land is rented out or sold), and also indirectly, through agricultural profitability. We refer to the land/natural resource path of influences on rural incomes as the asset channel⁴. To the left of the diagram we have the macroeconomic channel, which affects the rural economy directly through the opportunity cost of labour-that is, the value of farm/rural labour in its next most rewarding use, which is frequently to change occupations and work in industry or urban services-and the cost of credit. Macroeconomic conditions also affect the internal dynamism of agriculture indirectly, through their influence on sectoral input and output prices, as seen in the lower part of the diagram. On the far right of the diagram, the transfer channel shows direct payments from or to rural households through taxation, grants, social security and anti-poverty programs.



Figure 1: Determinants of rural real income: an analytical framework

⁴Clearly the focus on land and natural resources greatly oversimplifies the full range of institutional influences that govern asset-based wealth and earnings. Space limitations require that we focus on this subset to the exclusion of most others.

Finally, the *global economy* affects prices, resource allocation and the stability of the macroeconomy. It thus has direct effects on sectoral incentives for agriculture (for example, through world prices of rice and coffee). It also has indirect effects, first through short-term capital flows and trade shocks affecting macroeconomic variables like the exchange rate, and second through trade values and FDI decisions affecting returns to non-farm labour, for example via the profitability and growth of urban-based, export-oriented industries like textiles and garments.

Each of the direct influences on rural incomes has its own set of determinants, including government policy. The *macroeconomic channel* comes from the exchange rate, real interest rate, and trade and capital market policies that determine the profitability of investment and production decisions throughout the economy. These in turn are reflected in growth of non-farm jobs and earnings and availability of credit. Variables in this channel are subject to fiscal, monetary and other macroeconomic policies, and laws and regulations governing access to and use of natural resources such as forests and water. These policies create or limit rural households' capacity to earn income from the rental or sale of natural resource assets. The transfer channel is a direct function of policies on social security, poverty programs and the like.

The agricultural dynamism channel is the most complex. Farm profits are the residuals from sales once home consumption and all costs (including imputed returns to farmers' own labour and land) have been deducted. Profits thus depend on farm-gate prices of outputs and purchased inputs and on the technologies used in production, as well as on the availability of land or other natural resource assets, through the assets channel, and the cost of hired labour⁵ and credit, through the macroeconomic channel. Input and output prices at the farm gate depend on domestic transport and trade margins (that is, costs and profits associated with moving goods to and from markets, including storage and some processing), and these in turn are subject to the structure and activities of industries that supply inputs such as fertilizer and which purchase, store, process and resell agricultural outputs. When agricultural trade, transport and processing are dominated by inefficient or monopolistic firms, then farm gate prices will be lowered accordingly. Finally, agriculture's sectoral incentives are determined by world prices at the port or border, by public policies on agricultural input and output pricing and trade, and by public investment in roads, irrigation and other infrastructure.

Agricultural profits are also determined in part by the set of technologies available to farmers and feasible for adoption by them. There is a direct policy link to these, through public investment or subsidization of R&D and adaptive research. There are also indirect links, from land policies and also from sectoral incentives as influenced by agricultural pricing and investment policies. These are shown in the diagram by dotted arrows. Land policies that reinforce or undermine security of long-term land tenure alter the returns to technologies that involve long-term investments in land, including soil conservation measures. Sectoral incentives, for their part, influence returns to the development and adoption of new technologies that economize on relatively expensive inputs or factors (Hicks, 1932).

⁵Or the opportunity cost of a household's own labour.

Lastly, there is also an implicit environmental story. Farmers' use of land may deplete its productivity, thereby reducing the effective quantity of land available-especially in sloping and upland areas, where soil erosion is a significant problem (Coxhead and Shively, 2005). The same is true of aquatic resources such as coastal and estuarine fisheries (Barbier and Cox 2004). In addition, though not illustrated in the diagram, the endowment of land and other natural resource assets is increasingly thought to be subject to depletion or degradation from global climate change. Vietnam, especially its Mekong Delta and Red River Delta regions, is one of the countries judged to be most vulnerable to rising sea levels predicted to result from global warming (ADB 2009; World Bank 2009). Loss of low-lying land, saltwater intrusion, rising temperatures, changing rainfall patterns, and increased frequency and severity of tropical storms all threaten some of the country's most productive-and densely populated-rural areas.

To conclude, figure 1 provides a means to 'unpack' the many influences on agricultural and rural development. In the next two sections we use this framework to examine sources of agricultural and rural development in Asia and in Vietnam.

3. AGRICULTURE AND RURAL DEVELOPMENT IN REGIONAL PERSPECTIVE

3.1. A note on comparative analysis

A snapshot of current data from Asian developing economies shows them to be highly diverse in terms of size, per capita income and economic structure (Table 1). This table shows data from relevant countries expressed as shares of world magnitudes. Korea and Taiwan, the two Newly Industrializing Economies (NIEs) in the table, have above-average shares of world GDP (their shares of world income are higher than their shares of world population), below-average shares in agricultural land per capita, are relatively capital-intensive agriculture (their shares of world agricultural GDP are higher than their shares in the world agricultural labour force). The other countries in the list are all 'below the line': Thailand, for example, has a lower share of world GDP than population and, by global standards, relatively labour-intensive agriculture. In this list, India and Vietnam are the poorest (lowest ratio of GDP share to population share, large numbers of agricultural workers relative to population, and relatively labourintensive agriculture). The differences between Korea or Taiwan on the one hand and India or Vietnam on the other are striking; the former have more than double the world average income per capita, while the latter have less than 10%. While the table invites direct comparisons of current data, however, it does not reveal the variety of development trajectories being followed. These differences do not automatically imply that poorer countries can improve their lot merely by imitating richer ones.

		Share	Index, world = 100			
Country	Population	GDP	Agricultural GDP	Agricultural workers	GDP per capita	Agric. land per capita
China	20.60	4.33	16.62	38.4	21	54
India	16.87	1.57	9.32	20.2	9	22
Indonesia	3.41	0.59	2.62	3.8	17	27
Korea	0.77	0.39	1.69	0.2	212	5
Malaysia	0.39	0.28	0.73	0.10	74	41
Philippines	1.27	0.22	0.91	1.0	18	19
Taiwan	0.36	0.84	0.45	0.10	232	5
Thailand	1.01	0.38	1.05	1.5	38	39
Vietnam	1.29	0.11	0.69	2.1	8	14

Table 1: Basic indicators	of income and	economic structure
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Sources: Anderson and Martin 2009.

There is insufficient space in this report to go into all possible explanations for such diverse and divergent experiences. Our comparative analysis will instead concentrate on agriculture and rural development and will mirror the three thematic areas identified above: agricultural productivity and profitability; institutions and factor markets; and macroeconomic conditions. The main focus of the comparative analysis will be to match Vietnam's progress over time against comparable data from its regional neighbours. But it is important to keep in mind that these trends evolve against a broader background of considerable economic, political, social and geographic diversity. Other countries in Southeast and East Asia may be confronting, or may have in the recent past confronted, similar questions and challenges to those faced by Vietnam. But drawing policy conclusions for any one country based on apparent similarities of experience with others is an exercise requiring great caution.

Successful examples of previous comparative analyses of this type have been sensitive not only to the choice of country, but also to the need to match countries at comparable stages in their development process. Notable and relevant examples of such chronologically-incorrect yet developmentally-correct comparisons are the papers by Riedel (1993) and Riedel and Comer (1997). This approach requires first an informed choice of countries for comparison. Second, it requires an examination of baseline data relative to some period of interest (in Vietnam's case, a period of reform and transition to higher growth rates). This baseline establishes similarities and differences across countries for the most important variables. Third, this approach then examines historical growth trends in light of other countries' experience, making allowance for baseline similarities and differences as already established⁶.

An important goal of our comparative analysis will be to identify and evaluate the roles of policy and institutional reforms in facilitating or constraining the agricultural transition described in section 1. Due to data limitations, this is not easily done in a formal manner. However, both China and the Southeast Asian developing nations provide a wide range of agricultural and rural development policy experiences, and there is a substantial literature that strives to assess these conditional on country-specific differences in geography, history, economic structure, and external factors (e.g. Balisacan and Fuwa 2007). Our own comparisons build on these examples.

3.2. Agricultural development in Asian economies

In this section we compare regional progress on major indicators of agricultural performance and policy. Material in this section is organized consistent with the schematic shown in figure 1. We deal first with agricultural productivity and technology, then with sectoral incentives, including macroeconomic conditions, and finally with institutional factors.

⁶The SEDS paper on labour and urbanization in Vietnam, "Getting to Work", uses this technique to compare Vietnam's labour market and labour force development against regional neighbours. See Coxhead et al. 2009.

3.2.1. Agricultural technology and productivity

"Getting agriculture moving" (Mosher, 1966) is a prerequisite to sustained economic growth in low-income economies. There are no meaningful examples of countries whose long-term economic growth was accompanied by agricultural stagnation (Timmer, 1988). While agricultural dynamism is central to growth, however, the rate of agricultural growth is typically much lower than that of the economy as a whole, a difference that drives a long-term decline in the sector's contributions to GDP, employment, and household income. We see this in all developing Asian economies (Figure 2). What is notable in the table, however, is that whereas agriculture's share in GDP has diminished, per capita production of food and consumption of calories has risen substantially (Table 2). This is most especially true of the first generation of modern economic development, 1970-95.

Indicator	India Other S. Asia China		Southeast Asia	Developing Asia		
Population (m)						
1970	1970 553.0 196.4		820.1	281.1	1850.6	
1995	953.1	379.4	1217.6	476.1	3026.2	
2007	1164.7	478.8	1336.6	563.6	3543.7	
% change 1970-1995	72.37	93.17	48.46	69.38	63.53	
% change 1995-2007	22.19	26.20	9.77	18.40	17.10	
% change 1970-2007	110.62	143.78	62.96	100.54	91.49	
Per capita income (US\$/	'year)					
1970	241	187	91	351	177	
1995	439	299	473	1,027	512	
2007	686	816	1811	1378	1239	
% change 1970-1995	82.2	59.9	419.8	192.6	189.3	
% change 1995-2007	56.2	172.8	282.9	34.1	142.0	
% change 1970-2007	184.46	336.20	1890.29	292.49	599.99	
Calorie consumption (K	cal/person/da	ay)				
1970	2086	2206	2026	1984	2053	
1995	2432	2204	2855	2627	2615	
2003	2472	2282	2940	2703	2675	
% change 1970-1995	16.6	-0.1	40.9	32.4	27.4	
% change 1995-2003	1.6	3.5	3.0	2.9	2.3	
% change 1970-2007	18.50	3.44	45.11	36.26	30.27	
Cereal production (m.m	.t)					
1970	113.9	44.3	200.8	71.0	430.0	
1995	210.0	82.0	418.7	151.0	861.7	
2007	260.5	114.5	457.4	216.1	1048.6	
% change 1970-1995	84.37	85.13	108.46	112.85	100.40	

Table 2: Economic and agricultural change in Asia, 1970-1995

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Indicator	India	Other S. Asia	China	Southeast Asia	Developing Asia
% change 1995-2007	24.03	39.70	9.26	43.11	21.69
% change 1970-2007	128.67	158.64	127.77	204.60	143.87
Cereal area harvested (I	n. ha)				
1970	100.4	33.3	93.7	38.4	265.7
1995	99.5	38.9	89.8	49.3	277.5
2007	99.5	38.2	86.1	56.1	279.8
% change 1970-1995	-0.92	16.98	-4.21	28.63	4.43
% change 1995-2007	0.02	-1.93	-4.13	13.67	0.83
% change 1970-2007	-0.90	14.72	-8.17	46.21	5.29
Cereal yield (t/ha)					
1970	1.135	1.330	2.143	1.850	1.618
1995	2.112	2.105	4.664	3.061	3.105
2007	2.619	2.999	5.315	3.854	3.748
% change 1970-1995	86.1	58.3	117.6	65.5	91.9
% change 1995-2007	24.0	42.4	14.0	25.9	20.7
% change 1970-2007	130.75	125.45	148.02	108.34	131.61

Source: ADB 2000, WDI Online, FAO.





An especially remarkable point in table 2 is that nearly all growth in cereals production has come from yield growth rather than area expansion. For Asia as a whole, in 1970-95 cereal production rose by 100%, while area harvested rose by only 4%. The reason, of course, is that average cereal yields nearly doubled during this period. Some of the reasons for this remarkable increase in land productivity have to do with the Green Revolution and accompanying increases in capital inputs as well as investments in irrigation and other infrastructure. Most South and Southeast Asian countries underwent rapid adoption of Green Revolution technologies in the 1970s. Irrigated area expanded greatly during the 1960s and 1970s. Following the introduction of modern varieties (MVs) of rice in the late 1960s, adoption in lowland environments was generally very rapid. By 1980, for example, the Philippines had 78% of its planted area of rice under MVs, and 89% by 1990. (Vietnam, by comparison, first recorded any MV adoption in 1980 with 17% area, and by 1990 had risen to just 47%)⁷. Fertilizer use more than doubled in Asia in the 1970s, with some countries recording far higher rates of increase (though Vietnam's fertilizer use began to grow rapidly only in the 1980s), as seen in table 3.

Decade	Asia	China	India	Indonesia	Philip- pines	Thailand	Vietnam
1970-79	2.39	2.97	2.34	3.56	1.70	3.57	0.52
1980-89	1.72	1.66	2.05	1.99	1.60	2.98	3.63
1990-99	1.36	1.34	1.50	1.01	1.27	1.69	3.67
2000-05	1.28	1.43	1.23	1.38	1.11	1.10	0.88

Table 3: Decadal growth factors	of total consumption	of chemical fertilizer
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Source: Computed from IRRI: World Rice Statistics, www.irri.org. Accessed 30 July 2009.

Agricultural R&D investments

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A great deal of the new technology at the heart of the Green Revolution originated in research conducted at international research institutions, notably the International Rice Research Institute. Most of it, however, became fully effective at a national (or sub-national) level only after additional rounds of adaptive research. Decentralized, adaptive research is even more important for specialized crops and for specific environments (such as mountainous areas or deltaic regions subject to flooding and saline water intrusion), and for livestock, forestry and aquaculture industries. The role of national R&D expenditures in Asian agricultural productivity growth has been argued in recent quantitative studies to be substantial (Luh et al. 2008)⁸. Unfortunately it is impossible to compare these on the basis of outcomes; instead we must use inputs

⁷MV adoption data are from IRRI: World Rice Statistics, www.irri.org, accessed 30 July 2009.

⁸On the relative roles of national and international R&D, these authors conclude that "for most East [and Southeast] Asian economies, domestic R&D is an important determinant of the growth of the agricultural sector, whereas international R&D spillovers can promote growth only through advances in education levels."

such as expenditures and research personnel fte (full-time equivalent) numbers. Asian governments' commitments to agricultural research have varied across countries and through time⁹. However, the dominance of public sector institutions (whether research institutes or institutions of higher education) has remained consistent. Public spending on agricultural R&D has been steady at 0.5 - 1.0% of agricultural GDP in all developing Asian countries-except Malaysia, where it has been much higher, and Vietnam, where in 2002 the figure was still much less than 0.25% (Beintema and Stads, Figure 5). Most public sector R&D funding comes from the general budget, although in some countries with substantial export crop sectors – Malaysia, Sri Lanka and Indonesia, for example, public research is also conducted by crop-specific institutes funded by levies on production or exports.

Across the region, growth rates of agricultural R&D resources have been slower on average than those of agricultural output, though this does not necessarily imply that the productivity of R&D has not kept pace with the sector, especially as the average skills (measured by highest degree) of the R&D workforce have risen substantially. Vietnam is the exception: in 1996-2002 (the latest year for which international comparable data are available) its R&D labour force grew by 5.6% per year, up from 1.4% per year in 1991-96, and two percentage points higher than any other Asian economy for which data are available¹⁰.

Public sector R&D is supplemented in most countries by substantial non-profit sector investments (i.e. by industry groups). These are especially large in the plantationcrop exporters (Malaysia, Indonesia, Sri Lanka, Papua New Guinea). Vietnam is an exception in that industry groups contribute almost nothing to the total recorded R&D budget, in spite of large sectors (coffee, tea, aquaculture, rubber, rice) engaged in commercial export-oriented production. The private sector share of agricultural R&D spending in Vietnam was just 2.8% in 2002, compared with 18.9% in Indonesia, 17.9% in the Philippines, 8.6% in Papua New Guinea, and 5% in Malaysia.

The foregoing discussion has emphasized the contribution of yield growth and of R&D as factors leading to agricultural sector growth through time. As seen in expression (1), however, productivity growth has many more sources other than new technologies. Many studies decompose observed rates of total factor productivity (TFP) growth and frequently find that most of it is due not to the effects of R&D itself, but rather to the contributions of "state variables" (technology choices made by farmers; input and output prices; and non-economic constraints) that complement the products of research. Indeed, Mundlak et al. (2002) find for Indonesia, Thailand and the Philippines that "factor accumulation played an important role in output growth and that accumulations from policy-driven investments in human capital and public infrastructure were important

⁹Data cited in the next two paragraphs are from Beintema and Stads (2008).

¹⁰According to Beintema and Stads, "From 1996 to 2003, the number of fte researchers with PhD degrees in the 26 government agencies [with R&D mandates] rose from 145 to 228, and the number of MSc-qualified researcher grew from 66 to 350." The authors note, however, that in Vietnam the legacy of political isolation has left it with relatively few researchers whose English-language skills and access to international publications are adequate to maintain and build knowledge, engage in global research networks, and undertake postgraduate training.
sources of productivity gains." The data suggest that after a productivity jump due to the development and spread of MVs in the 1970s, subsequent growth in SE Asian agriculture has largely been due to increases in factor inputs, and to improvements in efficiency and productivity associated with policy reforms and public investments, not necessarily in agriculture itself. This focuses our attention on the economic side of the agricultural dynamism story.

3.2.2. Sectoral incentives

While advances in infrastructure and technology-and especially the Green Revolutionhave consistently captured agricultural development headlines, behind the scenes a much quieter revolution has taken place in Asia, with effects at least as profound. This has been the gradual improvement in sectoral incentives, both through direct measures such as agricultural pricing policies, and indirectly, through macroeconomic and exchange rate policies.

The explicit and implicit taxation of agriculture in developing countries to support industrialization has been documented and discussed for decades (Lipton 1977; Bautista and Valdes 1993; Anderson and Martin 2009). Study after study has showed that in low-income countries, not only was export agriculture subject to direct taxation through export taxes and other means, but virtually all agriculture was also penalized indirectly, through the effects of support for industrial growth (which raised farm costs by increasing competition for labour and capital) and through overvalued exchange rates, which reduced the prices of industrial inputs but also reduced the competitiveness of export agriculture and import-competing crops alike. The indirect penalties on agriculture were found in almost all cases to be large enough to cancel out the effects of any protection offered to import-competing crops, like rice and corn in Indonesia or the Philippines. The consequence of these policies was diminished returns to private investment in agriculture, which in turn increased the perceived need for public investment, not merely in the provision of public or club goods like roads, electricity and irrigation, but also in areas where private investment should have been dominant, such as adaptive research, food and fiber processing, and post-harvest operations like storage and trade. Longer term, adverse sectoral policies slowed the rate of agricultural growth and rural development (See Box 1 for the Philippine case). Worldwide, the policy bias against agriculture has typically declined with income (Anderson and Hayami 1986), reflecting the increased political bargaining power of farmers and rural communities as aggregate incomes rise and the share of food in total consumer expenditures declines. In Asia, the process of leveling the playing field for agriculture began in earnest in the early 1980s. Rising incomes, globalization, trade policy concessions required for accession to the WTO, and many other factors all combined to create pressures to reduce distortionary trade regimes in general and agricultural penalties in particular. Table 4, from Anderson and Martin (2009), shows this trend. It displays real measures of agricultural taxation (-) or subsidy (+), taking account both of policies applied directly to the sector and those applied indirectly, through support or taxation of other sectors. This measure is known as the real rate of assistance to agriculture (RRA), and is defined as the percentage ratio of the nominal rate of assistance to agriculture (NRAA) to that to non-agriculture (NRAN)¹¹.

¹¹Formally, RRA = 100*[(NRAA/NRAN) – 1]. For a more complete definition and discussion, see Anderson and Martin (2009).

Country/ region	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
NE Asia	-55.7	-53.7	-51.9	-38.0	-14.2	7.4	8.5
Korea	30.5	53.9	104.8	145.9	188.2	158.2	167.3
Taiwan	4.2	1.7	12.9	28.0	42.5	52.2	69.0
China	-60.5	-60.5	-60.5	-49.9	-31.1	-3.0	0.9
South Asia	-39.8	-41.6	-33.3	5.1	-15.5	-14.9	3.4
India	-38.3	-43.8	-33.5	11.7	-12.1	-12.9	12.5
SE Asia	-25.3	-18.0	-13.4	-16.1	-14.5	-7.7	3.7
Indonesia	-24.7	-13.6	-13.5	-22.5	-21.3	-18.3	5.4
Philippines	-19.8	-20.3	-14.9	4.3	6.1	24.9	15.9
Thailand	-33.7	-27.5	-14.4	-16.3	-14.9	-6.5	-7.4
Vietnam	_	-	_	-19.2	-17.4	-1.3	0.0

Table	4:	RRAs	(real	rate	of	assistance)	in	agriculture,	selected	Asian
econo	mie	S								

Source: Anderson and Martin (2009), Table 1.17.

Because sectors are linked through the markets for labour and capital and through exchange rates, the RRA can be increased either by means of a reduction in explicit taxes on the farm sector (i.e., a rise in NRAA), or by a decline in protection for manufacturing and other industries (lower NRAN). In Southeast Asia as a whole, for example, the NRAA was generally very small between 1975 and 1999 (between -5% and +5%). The improvement in sectoral incentives-the regional average RRA rose from-18 to-7.7 over the same period-came instead from reductions in manufacturing tariffs that lowered the NRAN from 22% to just 8%.

Box 1: How bad policies reduced agricultural growth in the Philippines

The Philippines illustrates how direct interventions and macroeconomic conditions can inhibit farm growth by reducing sectoral incentives. Until the last decade, its long-term development strategy favored manufacturers over farmers, and import substitution over exports. The overall trade bias (OTB), a measure of the policy bias for import-competing industries against exporters, was consistently and strongly tilted against exporters through three postwar decades (Bautista 1993). Export crops in particular were regarded as an elastic source of foreign earnings and domestic employment, and crops such as copra, sugar and timber were all subjected to export taxes and a dual exchange rate system under which earnings from farm exports could be exchanged for domestic currency only at a less favorable rate. Indirectly, all agriculture was further penalized by tariff protection awarded to import-competing industries. This protection supported an overvalued exchange rate, which made competing imports cheaper, and reduced the attractiveness of the country's exports to global markets (Baldwin 1975). Consequently, private agricultural investment declined, dramatically so in export crops.

As compensation, successive regimes announced programs of public investment in agricultural and rural infrastructure and technology as well as price supports for key cereal crops, but these were inadequate to overcome the negative sectoral incentives created by the overall industrial promotion and export tax regime. These biases carried through to individual products, and even import-competing staples like rice were subject to overall negative protection. These effects were exacerbated by macroeconomic crises creating uncertainty about prices, policies and the continuity of agricultural development programs. As a result, "the highly distorted trade and exchange rate policies pursued in the Philippines... had a substantial, negative impact on the incentives for agricultural production" (Bautista 1993:132).

Macroeconomic instability and adverse sectoral incentives helped slow the rate of agricultural growth from about 4% in the 1960s to 1% in the 1980s and 1.6% in the 1990s (see table), far below the growth rate of GDP or population. Growth due to the Green Revolution boom in rice yields (1970s) could not be sustained in the face of bad policies. Agricultural exports collapsed. Meanwhile, a rapid rise in protection for corn producers in the 1970s-1980s promoted more planting on steep hillsides and upland areas, causing deforestation, soil erosion and land degradation. This disastrous agricultural sector performance is the primary cause of persistent poverty and deprivation in the Philippine countryside.

Commodity	1960-70	1970-80	1980-90	1990-2000
Total	4.2	3.9	1.0	1.6
Crops	3.9	6.8	0.6	1.2
Palay	3.9	6.8	0.6	1.2
Corn	5.3	5.9	3.5	-1.4
Coconut	2.3	4.9	-4.9	0.6
Sugar	4.8	2.9	-5.3	0.6
Bananas	5.5	15.6	-3.0	2.1
Livestock & poultry	3.2	3.0	4.7	4.8
Fisheries	6.9	4.5	2.4	1.4
Forestry	5.1	-4.4	-7.0	-21.5

Growth rates of gross value added (constant prices of 1985), percent

Source: Excerpted from David 2003, Table 6.2.

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Across the region, the reversal of trade policy distortions during the 1990s was strong enough that by the early 2000s, many economies exhibited trade and sectoral policyregimes

that awarded higher real rates of protection to agriculture than to other sectors.

The case of Indonesia reveals how a broad set of economic policy reforms influences sectoral incentives in agriculture¹². In the 1970s and 1980s, a wide range of policies applied to agriculture. Domestic rice producers were protected from import competition (with the goal of achieving self-sufficiency), and irrigation, credit, pesticides, fertilizer use and the adoption of new rice varieties in the sector were subsidized. Sugar, another import-competing crop, was awarded substantial protection from import competition, as were soybean and maize in some periods. Export crops, such as palm oil, coffee, some spices and rubber, were subjected to export taxes or licensing systems while others, including logs, were the targets of quantitative export restrictions, including export bans. A wide range of agricultural activities, including post-harvest processing, marketing and trade, was subject to interventions ranging from licensing (which created effective private monopolies) to state-run monopolies.

Table 5 shows the evolution of NRAs for different agricultural subsectors in Indonesia, as well as that of the RRA for agriculture as a whole. On average, exportables were penalized by sectoral policies throughout the past three decades, although the rate varied for individual products and through time. Reforms following the Asian economic crisis in 1997-99 greatly reduced the degree of distortion, with the abolition of most export taxes and much direct state intervention in domestic prices and markets. Importcompeting crops received positive protection, on average, although once again this disguises considerable variation. Protection for rice was reduced sharply once the country achieved self-sufficiency in 1985, although new import controls were imposed again in the wake of the Asian crisis. For tradable agriculture as a whole, the NRA remained within a band of roughly-10 to +10 from 1970-2000, rising somewhat after the crisis to 13.9. The agricultural RRA, however, remained strongly negative in the pre-crisis years due to protection awarded to non-agricultural sectors, whose NRA remained about 26% throughout the 1970s and 1980s, falling only after the end of the oil boom years, and again after the Asian crisis. Accordingly, the RRA for agriculture shows a dramatic improvement from the 1990s to the present, becoming weakly positive (5.4%) for the first time in 2000-04.

¹²Data in this section are from Fane and Warr (2009).

Indicator	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
NRA: Exportables	-3.3	-0.3	-7.0	-16.5	-24.6	-17.2	-3.0
Coffee	-7.1	-3.7	-8.6	-2.2	-0.5	2.3	3.0
Coconuts	-5.9	2.2	-6.1	-22.0	-45.6	-29.4	-8.1
Rubber	15.2	-3.4	-16.2	-20.5	-31.9	37.0	16.7
Palm oil	-14.5	-9.2	22.2	-1.1	11.9	-18.3	-3.8
NRA: Import- competing	-3.6	16.5	19.5	5.1	-0.7	-5.8	24.7
Rice	-	13.9	4.5	-0.9	-8.7	-13.0	18.7
Maize	-15.4	10.2	18.6	21.9	22.5	24.6	10.8
Sugar	2.1	23.5	53.8	8.5	3.9	11.3	49.4
NRA, all agricul- ture	-3.8	10.4	10.5	-1.9	-7.5	-9.7	13.9
NRA, non-agricul- ture	27.7	27.7	27.7	26.5	17.6	10.6	8.1
RRA, agriculture	-24.7	-13.6	-13.5	-22.5	-21.3	-18.3	5.4

Table 5: Indonesia	a: Nominal	and real	rates of	assistance	to agriculture

Note: NRAs are inclusive of the effects of a fertilizer subsidy. Exportables also include tea; importables also include soybeans and poultry (see source for complete data).

Source: Fane and Warr (2009)

These data confirm the overall trend toward a less distorted set of sectoral incentives at the aggregate level in Indonesia. Reforms in agricultural and non-agricultural policies have reduced the extent of discrimination against agriculture as a whole. Within this picture, however, there is evidence of persistent policy biases at the subsectoral level, especially where rice, sugar and coconut are concerned.

These data convey important information for agricultural development and economic welfare. Persistently high sectoral incentives mean that more resources (land, labour and capital) are being devoted to their production that is optimal, unless increased output of these crops confers some non-economic benefit to society. If there is no such benefit, then protecting these crops generates rents to producer groups or to the traders who buy their output. Conversely, persistently low NRAs indicate that a crop is under-produced, and that both producers in the sector and the economy as a whole would be better off by increasing the resources allocated to it.

Thailand provides another important comparison of sectoral incentives for agriculture. Like Vietnam, Thailand is a net exporter both of rice, plantation crops (predominantly rubber) and fisheries and aquacultural products. In Thailand's case, however, a relative abundance of land, the absence of concerns about national food security, and the relative lack of political organization (and even representation) among farmers and rural populations meant that historically, concern with agricultural policy arose mainly from the desire to raise government revenues from export taxes, with little concern for coordinated investment in infrastructure or productivity growth-a condition that has been described as "policy complacency" towards agriculture (Warr and Kohpaiboon

2009: 255). This stance provides a striking contrast with that of Vietnam, despite equally striking similarities in the structure of the two countries' agricultural sectors. Export taxes on rice and rubber caused both of these products to have relatively large negative NRAs from the 1970s to the 1990s, but these taxes have since been suspended or abolished. Of the other major crops, only sugar and soybean have enjoyed large positive NRAs. The NRA for agriculture as a whole has hovered in the low single digits since the 1980s and is now close to zero. The biggest rise in sectoral incentives has come instead from the reduction and removal of protection for non-agricultural industries. Thailand's import substitution tariff regime peaked in the 1970s, and diminished sharply after the mid-1980s (Punyasavatsut and Coxhead, 2001). As a consequence, Thai agriculture has faced a relatively neutral policy regime for many years.

This is not to say that Thai administrations have not actively promoted rural development; rather, they have done so through other means, such as transfers to rural communities, subsidies on health care and credit, and investments in public goods such as roads, electrification and sanitation (Warr and Kohpaiboon 2009). These measures have complemented a very high degree of mobility in the labour market, which has allowed rural Thais of working age to be full and active participants in the growth of urban-based industry and services, thereby generating substantial remittance flows to provide education, health care, and income support to rural dependents (see Box 2). As a result, rural poverty in Thailand has diminished to near-negligible levels in spite of a relatively lackluster rate of agricultural productivity growth and, excepting sugar and soybeans, in the absence of decisive policy support. The Thai case is a vivid reminder that when factors such as labour are mobile, the primary sources of rural development need not be found within agriculture or even within rural areas.

3.2.3. Institutional factors

Improvements in infrastructure, technology and sectoral incentives have been major sources of agricultural growth in Asia. Changes in organizational and institutional arrangements have also been influential, as has the involvement of the State through instrumentalities such as public trading corporations.

Land

In Asia's most successful newly industrializing economies (Korea and Taiwan), 'land to the tiller' reforms, which both reduced tenancy and (more importantly) conferred ownership rights on farmers were important-arguably even vital-prerequisites to modern economic growth. In the largely agrarian economies that these were at the time, land reform gave farmers collateral against which to borrow and invest; it allowed for the consolidation of small farms into larger and more economically viable units, and it provided a secure basis for productivity-enhancing non-farm investments. Land reforms freed up capital-and ultimately also labour-to be put to work in other sectors and to be invested in the creation of human capital. By conferring the rights to use and dispose of land on individuals, they liberated rural capital and labour in an incentive-compatible way, without the need for price controls, export taxes, or other impositions

that have characterized many less successful approaches. This can be seen very clearly in table 4, where Korea and Taiwan are the only two economies in the table to show consistently non-negative levels of agricultural protection.

Other countries in the region have not undergone such sweeping land tenure reforms; yet this has not prevented agricultural development in every case. In the Philippines, decades of low employment growth outside of agriculture, together with a rapidly growing population, resulted in extensive rural landlessness and maintained high and rising returns to farmland. A rural credit system that placed a high premium on land as collateral further raised its value. Despite periodic attempts at land redistribution, conflicts over ownership and control fueled political disputes and insurgency in the rice-growing heartland for decades. This sad history contrasts with Thailand where, despite a very poorly-articulated land tenure system and a large fraction of farmers having no title at all, tenancy and landlessness have not historically been hot-button political issues. Feder et al. (1988) found that even without titles, land tenure insecurity was extremely low in rural Thailand, and there was an active market for land even without formal title. Thus uncertainty over land was not a constraint to outmigration for non-farm employment. Feder et al. did find, however, that without title, land was less frequently used as collateral for long-term loans, leading to underinvestment in land improvements and farm equipment. Due to its value as collateral, land with title typically traded at a premium of about 50% over that without it.

At the other end of the land law spectrum, two economies in Asia have successfully sustained growth without conferring and defending private ownership of land: China and Vietnam. In both countries, land use rights have recently been assigned to individuals and households, but land ownership, and with it long-term use rights and the right to sell land, have been withheld. For current production, the lack of absolute ownership rights may not be a large problem, so long as the system in place ensures efficient resource allocation at the margin (Rodrik 2003). The China example in particular appears to support the argument that even if a farmer lacks private property rights in land, if he or she behaves at the margin in the same way as a landowner would, there is little or nothing to be gained by conferring private ownership.

The big problem with uncertain property rights in land, however, lies in the value of this asset as collateral for long-term investments. In a market economy, banks (and even less formal institutions) will not make long-term loans without collateral. Without the ability either to mortgage or sell land, farm households without private title are typically unable to raise funds for large investments in fixed structures or equipment (as Feder et al. showed for Thailand). In a transitional economy, they may also find it considerably more difficult to make other investments, notably the education and training and the fixed, up-front costs of send out migrant workers to other locations and countries. This lack of fungibility of the land resource, a direct consequence of the lack of private property rights, limits labour mobility and long-term investments and thus slows the rate of agricultural and rural development. Studies of rural China have demonstrated that asset-fixity-that is, the inability of farmers to convert land into other forms of productive capital through sales or long-term credit-has contributed to the creation of "geographical poverty traps", or pockets of rural poverty coexisting

with and even adjacent to far wealthier and more dynamic populations (Jalan and Ravallion 2002).

To sum up, the experience of Asian countries in land tenure reform is diverse and yet conveys one clear common message. Private property in land is not essential to agricultural progress, so long as other institutional arrangements can ensure efficiency in current production decisions. But lack of a formal land title backed by law constrains private investments in farm structures and equipment, and reduces labour mobility by constraining outmigration and restricting households' capacity to mortgage or sell land to fund education and training. If full private property rights in land are not to be granted to farmers, then compensating (and potentially costly) measures are needed to restore incentives for long-term investment and capacity to change occupations in response to the evolving non-agricultural economy. This may involve subsidized credit from the state banking system (which, without collateral, creates significant moral hazard problems), or public investments in agriculture as substitutes for low rates of private investment. Either way, the state will inevitably find itself footing much of this bill¹³.

Credit

Access to credit is a key constraint to agricultural and rural development. Land rights and access to market-based credit are closely linked in rural Asia because land is the main form of collateral. In the early years of modern development, high transactions costs and unfavorable macroeconomic conditions greatly restricted the supply of rural credit from the private banking sector. In most countries, credit was supplied by the state banking system (often with supplementary involvement from international donors) and involved significant subsidies on loan terms and interest rates. On these highly favorable terms, potential private sector lenders were discouraged from entering the market, and the demand for credit naturally exceeded supply. Without a market mechanism to allocate credit, lenders typically fell back on non-market selection, often based on political or other characteristics rather than on arms-length benefit-cost calculations. In practice, this system excluded many borrowers (usually those with less "pull" rather than the bad loan risks), forcing them onto the informal credit market. The subsidized credit system paid little attention to mobilizing rural savings, and thus did little to promote financial deepening-that is, the growth of market-based financial systems-in rural areas. In the long run, the dominance of state-subsidized rural credit was financially unsustainable and institutionally destructive.

The top-down (or "directed") rural credit model was intended to ensure that loans reached the poor, but in most countries became instead a drain on the public purse, plagued by chronic loan recovery problems, political rather than economic allocations of credit, and moral hazard. In India, the Philippines and several other countries, the rural economy suffered major damage in times of macroeconomic stress, when the flow of funds from central government or the Central Bank needed to keep the

¹³"The real challenge of reform facing transition and developing countries is not so much knowing where to end up, but searching for a feasible path toward the goal" (Qian 2003).

rural banking system afloat was cut off. By the 1980s, reforms in many countries placed rural banking on a more market-oriented footing, raised real interest rates and loan origination fees to sustainable levels, linked credit to rural savings mobilization, decentralized decision-making and reduced transactions costs, and thereby created space for the growth of microfinance, and ultimately of private rural branch banking (Meyer and Nagarajan 2000). Leaders in the "new paradigm" of rural banking included Thailand's Bank for Agriculture and Agricultural Cooperatives (BAAC), Bangladesh's Grameen Bank microfinance institutions, and Indonesia's Bank Rakyat Indonesia (BRI). These institutions, though not without their own problems, are widely regarded as models of successful rural credit, reaching a very high proportion of the rural population in general, and especially the poor. The success of the Grameen Bank operations in Bangladesh stands in high contrast to the persistent failure of that country's state-run directed credit programs, and similar contrasts can be seen in Indonesia and in Malaysia (Meyer and Nagarajan 2000).

State-owned corporations

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Historically, Asian governments have inserted themselves into the agricultural economy both indirectly through policies, and also directly through State-owned corporations. These are typically mandated to support the broader development strategy, as well as specific objectives such as price and supply stabilization. In food importers like Indonesia and the Philippines, state-owned corporations have long dominated domestic agricultural procurement, pricing and trade with the goal of stabilizing prices and incomes and ensuring adequate food supplies. In some food exporting countries, including Vietnam, state-owned entities are charged with stabilizing domestic prices and incomes through their control of export volumes (and in some cases, domestic prices and procurement as well).

How well have these entities performed their mandated functions? Have they made measurable contributions to economic growth and wellbeing? In developing Asia, there is no published analysis that argues that SOEs have been unambiguously good for development, and for many, the disadvantages of direct state engagement in markets outweigh the benefits. Indonesia's National Logistics Agency (BULOG) is a widely studied regional example of a state-owned corporation with a legal monopoly over trade in rice as well as many other agricultural input and output markets. Bulog's record of inefficient and frequently corrupt practices, resulting in lower returns to farmers and higher costs to consumers of food, has been widely cited as an example of preventable costs in agricultural trade and transportation (see, for example, World Bank 2005)¹⁴.

In the Philippines, from 1950 until the 1990s the National Food Authority (NFA), held a monopoly over cereal trade as well as engaging in domestic purchase, storage and

¹⁴"In Vietnam, a role similar to that of Bulog was performed by a combination of the state trading companies Vinafood I and II and the Vietnam Food Association (VFA), which exerts additional control over trade through mandates such as price-setting and the quantities of rice exported. Domestic and international trade in agricultural products is now shared partly with private traders.

release to promote production and to defend producer price floors and consumer price ceilings. It did so at a substantial loss almost every year. While the rhetoric of Philippine agricultural policy also prioritized technological progress and infrastructure development, on average the net subsidy received by the NFA for its grain price and marketing programs exceeded the public sector's agricultural research and development (R&D) budget by a factor of 50 (Manasan 1994). It is doubtful, however, that NFA interventions effectively achieved any of its goals, i.e. to stabilize prices, defend producer price floors, and defend consumer price ceilings. Recent econometric evidence suggests that interventions had only minor effects (Yao et al. 2005), and that analysis takes no account of the costs of NFA programs. Moreover, the NFA crowded out private sector arbitrage (Lantican and Unnevehr 1987), so the net effect of interventions on price volatility could have been positive or negative. In addition, legal and bureaucratic impediments to timely approval of NFA imports clearly destabilized Philippine grain prices during supply and demand shocks in which domestic stocks were inadequate-for example, in August 1996, when delayed import approvals result in panic buying and a trebling of retail rice prices. Paradoxically, the NFA could successfully assure price stabilization and producer price floors or consumer price ceilings only at times when these were not threatened; during crises, its interventions were at best only very modestly effective-and that only if the costs of the agency's domestic market activities are ignored.

In the past two decades the prevailing trend has been to restrict or dismantle state trading enterprises. This is a policy trend that recognizes the inherent inefficiency of state traders in comparison with the private sector, and the potential for damage to the agricultural economy as a whole through crowding-out of private sector actors and investors. The new institutional structures are openly participatory, engaging government, the private sector, donors and rural communities in partnerships based on mutual advantage (for an excellent analysis of "new actors, and new roles for old actors" in rural development see Siamwalla 2001). This represents a change in the organizational structure of the agricultural economy that is potentially more efficient, more flexible, more democratic and less prone to corruption and political manipulation than was the case when the sector was dominated by state enterprises.

3.3. Agricultural productivity and rural development

If the ultimate goal of development policy is to reduce poverty, then the countries we have considered in this section have either had good policies or they have been extremely lucky. Our view is that there was indeed a strong element of good luck, in that the more open economies of the region became favorite destinations for large inflows of job-creating Japanese and East Asian FDI from the early 1980s. Policies, however, have by land large improved steadily, creating more efficient economies and accelerating growth. The combined result has been substantial declines in poverty region-wide (Table 6).

Poverty headcount ratio at \$1.25 a day (PPP) (% of population)							
	1984-88	1989-93	1994-98	1999-2003	2004-06		
China	61.73	56.94	36.37	32.00	15.92		
Indonesia	65.5	54.34	43.38	38.51	21.44		
Malaysia	2.81	2	2.04	_	2		
Philippines	32.69	30.68	24.86	22.22	22.62		
Thailand	17.2	5.45	2	2	2		
Vietnam	_	63.74	49.65	40.05	22.82		
Poverty hea	dcount ratio	at \$2 a day (I	PPP) (% of po	pulation)			
	1984-88	1989-93	1994-98	1999-2003	2004-06		
China	88.27	81.6	65.04	56.28	36.28		
Indonesia							
	89.74	84.56	76.99	74.23	53.77		
Malaysia	89.74 12.10	84.56 11.14	76.99 8.90	74.23	53.77 7.79		
Malaysia Philippines	89.74 12.10 59.39	84.56 11.14 55.36	76.99 8.90 48.2	74.23 - 44.28	53.77 7.79 45.01		
Malaysia Philippines Thailand	89.74 12.10 59.39 40.93	84.56 11.14 55.36 25.53	76.99 8.90 48.2 17.44	74.23 - 44.28 17.55	53.77 7.79 45.01 11.51		

Table 6: Poverty prevalence and trends, selected countries

Source: PovcalNet Database Online (World Bank 2009), World Development Indicators Online (World Bank 2009)

Given that all these economies are (or were, until recently) largely agrarian, with substantially rural populations, it is natural to ask how much poverty alleviation is due to agricultural development. There is no fully adequate way even to frame this question, due to the dynamic interactions between agricultural growth and expansion of other sectors. Outflows of rural labour are attributable both to supply ("push") and to demand ("pull") causes. Farm and non-farm growth rates are interdependent, with causation in both directions, due to the links created by intersectoral movements of labour and capital. There are few entirely satisfactory means to distinguish cause and effect. Thailand's experience (see Box 2) illustrates some of the many forces at work, ranging from internal changes within the rural economy to external changes altering the propensity of labour and other factors to migrate among sectors. It is very difficult to isolate the individual contribution of any one phenomenon using conventional statistical analysis. In section 4 of this report we make use of a computable general equilibrium simulation model of the Vietnamese economy to isolate the effects of agricultural growth on poverty, incomes and distribution.

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Box 2: Thailand's industrial boom and rural transformation, 1985-95

For the purpose of comparing agricultural growth experiences among trade-dependent agricultural economies, Thailand presents an excellent case study. Vietnam in 1955 was very similar in structure and growth trajectory to Thailand in about 1985. During about one decade, each country made huge strides from poor, rural, and agrarian toward middle-income, urbanized, and diversified in a very short period. The process was driven in part by "pull" factors of rising employment and labour productivity in urban-based, export-oriented manufacturing, and in part by "push" factors of low rural incomes and static opportunities, due to slow rates of productivity growth in agriculture.

Thailand's investment-led boom caused an acceleration of economic growth from about 6% per year in 1976-85 to above 8% in 1986-95. The gains from the boom were not uniformly shared among sectors, however. Agriculture, historically the mainstay of the economy and the primary employer, was not neither especially productive (as measured by yields) nor dynamic (as measured by productivity growth). It captured only a tiny fragment of the new investment, and as the most labor-intensive sector, found itself increasingly unable to compete with wages offered in other industries. From 1989-95, almost three million workers out of a total agricultural labor force of about 20 million walked off the land, planted area began to decline, and agricultural output growth decelerated. While the economy boomed, agriculture experienced negative real growth in 1991 and again in 1993 (Coxhead and Jiraporn 1999).



Despite lackluster agricultural performance, however, rural wellbeing rose sharply. The movement of workers reduced dependency ratios in the countryside; farm wages rose almost as fast as non-farm wages, and rural incomes were further raised by remittances from outmigrants. In the decade 1986-96, aggregate poverty fell from 44.9% of population to 11.4; rural poverty fell from 56.3% to 14.9% (Warr 2005). With relatively low costs of rural-urban migration, the gains from Thailand's urban-industrial boom quickly spread through the whole economy, even with low rates of public and private investment, little agricultural yield growth, and no significant programs of redistributive transfers (Siamwalla et al. 1993).

More recently, Thai agriculture has once again shown a surge of output and productivity growth due to a combination of private sector investments, rising global and regional demand, and supportive government policies (Nidhiprabha 2004).

In spite of structural uncertainty over the causes of poverty alleviation, we can, however, see fairly clearly that in the transition of an economy from largely agrarian to mainly industrialized, it experiences rising inequality. Productivity rises faster, at least initially, outside the farm sector, and this is reflected in wages and incomes of urban and industrial workers. Spatial and occupational labour mobility can quickly reduce this disparity, as the examples of Korea and Taiwan reveal. By contrast, countries with impediments to labour mobility-whether these are due to restrictions on internal migration, or land tenure insecurity, or lack of access to capital, or ethnic/religious divisions, or other reasons-experience higher increases in urban-rural inequality, and lower growth rates of labour productivity (and thus of per capita income) in rural areas. These are also countries where typically we find that proportionally more public sector resources are devoted to dealing with the inequality problem. Such resources are, in part, substituting for the effective operation of markets for land, credit, and labour. Fewer restrictions on the operation of these markets would mean less drain on the public purse, and/or more public funds available to address other development priorities.

4. AGRICULTURE GROWTH AND RURAL DEVELOPMENT IN VIETNAM

4.1. Experience in the doi moi era

Vietnam's modern agricultural and rural development diverges significantly from the standard market economy experience. The main reason for this is that its effective starting point, in the early 1980s, was from a command economy – and one, moreover, at a very low level of per capita income. Over time, dramatic changes in government perspective and policy on agricultural growth, and also on the country's overall development strategy, have created a unique landscape for agricultural and rural development.

Prior to doi moi the rural economy was organized on collectivist principles and agricultural activities were managed by command-and-control measures. The 20-year period from the mid-1980s was marked by a sequence of reforms, beginning with decollectivization and continuing to the reintroduction of markets for farm products and (to a lesser extent) for farm inputs, including land. These changes have been coterminous with an economy-wide program of reforms in trade and investment policies and macroeconomic management, resulting in the 'globalization' of the economy as whole, specialization in the global marketplace, and a consequent process of rapid transformation in the structure of production, investment and employment. Yet 'market socialism' is in many respects still quite removed from the conventional image of a market economy. This is the broad setting within which agricultural growth and rural development occur.

The liberalization and globalization of the Vietnamese economy provided a tremendous boost to its agriculture. Vietnam has considerable comparative advantage in agricultural products, even by Asian regional standards (Table 9). Reforms in the 1990s caused dramatic convergence of domestic and border prices (Athukorala et al. 2007), and this made it possible for farmers to export profitably. Farm output and productivity rose sharply, and the country became a leading global exporter of several crops, notably rice and coffee. Seafood products and rubber, which is produced mainly by state-owned corporations at provincial and national level, complete the list of dominant export products.

Country/region	RCA (World=100)	Country/region	RCA (World=100)
EastAsia	75	SE Asia	
Korea	5	Indonesia	173
Taiwan	5	Malaysia	107
China	58	Philippines	67
South Asia	145	Thailand	204
India	143	Vietnam	301

Table 7: Revealed comparative advantage in agriculture, Asian economies

Source: Anderson and Martin (2009).

The early years of agricultural liberalization saw tremendous growth in Vietnamese agriculture. Yields in the sector rose rapidly during the early doi moi era, for a wide range of crops (see Figures 3-6). In little more than one decade, from the early 1980s to the mid-1990s, the country was transformed from conditions of impending famine to a leading global exporter of rice. Other tradable agricultural and aquacultural activities, such as coffee and seafood, also experienced very rapid growth in output and productivity.





Figure 4: Yield of maize in Vietnam and selected Asian economies, 1990-2007



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Figure 5: Yield of sugarcane in Vietnam and selected Asian economies, 1990-2007

Figure 6: Yield of natural rubber in Vietnam and selected Asian economies, 1990-2007



Despite these impressive gains, the relative size of agriculture diminished throughout this period (figure 3). This trend is neither surprising nor a cause for policy concern. In the context of vigorous GDP growth, more capital-intensive and skill-intensive sectors (including agribusiness enterprises and the processing and trade of farm products) expand, and in doing so attract workers and mobile forms of capital – including even land – out from farms and into more productive uses. Therefore, the relative decline of production agriculture need not be read as a sign of sectoral failure, but rather as a product of the structural change that inevitably accompanies growth.



Figure 7: Vietnam: GDP Shares of Major Industry Groups, 1990-2007

In Vietnam, however, the absolute pace of agricultural growth has also shown signs of decline, from over 4% per year in the late 1990s down to below 4% in 2006-07. These are growth rates less than half that of GDP (figure 8). Some sources even suggest growth rates as low as 2.8% in 2006 and 2.3% in 2007 (Son, 2009). Whatever the exact figures, this growth deceleration is a source of concern on several fronts. A very large proportion of the population still depends directly or indirectly on agriculture for income: from 1998-2007, agriculture's share of GDP fell by nearly one-third, to under 20%, but the sector continues to employ a more than 50% of the labour force (Figure 9) and by the FAO definition, two-thirds of the population is still rural-a higher percentage than any comparable regional country (table 8). Arable land per capita in Vietnam is extremely low by regional standards (Figure 10). Public investment in agriculture has declined sharply in relative terms, from 17% of government investment in 1990 to about 5% today. Declining growth in agriculture contributes to the widening of income gaps between urban and rural populations and between rich and poor households.



Figure 8: Vietnam: Growth Rates of GDP and Major Industry Groups, 1990-2008

Figure 9: Vietnam: Employment Shares of Major Industry Groups, 1990-2007



Country	1995	2005
China	69.6	63.9
Indonesia	47.1	40.2
Malaysia	21.3	14.3
Philippines	42.3	35.7
Thailand	53.7	45.9
Vietnam	69.2	64.7

Table 8: Rural population as percentage of total population

Source: FAO 2009. ftp://ftp.fao.org/docrep/fao/010/ah994e/ah994e00.pdf





In addition, despite rapid structural change, Vietnam still retains considerable international comparative advantage in rice, coffee, and seafood (Coxhead 2007); these industries are all prominent among the country's non-oil exports, and the diversification of agriculture from rice and other food crops into a broad array of commercial food and industrial crops (as well as livestock and aquaculture) is one of the markers of the successful agricultural transition. These agricultural subsectors serve the dual purpose of generating income at home and earning export revenues abroad, so their continued expansion (or, conversely, a decline in their output or productivity growth rates) can have macroeconomic as well as microeconomic implications. All these considerations motivate a careful review of policies for investment, infrastructure development, R&D investments, and other productivity-enhancing measures.

Many explanations have been offered for this remarkable period of agricultural growth.

Higher prices for outputs, and lower prices for inputs like fertilizer, provided significant incentives to expanded production, and along with them increased use of land and labour (Minot and Goletti 2000). It is also very clear that institutional reforms – the return of agricultural decision-making largely to private agents with incentives derived mainly from the market – were central (Che et al., 2006). Decollectivisation and the reintroduction of markets were initial steps in an ongoing process of institutional reform, and there is considerable scope for additional progress. Future growth of Vietnam's agriculture and progress in rural incomes will therefore depend on sustaining the internal dynamism and profitability of agriculture, on improved sectoral incentives (including a supportive macroeconomic environment), and continued progress in institutional reform. The challenge for development policy is to assist progress on each of these fronts, at the least cost in terms of public sector resources.

4.2. Agricultural technology and productivity

Yields of major crops in Vietnam are comparable with those in other countries with similar agro-climatic endowments. Due to its late start, however, Vietnam has seen more rapid yield growth in the past two decades than its neighbors. In rice, yield growth relative to other countries was faster in the 1990s than in more recent years. In 1990-97, Vietnam's rice yields rose by 12.4% relative to those in other countries. In 2000-07, that growth was only 5%. Part of this relative decline was due to one-time catch-up in Vietnamese agricultural production practices. In rice, the first decade of doi moi reforms saw a sharp acceleration in adoption of modern, high-yielding rice varieties. But by the early 2000s adoption had reached almost the maximum area and the rate slowed accordingly (Table 9).

Year	Area planted to MV (000 ha)	Percent total area	Growth (ann. average %)
Pre-1980	0	0	
1980	935	17	-
1986	1,776	31	1980-86: 10.8
1996	5,800	83	1987-96: 13.3
2002	7,031	94	1997-2002: 1.95
India	143	Vietnam	301

Table 9: Vietnam: Area	planted to moder	n rice varieties,	1980-2002

Source: Computed from IRRI: World Rice Statistics, www.irri.org. Accessed 30 July 2009.

The productivity of agricultural labor in Vietnam has also remained persistently lower than in other countries (figure 11). A comparison of relative growth rates reveals differences between trends in the 1990s and in the 2000s. From 1990-99, labor productivity in Vietnam rose relative to other SE Asian countries and India, though it declined slightly against China. From 2000, however, labor productivity rose relative to India only. It was unchanged against Indonesia, Thailand and the Philippines, and declined relative to China and Malaysia.



Figure 11: Output per worker (\$US) in some Asian countries, decade averages

The analytical literature on agricultural productivity growth in countries with which Vietnam may usefully be compared is small, but insightful. A number of especially useful recent studies have used rigorous methods to minimize biases in total factor productivity (TFP) growth rates due to changes in prices. These biases have tended to produce overestimates of TFP growth and thus to lead to excessive optimism about its potential contribution to agricultural and rural development (Fuglie 2004; Fan and Zhang 2002) and to rural income growth and poverty alleviation (Fan et al. 1999). An especially important task for this project is to re-examine TFP growth in Vietnamese agriculture, as distinct from the rate of growth of agricultural value-added, a measure that is prone to such biases.

Recent productivity studies of Vietnamese agriculture in the doi moi era are very revealing (Kompas et al., 2009; Linh 2009; see Figure 12). They show (i) that growth was high during the 1990s; (ii) that a large part of that growth was due to the partial lifting of restrictions on agricultural land use and markets; (iii) that the pace of productivity growth (at least in rice, the major crop) has slowed considerably since about 2000; (iv) that the technical efficiency of farming, although higher now than before, is still low; and (v) that there is very great regional variation in productivity and efficiency, with the Mekong River Delta region scoring far higher than other regions.



Figure 12: Vietnam: Total Factor Productivity indexes for paddy rice production

Note: MRD: Mekong River Delta; RRD: Red River Delta (Source: Kompas et al. 2009)

It seems that a great deal of agricultural growth in the past two decades has been due to one-time changes associated with the transition from collectivization to a more or less market-based organizational structure. That period saw yields of major crops and the use of modern inputs catch up with those in neighbouring countries. Experience from elsewhere in the region strongly suggests that future growth will come from increased inputs (such as fertilizer) and from changes in "state variables" – infrastructure, policies, and the operation of markets. In particular, the quantitative studies by Linh, Kompas et al., and others suggest that the potential for efficiency gains from the lifting of restrictions on land use, reduction in land fragmentation, and other institutional reforms remains very high.

In an earlier TFP study, Barker et al. (2004) had concluded that most agricultural growth in the 1990s was due to increased irrigation and agricultural research. Their quantitative model, however, excluded measures of institutional change or restoration of markets. Other empirical analyses have indicated significant impacts of such reforms, thus confirming the findings of Linh and of Kompas et al. Minot & Goletti (2000) found large effects on rural household welfare due to rice market liberalisation. Litchfield et al. (2003) noted that trade liberalisation caused a huge expansion of rural products intensive in the use of labour and a substantial decline in poverty, which their econometric analysis revealed to be most intense among households dependent on farming and unskilled labour. Ravallion and Vandewalle (2008) found a strong positive association between land law reforms and agricultural productivity growth. Che et al. (2004) also identified a strong contribution from institutional reforms to productivity growth.

As agriculture modernizes and diversifies, adaptive research gains prominence as an element of productivity growth. The Vietnamese government is the primary sponsor of domestic agricultural R&D. The most recent available international data (from the early 2000s) show Vietnam lagging far behind its neighbors on measures of overall spending, capacity of R&D institutions, and private sector participation. The main agency for agricultural research is MARD, although other ministries also have overlapping research mandates. Until 2005 there were 38 different agencies within MARD with research budgets; this was subsequently reduced to 12. Historically, these (and their associated research centers and stations) have been concentrated around Hanoi and to a lesser extent Ho Chi Minh City, making it potentially difficult to conduct research applicable to the country's diversity of agroecological zones (Stads and Hai, 2006). Average expenditure per researcher is low by Southeast Asian standards, with a research intensity ratio (R&D spending as a percentage of gross value added in agriculture) of only 0.17% in 2003, compared with about 0.5% elsewhere in the region (ibid). R&D expenditures rose very sharply in the early 2000s (as did the average level of academic gualifications held by researchers), but from a very low initial level.

What is still missing from the R&D system is participation by producer groups and the private sector. This participation is the key to leveraging public sector funds. In some countries, producer groups contribute R&D resources through non-profit entities; in others, such contributions are mandated by means of a cess (or levy) on revenues or export earnings. The earnings of Vietnam's largest farm export, rice, accrue in large part to the two dominant state-owned traders, Vinafood I and Vinafood II. In 2008 these entities made after-tax profits of VND2.4 trillion and almost VND 2 trillion respectively (a total of about USD 2 billion). According to press accounts, however, none of this profit was reinvested in R&D (VietNamNet, 2009). In export crops (other than rubber) where the private sector is more active, there is still no measurable contribution to R&D. As with other forms of public sector involvement in the development process, if institutional structures do not encourage private sector participation R&D, the apparent burden on the public sector budget becomes commensurately larger.

What are the current and potential sources of agricultural growth in Vietnam? In the past decade, agricultural technology has not shown much gain. Total fertilizer use trebled in the first reform decade 1987-96, but has barely increased since (IRRI 2009). Likewise, area planted to improved rice varieties trebled in 1987-96 but increased only by 20% in the next decade. Improvement and expansion of irrigation systems has been significant (Barker et al. 2004), but the capacity to continue extending irrigation is limited by availability of suitable land, and current irrigated area (especially in the Mekong River delta) is threatened by rising sea levels and other consequences of global warming. The value of output per worker in the sector remains low at only 40% of the economy-wide average, and 25% that of workers in manufacturing (ADB 2009a). Public sector agricultural research has been the target of substantial investments and reorganization, but the critical step of engaging non-state actors as investors and participants in agricultural research has yet to be taken.

The internal dynamism of agriculture can be increased by these means, even before undertaking new public investments in the sector. In fact, it is likely that lifting relaxing

institutional barriers to long-term farm decision-making will result in expanded private investment in the sector, thus reducing some of the apparent need for public funds.

4.3. Sectoral incentives

Although it came later to globalization than most of its neighbours, in the 1990s Vietnam made very similar progress toward leveling the sectoral playing field for agriculture. This was partly the result of institutional reforms, and partly due to trade and related policy reforms. Economy-wide, the average tariff rate fell from 22% in 1999 to 13.6% in 2004, and the maximum tariff rate declined from 200% in 1997 to 113% in 2004; in the lead-up to WTO accession, many tariffs were reduced to zero or negligible rates, and quantitative barriers to a wide range of imports were abolished (Athukorala et al. 2009).

At the sectoral level, trade policy liberalization reduced protection for non-agricultural industries much faster, and from much higher initial levels, than in agriculture. This improved the domestic terms of trade of agricultural production. Overall, the agricultural sector NRA improved from its lowest level (-26.4% in 1990-94) to +20.7% in 2000-04 (Table 10). At the same time, the NRA for non-agricultural goods converged on the same rate, with the result that the real rate of assistance to agriculture (RRA) increased from net negative protection (-19.2%) at the start of the decade to a neutral regime (0%) at its end. It should be noted, however, that as in Indonesia (see Table 5) this figure does not imply a condition of free trade and unfettered incentives-only that on balance, the difference between incentives in agriculture and those in other sectors is very small.

Indicator	1986-89	1990-94	1995-99	2000-04
NRA: Exportables	-13.3	-27.2	-2.1	16.9
Rice	-2.8	-26.6	-0.4	22.9
Rubber	-	21.2	18.6	16.8
Coffee	-49.4	-21.1	-7.1	-12.0
Pig meat	-41.8	-37.5	-6.1	8.9
Poultry	-3.1	-3.6	3.7	1.6
NRA: Import-competing	5.1	-0.7	-5.8	24.7
Sugar	-	49.6	112.9	160.2
NRA, all agriculture	-16.1	-26.4	0.0	20.7
NRA, non-agricuture	4.3	-11.2	1.5	20.8
RRA, agriculture	-19.4	-17.4	-1.3	0.0

Table 10: Vietnam: Nominal and real rates of assistance to agriculture

Source: Athukorala et al. (2009).

In the late 1990s and early 2000s, reforms to agricultural policy began the process of aligning resource allocation with market incentives. At subsectoral level, nominal rates of assistance (NRAs) converged toward zero for all major tradable agricultural products except rubber and sugar (Table 10). Restrictions on rice exports had caused its NRA to be substantially negative in the 1990s, but by the early 2000s this had

become positive. Coffee and pig meat experienced similar improvements. Rubber, which is produced mainly on state-owned plantations, remains a substantial recipient of favourable policy treatment. Sugar, an import-competing product, received a huge boost in protection under the "Million Tons" program launched in 1995. The substantial protection still offered to sugar reflects a diversion of scarce land, capital and other resources away from more productive uses in export crops, or even non-agriculture. Most important among the agricultural price and market policy reforms were changes affecting rice (Minot and Goletti 2000; Nielsen 2002). Rice export quotas, initially assigned only to a few state trading companies, were broadened and then, in 2001, abolished altogether, although the global rice price surge of 2007-8 sparked a temporary reintroduction of quantitative export controls. Fertilizer import quotas were also abolished in 2001. However, rice trade continues to be dominated by two state-owned corporations, which also have exclusive control over government-to-government export contracts, and export price "guidance" is still used to control the activities of rice traders.

Macroeconomic conditions

Beyond the sector itself, the macroeconomic environment is of great importance for agricultural development. For example, growth of non-agricultural employment has the potential to alter agricultural development by raising farm labour costs, and to alter rural development both through the same channel and also by encouraging rural-urban migration and a backflow of remittance income.

The efficiency of Vietnam's macroeconomic management has improved enormously during doi moi. However, the country has slipped in recent years relative to its neighbours. Inflation has become a persistent problem, and the government's budget has slipped from broad balance to a large deficit, accommodated only by inflows from the donor community. Vietnam's record on international competitiveness is also poor. In the World Economic Forum's Global Competitiveness Index, Vietnam has fallen from an overall ranking 68th in 2007 to 70th in 2008 and 75th in 2009¹⁵. On macroeconomic stability, Vietnam fell from 54th place in 2007 to 112th in 2009. On measures of business costs, quality of public institutions, government efficiency and other indicators of competiveness, Vietnam ranks very low among large regional economies. Freight charges are too high for reasons related to lack of infrastructure, but also due to institutional and regulatory inefficiencies. Port handling charges and other transactions costs on trade are high by regional standards (Figure 13). All of these sources of inefficiency add to costs of production, trade, and innovation. For a given price in the world market, all of these margin costs lower the farm gate price and thus constitute barriers to higher agricultural productivity, production, and rural incomes.

¹⁵http://www.weforum.org/. In 2009, Indonesia was ranked 54, Thailand 36, China 29, and Malaysia 24. Among the large SE Asian economies, only the Philippines (87) was ranked lower than Vietnam.



Figure 13: Time to clear customs in Vietnam and selected Asian economies

State engagement in agricultural markets

A variety of specific trade and capital market measures serve to penalize agriculture, and also the potential for private sector-led growth in downstream industries such as food processing. In the wake of WTO accession, almost all of these measures revolve around industry policies affecting state-owned enterprises (SOEs). During the pre-reform era, SOEs were awarded effective monopolies in many key industries and service sector activities (including agricultural input supply and the processing, storage and marketing of outputs). These monopolies have been very slow to break down. SOEs occupy a privileged position, with access to cheap capital¹⁶ and close connections to government regulators and policy-makers. They have used both to good effect in expanding their operations and in securing continued tariff protection and other preferential treatment at all levels, from policy to port access (Athukorala 2006).

Within production agriculture, the state-dominated subsectors (rubber and sugar) exhibit a clear policy advantage over smallholder-dominated subsectors (Table 10). But the involvement of SOEs in postharvest activities affects all subsectors. Until recently, regulatory barriers effectively prevented large-scale private sector involvement in trade in key agricultural products. According to one recent analysis, "although from a legal standpoint, all registered firms, regardless of ownership, can trade, there

¹⁶And previously, with exclusive access to foreign exchange for imports.

exist barriers which discourage trading by non-state enterprises, thereby protecting SOEs" (Auffret 2003). Stringent regulatory requirements demanded by line ministries inhibit the participation of private firms in rice exports and fertilizer imports, leaving the market largely in the hands of state-owned agencies. As documented by Athukorala (2006), SOEs continue to dominate the most protected industries, including the food, beverages and tobacco processing sector where (in 2004) they accounted for 49% of output, using relatively capital-intensive methods consistent with their privileged access to capital at below-market prices.

SOEs in general command very high price-cost margins (that is, returns over normal costs). These reflect economic inefficiency combined with the power to set prices¹⁷. In recent years, SOEs in the food, beverages and tobacco sectors earned price-cost margins of 21.5%, in line with other SOE-dominated sectors, and far higher than those in FIE-dominated sectors such as electronics (4.5%), leather products (5.2%), or apparel (14.5%) (Athukorala 2006). High price-cost margins are indicators of the exercise of market power. In the case of trade and processing in fertilizer, rice, and other farm outputs, these supernormal profits are earned at the expense of farmers and consumers¹⁸. The persistence of a privileged, inefficient, and arguably rent-seeking SOE sector between farmers and their markets is a drain on agricultural and rural incomes and on the public sector budget.

In summary, the sectoral incentives for agricultural growth in Vietnam have improved immeasurably in two decades. The opening of the economy to global trade, exchange rate reforms, and other macroeconomic initiatives have been key changes stimulating this growth. At a sectoral level, trade policy reforms have reduced the overall bias against agriculture, permitting the economy to exploit its comparative advantage in rice, coffee, rubber, seafood and other products. This combination of sectoral and macroeconomic reforms has helped promote rural income growth and slowed the rate of rise of inequality observed in other transition economies, such as China. However, subsectoral policies reveal continuing and substantial bias in support of favoured crops (notably sugar), which is a source of resource misallocation that inhibits further growth. And if the experience of regional economies and the evidence on Vietnam's own economy are accurate, then the persistent dominance of state agencies in some production sectors (rubber) and in agricultural marketing and trade for most products is another important factor inhibiting the growth of the sector and the welfare of the rural economy as a whole.

¹⁷A 2000 study found that the unit costs of SOEs in rice trade exceed those of private traders in the two delta regions by 4-16 times (Minot and Goletti 2000).

¹⁸In 2008, as previously noted, Vinafood I (The Northern Foods Corporation) earned VND 2.4 trillion in after-tax profits; Vinafood II (the Southern Food Corporation) earned almost VND 2 trillion. These corporations are supposed to use profits to support agricultural development, including agricultural R&D, quality improvement, and other advances. In practice, it has been asserted, they do none of this (VietNamNet 2009).

4.4. Institutional issues

Land use rights

We have repeated several times the assertion that institutional reforms, and especially reform of land markets, contributed substantively to agricultural growth in the early doi moi era. Property rights are notoriously difficult to measure and quantify, so it is often difficult to identify a formal test of this assertion. In the case of Vietnam, however, a recent book by Ravallion and van de Walle (2008) breaks new analytical ground in exactly this area. They do so by taking as their starting point the changes in land use rights mandated by the 1988 Land Law, which decollectivized agriculture by assigning individual land use rights. They then model the efficiency and equity impacts of alternative counterfactual land distributions that might have ensued under alternative reform programs, including the move to a completely free land market. They find that efficiency improved substantially as a result of land reforms, and that while they led to an increase in landlessness, this was not a cause for concern as poverty - even among this group - dropped rapidly. They conclude, however, that in spite of the substantial gains from agricultural land and market reforms in the late 1980s, the efficiency gains by farmers would have been even greater had the land law been more ambitious, to the point of granting full ownership and transferability rights. Quantifying the impacts of land reforms in this way is a demanding exercise and we are lucky to have the Ravallion and van de Walle analysis to draw upon. Rather than attempt to replicate their work, we rely instead on a careful documentation of national trends and regional variants in land law reform and land use conditions (including, for example, the effects of land fragmentation, an especially severe problem in the Red River Delta). The reasoning pursues the same path, in that we identify trends in land law reform that seem to move this vital factor market closer to a set of rules consistent with efficient decision-making by farmers. The major issues to be considered are rules on land use period (currently 20 years for most farmland), size limits on land holdings, land fragmentation, and restrictions on the transfer of land from farm to non-farm uses. All these measures impact upon agricultural output, productivity and employment through their influence on incentives for agricultural investment.

One of the biggest reforms affecting land has been the provision of tradable land use rights to holders of Land Use Certificates (LUCs). LUCs, which are supplied by local authorities, play a potentially important role for households. They provide formal evidence of legal land use rights, so in principle holders can feel more secure in making long-term investments that raise land productivity. They provide a basis for settlement of land conflicts. LUCs also serve as collateral on loans, thus permitting holders access not only to the real estate market but also (in many cases) that for credit as well. The mortgage value of LUC is set at 50-70% of land value, a price that is defined by the Provincial Peoples Committee (World Bank, 1998). Prior to the 2003 Land Law, State-administered land prices were stable for 10 years (from 1994 to 2004). Now, however, they are set relative to market prices, so land mortgage values have increased.

LUCs also help farmers to implement land use rights, and this has been instrumental in the development of a land market. The agricultural land market now operates more actively, and this creates opportunities for efficiency-increasing land reallocations. In practice, most land transactions are concentrated in peri-urban areas where alternative land uses are of high value, and where farmers good opportunities to change jobs. Leasing is more common in the North, whereas sales are more common in the South (Marsh et al. 2007, page 36). The Bank for Agriculture and Rural Development provides loans to borrowers backed by LUCs, though the amount of a loan is limited to VND10 million (about USD 560) for a household and VND20 million for a farm.

Land titling has proceeded unevenly. In some provinces LUCs cover 95% or more of agricultural land and more than 90% of households. However, coverage is not so complete nationwide; in the 2004 coverage was at 74% for agricultural parcels, and the World Bank has estimated that about two thirds of all land parcels are not covered by LUCs (World Bank 2009). Morover, lack of cadastral surveys, local capacity constraints, and a variety of administrative and regulatory barriers make the mortgaging or transfer of land a difficult and potentially costly process, with the result that the land rental market remains thin (Kompas et al. 2009; VASS 2009). The 2008 VASS Participatory Poverty Assessment found that "farms without LUCs are not able to obtain even short-term loans, much less transfer land use entitlements. This is also often true for farms with land tenures that are close to expiry, as most currently are, given the 20-year leases initiated in 1993" (Kompas et al. 2009).

The current land tenure system has also resulted, over the long term, in land fragmentation, especially in the densely populated Red River Delta (March et al. 2007). Though fragmentation is seemingly on the decline, limits on land accumulation (raised in 2007 to 6 hectares in the Mekong Delta and SE Region, 4 hectares in most other locations) and administrative barriers to consolidation have kept farm sizes very small, with negative consequences for the efficiency of farming (Kompas et al. 2009).

Rural credit

Capital is required to finance the expansion of any industry. In the earliest years of development, state-controlled banks (implicitly, operating at a loss) may be the only feasible means to move large quantities of capital into the countryside. However, this is a transitional measure. Interest rate caps and other restrictions on lending by public sector institutions typically lead to credit rationing and market segmentation. This often eliminates the least qualified borrowers, and those without collateral (in Vietnam, the "red book" of control over land). Moreover, the public sector banking system is only as robust as the macroeconomy, as the Philippine experience of the 1980s revealed. The era when the state banking system is best qualified to mediate savings mobilization and the allocation of credit should (if all goes well) be short-lived. It should lay the foundation for entry by private banks, rotating and revolving credit associations, and other institutions that are adapted to the peculiarities of lend and mobilizing savings in rural and agricultural areas. Policy reforms in all of Vietnam's regional neighbours since the 1980s bear this out (see section 2).

In Vietnam, however, the market share of state-owned banks and lending programs has expanded in the past decade. In 1997-98, formal banks accounted for 49% of rural lending, and government banks and programs made up 96% of the formal sector loans (VLSS data cited in McCarty 2001). By 2006, the formal sector accounted for 75% of rural loans, with government banks and programs accounting for at least 85% of the total¹⁹. This is, then, a mixed picture: the expansion of formal credit is a good thing for rural development, but the continuing near-absence of private, cooperative, or hybrid credit mechanisms is a cause for increasing concern. Are public sector banks and programs crowding out potential competitors?

4.5. Outcomes and emerging issues

It seems probable that future productivity rises in Vietnamese agriculture will come mainly from three sources: increases in underlying productivity, including the products of agricultural research and human capital investments; reorganization of the agricultural economy to improve efficiency and to capture economies of scale (e.g. through collective action by farmers' associations in input and output markets); and measures to reduce transport and transactions costs so as to return a greater share of the value of final sales back to producers (these include investments in roads, ports and market information as well as the streamlining of trade policy for major exports such as rice, seafood and coffee). In this "transitional" economy, each of these areas of innovation is a currently major target of government intervention. Ultimately, therefore, the internal dynamism of agriculture will depend on the quality of policy decisions.

It is our conclusion from the above review, and from the comparison of trends in Vietnam relative to its regional neighbours, that many impediments to a profitable and dynamic agricultural sector (and thus a healthier rural economy) can resolved by lifting restrictions on economic activity, even before undertaking major new investments. This was true of the first round of doi moi reforms, giving rise to the agricultural growth boom of the early 1990s. As the sector has grown and diversified, it has encountered new constraints: some are due to infrastructural or technological deficiencies, but many others are the creations of development policy, and can be addressed through policy reforms.

Rural development

Vietnam's agricultural growth has very clearly contributed to gains in terms of rural development and the wellbeing of rural populations. Liberating agriculture from the collective system was perhaps the single most important policy reform leading directly to economic growth and poverty alleviation in the doi moi era. This has been abundantly documented (e.g. Minot and Goletti 2000; Glewwe et al. 2004). Higher agricultural incomes also had indirect effects that raised rural welfare. For example, it has been found that higher producer prices for rice result in lower labour force participation rates by children, especially girls, who then stay in school longer (Edmonds and Pavcnik,

¹⁹Authors' calculations from VHLSS 2006.

2005). It is, however, very difficult to link specific policy measures to rural development outcomes, since many variables are changing simultaneously. In section 4 of this paper we use a simulation model to focus in on these issues.

Specialization and competitiveness

The growth of global agricultural trade and the expansion and diversification of Vietnam's own domestic food markets are beginning to have an impact on production and the organization of Vietnamese agriculture. This is the start of a trend that has made considerable progress elsewhere in the developing world. From the demand side there is the rise of global value chains (i.e., international sourcing by multinational retailers). Domestically, urbanization is accompanied by rising demand for marketed and processed/packaged foods and for wholesale supplies of specialty foods to supermarkets and restaurants. From the supply side, farmers perceiving opportunities convert land, especially in peri-urban areas, to horticulture and the production of other specialized crops to supply these new markets. This shift from agriculture as commodity to supplier of specialized high-value products raises incomes for those supplying the additional value-added. Typically, it also requires far greater inputs of capital and skills, and in some countries these have limited expansion of the new forms of agricultural organization. Finally, the entire system is held together by contracts, through which purchasers ensure a steady supply of dependable quality, and growers are assured of sales of specialized products at a reasonable price. In other countries, the lack of institutional mechanisms for contracting and enforcement has also slowed the pace of change.

In Vietnam, there are as yet few studies that quantify these trends. Cadilhon et al. (2006) found very low levels of market share occupied by so-called "modern" marketing systems in the supply of fresh produce to Ho Chi Minh City, despite greater efficiency, and speculated that this may in part be due to a lack of demand for quality, which is a defining characteristic of new, contract-based systems. There is no doubt, however, that the modernization and formalization of marketing systems will accompany Vietnam's growth and urbanization. The evidence on whether this trend benefits mainly medium-large farms or smaller farms remains inconclusive (Reardon et al. 2009), though it is clear from studies in China and elsewhere in the developing world that much depends on the conditions that prevail in credit markets, and on other constraints that are subject to policy influence. The same is likely to be true in Vietnam.

5. AGRICULTURAL GROWTH, JOBS, POVERTY AND INCOME DISTRIBUTION: SIMULATION EXPERIMENTS

5.1. Approach

We noted in section 2 the difficulty of evaluating cause and effect in assessing the links between agricultural growth and economic growth. For policy purposes, it is important to have some idea of these links, in order to be able to use public funds and policy interventions to best (and least-cost) effect. Because agricultural markets and employment are large in relation to the total economy, it is important to take an approach that recognizes general equilibrium, or economy-wide interrelationships. To do this with rigor requires a framework capable of capturing the macroeconomic consequences of growth or policy "shocks", and tracing these in a consistent manner through markets and other economic channels down to sector, regional and household level.

An appropriate approach to this task is to use an applied general equilibrium (AGE) model. Such models represent the entire economy in simplified numerical form. They combine baseline information from the national accounts and other sources about the decisions and activities of firms, households, enterprises and government with theory-based specifications about market operation, labour, capital and resource supplies, trade balances and other constraints, and the assumed behavior of foreign agents who are the partners in trade and investment. They thus provide a consistent interface between macroeconomic and microeconomic phenomena.

We use an AGE model of the Vietnamese economy to observe the effects of growth or policy shocks on the prices faced by producers and consumers, and through their reactions to these, to trace effects on the markets for labour, land and capital, consumer choices, and other consequences. Because households have different patterns of asset ownership, income, and expenditure we can measure effects on income distribution and poverty. The model is based on ongoing collaborative research between U.S. and Vietnamese partners and is described more fully in Coxhead et al. 2008.

The modeling platform that we use is based on a "standard" CGE template that has been widely applied in developing countries (Lofgren et al. 2002). The template provides for factor supply, production, domestic and international trade, and consumption, savings and investment by a variety of domestic agents and institutions. Here, to save space we merely summarize the features most relevant to the work addressed in this paper.

Labour and labour markets. The model identifies three aggregate primary factors: land, labour, and capital. Labour is a composite of twelve different types, distinguished by gender (M/F), location (urban/rural), and skill (low/medium/high). These categories are based on data in the 2003 Vietnam Social Accounting Matrix (SAM). Labour demands are derived in the usual way from profit-maximizing choices made by a representative firm in each industry. The model posits a nested factor demand structure, with composite factor demand decisions at the top level and demands for each type of labour determined at the next level.

In order to conduct experiments we must make assumptions about labour supply, pricing, and mobility across locations. Because there is little empirical research to guide us, we explore several alternatives, or closures.

Closure 1 assumes that labour of each type is fixed in total supply, so that an increase in demand for that type of labour from one or more industries (job creation) must be matched by an equal reduction (job destruction) in one or more others. In this closure we also assume that rural labour cannot move to urban areas, and vice versa. Closure 1 is based on very restrictive assumptions and exists only as a reference point.

Closure 2 retains the assumption of fixed total quantities of each type of labour, but permits migration between rural and urban regions. If an urban-based industry (e.g., garments) seeks to expand, it can draw on workers of a given type (e.g., female, medium-skill) from either urban or rural areas. In this closure, migration in response to growth of labour demand in specific industries provides a channel to redistribute the gains of growth from one part of the economy to others. Because we assume a fixed total supply of labour, changes in labour demand also alter wages.

Closure 3 alters closure 2 by assuming that the supply of unskilled labour is elastic at a given (constant) wage. In this closure, job creation in one location and industry can draw in workers from other sectors but also from a pool of unemployed workers. We think of this as reducing underemployment, which is quite high in Vietnam (see section 3 of this report). In this closure we continue to assume a fixed supply of medium and high skill workers, since unlike unskilled workers they are in short supply in Vietnam. In each closure we assume that some capital in each industry is fixed (immobile) there, while other capital is mobile, that is can be reallocated across sectors. We also assume that trade plus international capital flows add to zero (balance of payments equilibrium) with no change in the government's budget deficit.

The model contains 16 household types, distinguished by location (urban/rural), sex of household head (M/F), and primary income source (farm, own-account, non-farm, unemployed). Households earn income from their ownership of labour, land and capital, and from transfers, and spend it on a range of goods, both those produced domestically and also those imported from abroad.

For purposes of welfare analysis, we augment this model by linking it to the corresponding VHLSS data, which contains information on the incomes and expenditures of some 4,000 households nationwide. This link, from the 'macro' model to 'micro' data, makes it possible simultaneously to conduct two types of experiment. One type is macrosimulations, or experiments in which we examine the effects of a growth or policy shock on macroeconomic aggregates such as GDP, CPI, wages, employment and industry outputs. The other type is microsimulations, in which we trace the effects of the same shock(s) to the incomes and expenditures of individual households, or to regional and other aggregates. This enables us to draw conclusions about the effects of the shock on income distribution and poverty, both nationally and for subsets of the population, such as urban and rural households.

5.2. Policy experiment: technical progress in agriculture

We will focus on just one application, the likely effects of an increase in agricultural productivity. This could arise from multiple causes, as seen in the discussion of figure 1: improvements in technology could be due to increased R&D investments, or to improvements in sectoral incentives, or indirectly to the effects of better conditions in global markets, among others. Whatever its source, the change is of interest because it helps us answer questions about the contribution of agricultural growth to the economy as a whole and to economic welfare. We suppose, specifically, that the shock takes the form of a 10% increase in overall productivity in the rice and 'other annual crops' (vegetables, maize) sectors. This is equivalent to a little more than double the typical annual rate of productivity growth, as seen in section 3.

This experiment is obviously a very strong simplification of a real-world policy shock. Most importantly, we do not account for the cost of producing the productivity gain. We don't know whether these costs should be positive or negative: if the gain is due to R&D then there clearly are positive costs (and out results overstate the true welfare gains), but if the gain is due to policy reforms that reduce institutional barriers to the efficient organization of agricultural production, they could be negative (and our results understate the true gains). We focus, however, on other important indicators: job creation or destruction by labour type and sector; wage and income growth by labour type; household income distribution changes, and changes in poverty. These, it seems to us, are (or should be) the fundamental concerns of the Vietnamese government when formulating development policy.

5.3. Results

The experiment imposes an above-trend growth rate of agricultural productivity, while the rest of the economy continues to grow at trend. Thus our results show changes that are predicted to take place over and above the effects of 'business as usual' growth. Our main goal is to highlight the effects of the shock on poverty, and to do so under differing labour mobility conditions. Table 11 summarizes the main macroeconomic results of the experiment. Table 12 shows the main effects on wages and employment by labour type and table 13 shows impacts on poverty and income distribution by household type²⁰.

²⁰A more complete set of results, including breakdowns of poverty and distributional gains by household type, gender of household head, and region are available from the authors on request.

	Labour market assumpti	ons					
Shock: 10% technical progress in rice and other annual crops sectors	No migration, fixed total supply of each labour type	Migration, fixed total supply of each labour type	Migration, flexible supply of unskilled, fixed supplies of skilled labour				
Change in real GDP (%)	0.563	0.535	0.987				
Change in CPI (%)	-0.085	-0.032	-0.137				
Employment change by aggregate sector (%)							
Agriculture	0.168	0.255	1.175				
Manufacturing	0.118	0.094	0.840				
Services	-0.232	-0.611	0.032				
Output change by aggregate sector (%)							
Agriculture	1.585	1.650	2.190				
Manufacturing	0.227	0.255	0.658				
Services	-0.145	-0.379	0.043				

 Table 11: Macroeconomic effects of technical progress in agriculture (% change)

The first row in table 11 shows that technical progress in agriculture raises GDP growth, as expected. When workers are immobile between rural and urban labour markets (the first closure), the 10% improvement in agricultural productivity raises total GDP by about 0.5% faster than its trend growth rate. When labour is mobile and the supply of unskilled workers is elastic (the third closure), the growth of GDP is almost double, at 0.99%. Turning to sectors, the shock raises farm sector output faster than others. In the first two closures, with limited labour mobility and/or supply, some jobs are destroyed (in services) in order to accommodate increased labour demand in agriculture. When the supply of unskilled labour is elastic, however, there is no such price to be paid. These results underline the important role of labour mobility; when labour cannot easily move, the gains from growth in any one sector are limited. When labour is mobile, overall gains increase. And when unskilled labour is in abundant supply, many new jobs can be created. The predicted growth rate of employment in the third closure, 1.175%, matches almost exactly the average annual growth rate of Vietnam's agricultural labour force since the year 2000.

50

Table 12: Wage and employment effects of technical progress in agriculture (%change)

Labour market assumptions			
Shock: 10% technical progress in rice and other annual crops sectors	No migration, fixed total supply of each labour type	Migration, fixed total supply of each labour type	Migration,flexible supply of unskilled, fixed supplies of skilled labour
Change in real wage (%)			
Rural male unskilled	2.139	1.704	-0.137
Rural male medium-skilled	2.139	0.947	3.374
Rural male high-skilled	2.159	-0.268	1.897
Rural female unskilled	2.139	1.699	-0.137
Rural male medium-skilled	2.139	0.947	3.374
Rural male high-skilled	2.159	-0.268	1.897
Rural female unskilled	2.139	1.699	-0.137
Rural female medium-skilled	2.138	0.748	3.131
Rural female high-skilled	2.158	-0.117	2.080
Urban male unskilled	-0.172	1.704	-0.137
Urban male medium-skilled	-0.172	0.947	3.374
Urban male high-skilled	-0.172	-0.268	1.897
Urban female unskilled	-0.172	1.699	-0.137
Urban female medium-skilled	-0.172	0.748	3.131
Urban female high-skilled	-0.171	-0.117	2.080
Change in non-labour factor returns (%)			
Land	0.372	0.495	1.268
Mobile capital	0.052	0.046	0.748
Fixed capital (average)	0.418	0.543	1.318
Change in unskilled labour	0*	0*	1.097

Fixed at zero by assumption.

Table 12 shows the effects of the shock on factor returns. When labour is immobile (closure 1), all the gains accrue to rural workers. Labour mobility changes this distribution of gains. When rural-urban migration is possible (closure 2), new workers can be hired from from either rural or urban areas (we have assumed no migration costs). Now, wage growth is at identical rates for rural and urban workers of each type. Because agriculture is a large employer of unskilled labour, the biggest wage gains are won by that group of workers. But when the supply of unskilled workers is abundant (closure 3), their nominal wages change only by the rate of CPI change, preserving a constant real wage. Medium and high skills workers, in short supply, earn much higher wage increases. For unskilled workers, the gains come instead in increased total employment. The last line of the table shows a predicted 1.097% increase in unskilled workers (or equivalently, hours worked by existing workers). With
an unskilled labour force of about 40m, this is equivalent to the creation of about 400,000 new jobs. The model predicts that if (by some means) the rate of agricultural productivity growth were to double, then the economy as a whole could generate about one-third of the additional jobs required to be created very year in Vietnam.

		Labour market assumptions			
Shock: 10% technical progress in rice and other annual crops sectors		No migration, fixed total supply of each lab. type	Migration, fixed total supply of each labour type	Migration, flex supply of unskilled, labour	
Per capita income(VND*106)	Baseline	Percentage change from baseline			
Country	499	0.86%	0.86%	1.31%	
Urban	805	0.25%	0.65%	1.60%	
Rural	393	1.29%	1.01%	1.10%	
Poverty rate (Headcount, %)					
Country	19.1%	-1.95%	-1.95%	-1.95%	
Urban	11.3%	0.00%	-2.00%	-3.05%	
Rural	21.8%	-3.05%	-2.29%	-2.29%	
Inequality (Gini coefficient)					
Country	0.404	-0.19%	-0.07%	0.39%	
Urban	0.378	0.04%	-0.13%	0.17%	

Table 13: Poverty and income distribution effects of technical progress in agriculture (% change)

Finally, distributional and poverty consequences of the shock are seen in table 13. Household income changes rise in line with overall GDP: the rise in national average income is higher when internal migration and flexible labour supplies allow for higher overall growth. National poverty declines by 1.95% from its base-that is, from the initial 19% to about 18.5%. When labour is less mobile, the Gini coefficient for the country as a whole declines, and the table shows this is due to a compression of the urban-rural income ratio (within-group changes in inequality are small). But when the supply of unskilled workers is elastic, inequality actually rises. As seen, the wages of medium and high-skill workers rise sharply in closure 3, and this raises within-group inequality in both urban and rural areas.

-0.01%

-0.08%

0.20%

5.4. Insights: where is the pro-poor growth?

0.355

Rural

The foregoing experiment helps us to understand and to quantify the aggregate effects of agricultural growth in Vietnam. The sector is labour-intensive and a large employer in particular of workers who lack formal job-market skills. When the sector grows, these workers and their households gain, which helps reduce poverty. Their gains are eroded when the shock leads to an increase in labour supply, however, which seems a likely response in an economy with substantial hidden unemployment, especially in rural areas.

The macroeconomic results underline the complementarity of economic growth with labour mobility and labour supply. This result is reinforced by other experiments (reported in SEDS-8), in which growth in urban industries yields much higher gains when labour can move freely.

Looking ahead to the next decade, it is feasible to ask whether rural-based growth of the type just explored, or urban-based growth in labour-intensive industries might hold greater promise for achieving growth and social welfare targets. In SEDS-8 (Coxhead et al. 2009), we used the model described above to predict the effects of an investment 'shock' that raised the capital stocks of labour-intensive, export-oriented manufacturing (mainly garments, textiles, electronics and furniture). The results are discussed in SEDS-8. Here, we summarize the key findings and compare the two experiments in terms of their potential for social welfare gains. The shocks are of different magnitudes, so in order to compare them we compute elasticities of rural income growth, poverty alleviation, and unskilled employment growth with respect to the predicted increase in real GDP. These are "total elasticities" in the sense that they include the effects of changes in income distribution that occur along with the growth (see Ravallion 2004).

These computations are shown in table 14, and reveal very interesting similarities and contrasts. Urban-based growth, when labour can move freely and the supply of unskilled workers is abundant, has only a moderate effect on employment (elasticity of 0.49, indicating that for every 1% increase in growth, employment of unskilled workers rises by 0.49%). But the effect on rural incomes is large at 1.61, and that on poverty, at 2.80, is impressive. By comparison, the growth elasticity of employment in the agricultural experiment is much bigger (1.11 against 0.49). But the elasticities of rural income growth and poverty are both smaller, at 1.14 and 1.97 respectively. Both experiments reveal a strong propensity for pro-poor growth, and each percentage rise in farm productivity generates more employment growth, as expected. But when labour can move between jobs and locations, the marginal income and poverty alleviation gains from urban growth are higher.

Variable	25% investment in manuf.	10% tech progress in ag.
Real GDP growth %	0.464	0.987
Rural income growth %	0.75	1.10
Poverty alleviation %	-1.30	-1.95
Unskilled employment* %	0.228	1.097
Elasticities with respect to real G	DP growth:	
Rural income	1.61	1.14
Poverty alleviation	-2.80	-1.97
Unskilled employment	0.49	1.11

Table 14: Comparison of growth shocks in agriculture and in labour-intensivemanufacturing

Using closure 3 in each experiment

These results must be treated with considerable caution. We have yet to conduct meaningful sensitivity analyses, and the experimental design ignores the costs of generating the initial growth shocks (the investments in capital or technological innovations). The experiments also don't capture endogenous responses by private investors, which could alter the predictions in many ways.

Nonetheless, the results are striking enough to fuel policy discussion on an important point. If rural income growth and poverty alleviation are the benchmarks of success in development policy during 2011-20, in which sectors and locations should the state invest? The answer depends a great deal on labour mobility, which is in turn a function of access to secure land titles (for obtaining credit), migration costs, and barriers (if any) to obtaining employment, housing and social services in the destination. In Thailand, the export-oriented industrialization boom of the late 1980s and early 1990s took place in the context of a very open market for unskilled labour. The result was massive urban-rural migration, with a corresponding backflow of remittance income, and these played a vital role in spreading the gains from Bangkok-centered growth broadly throughout the economy (Coxhead and Jiraporn 1999). In China, by contrast, the same phenomenon of export-oriented manufacturing growth concentrated in port cities and coastal provinces, without free labour movement, has contributed to rising inequality between coast and hinterland, spawning social problems, political unrest, and necessitating large budgetary outlays as a form of public sector compensation.

These phenomena must be contrasted with the results of agriculture-based growth. An investment of public funds in raising agricultural productivity is intrinsically desirable, but must also be compared with alternative used of the same funds against the desired criteria of job growth and poverty alleviation. Our experiments show that farm productivity growth creates relatively many jobs and spills over to the rural economy, but that non-farm growth has greater overall impact on rural incomes when labour is free to migrate. All policy proposals must be evaluated against the next best use of the funds, and this evaluation must take place not only under current policy settings in other markets (such as the labour market), but also against counterfactuals of simultaneous reforms (such as lower barriers to migration).

6. DEVELOPMENT POLICY ALTERNATIVE, 2011-2020

6.1. Identifying the most important questions

The most important question to be addressed is how to formulate strategies for sustaining Vietnam's agricultural development in the context of globalisation and rapid structural change. Vietnam is still very poor (with per capita income less than 10% of the world average), but is growing rapidly. As the country moves toward middle-income status, its agricultural sector should be assisted to evolve appropriately, adapting to changed circumstances caused by the growth of secondary and tertiary sectors, yet remaining dynamic and innovative as befits a major sectoral source of staple foods, employment, household income, and foreign exchange.

This is a complex and difficult task, and due to the pervasive presence of public goods (e.g. in infrastructure, R&D, and food security) and externalities (e.g. environmental damage from land conversion and aquaculture expansion), there are some clear rationales for governmental intervention. Thus, a second major question concerns the optimal nature and extent of state intervention. It is generally accepted today that the role of the state and its instrumentalities (such as public sector corporations) should be limited to cases where market failure is evident. The prevailing view is captured in this passage from a leading development economist:

The ability of governments to plan comprehensively and effectively is now viewed with much greater skepticism than in the years following the Second World War. Thus many would now place equal or greater emphasis on government failure relative to market failure in the balance of the argument than was previously the case... The skepticism is born of experience but one must be careful not to be too sweeping. We have learned much about what governments can do effectively as well as where they are likely to perform badly. Whereas it is possible that the may be damaging to efficiency and growth if they try to exert detailed and universal control of production decisions, governments can be effective with direct action to raise standards of education, health and life expectancy, and in improving infrastructure such as water supply, roads and power. There is much to be learned about how to organize such action but we already know enough to realize that really substantial achievements are possible and to be able to begin to indicate the kinds of policies which will work and those which will not (Stern 1989: 669).

In the case of Vietnam, the retreat of the state is a process that began more recently than in most other countries, and proceeded more slowly. This adds weight to the question of whether, on balance, the actions of the state are helping agricultural and rural development, or hindering it.

For Vietnam, an especially important set of questions concerns the design of policies in support of agricultural modernization and rural development (the so-called Tam Nong strategy). Some degree of public sector intervention in support of agricultural development is clearly justified in Vietnam, especially when the broader rural development and poverty alleviation benefits of the sector's growth are taken into account, but the cost-benefit principle demands that the extent and the nature of those interventions be subjected to careful scrutiny. In particular, the opportunity cost of public sector funds devoted to market interventions or investments in agricultural development is a question requiring detailed examination.

The process by which public policies and programs for agricultural development are designed and implemented is itself an important subject for appraisal. The annex to the Tam Nong resolution on agriculture and rural development lists almost 20 distinct government agencies with roles to play. This raises additional questions of budgeting and inter-agency coordination. Issues of this kind have been important constraints to effective agricultural and rural development policy elsewhere in Asia, for example in Thailand (Siamwalla 2001).

Private sector actors are also vigorous and innovative in Vietnamese agriculture, and would undoubtedle play a more prominent role on a more level playing field-that is, one in which subsidies and other privileges to state-owned enterprises were smaller. The response of mainly small independent farmers to the introduction of market-based incentives in the early years of doi moi was largely responsible for the surge in agricultural growth at that time. There is potential – and indeed, need – for continued efficiency gains. Thus a third important question is how to promote agricultural growth in ways that build on, and enhance, incentives for investment and innovation by small-scale farmers and rural industries.

The growth of agricultural and rural incomes also depends critically on Vietnam's international competitiveness. The major agricultural sectors contribute a great deal to total merchandise export revenues. But in a fast-changing global marketplace, comparative advantage is neither fixed nor guaranteed. A fourth guestion for the next decade is how to maintain and expand the flow of export receipts generated in agricultural and resource sectors. Export competitiveness depends on agricultural productivity of course, but also, importantly, on policies. These can affect agriculture directly (e.g. taxes and subsidies) but also indirectly, for example through the exchange rate and the costs of agricultural inputs, including capital and labour. Moreover, the increasing volatility of global commodity prices and markets demands that the agricultural sector adopts new strategies to adapt to unpredictable external economic conditions. Vietnam's 2007-08 experience with attempts to manage rice exports in the face of global market instability left very many farmers and private sector traders dissatisfied, and should have been a powerful stimulus to search for better solutions. Finally, the continuing health of agriculture and the rural economy depends critically on the services of natural resources upon which it draws: land, water, and ecosystem services. In Vietnam these are increasingly threatened by depletion and degradation associated with agricultural production, by the spread of industrial estates, housing development and recreational facilities, and by the effects of climate change, especially rising sea levels and salination (ABD 2009). Moreover, Vietnam continues to lose indigenous forest area to other uses, primarily agriculture. Therefore, a fifth major question is how to protect and conserve the integrity and productivity of the natural resource base upon which Vietnam's primary industries depend.

6.2. Specific issues for agriculture and rural development

Discussions of the issues confronting Vietnam's agricultural and rural development identify many constraints at work and many opportunities to be exploited (e.g. Dang Kim Son 2009; Athukorala et al. 2007; Vu Hoang Linh 2009; Kompas et al. 2009). By reference to Figure 1 and the decomposition of agricultural productivity shown in section 2.4, we can categorize the main issues into three functional areas: those affecting efficiency and productivity growth in agriculture and reflected in the land productivity ratio YA/NA; those affecting market access and sectoral incentives for agriculture and affecting the farm gate price PA; and those affecting the broader allocation of productive resources, including their movement into or out of agriculture, as captured by the land-to-labour ratio NA/LA.

Efficiency and productivity issues

This set of issues is concerned with the productivity and internal dynamism of Vietnamese agriculture. Yields in the sector rose rapidly during the early doi moi era. But there is substantial scope for further gains. Some of these will be won through technical innovations; some through provision of complementary infrastructure such as irrigation; some through better information flows via extension services, and some through the acquisition of skills by farmers. But researchers are in wide agreement that efficiency gains to be won by continuing to liberalize land use and permitting the emergence of a more competitive and decentralized land market are very large – perhaps dominating all others.

A more open market for land will not only encourage agricultural investments, it will also permit farmers to seek the highest-value use for their land. The steady widening of the productivity gap in paddy rice production between the Mekong Delta region and the rest of the country (Figure 12) suggests that in many regions, diversification away from paddy rice production might be a logical response to diminished restrictions on land use and freer land markets.

Market access and sectoral incentives

Market access issues are those affecting both access to inputs at competitive prices, and also the retention of profits by farmers. Currently, state-owned enterprises dominate both input supply and the post-harvest processing and marketing of much agricultural produce, and these enterprises are known to be highly inefficient (Dang Kim Son 2009; Athukorala et al. 2009). The result is that farmers pay too much for inputs, and an unnecessarily large share of the output price is absorbed by inefficient intermediaries. Consequently, farm incomes are lower, and linkage effects on the welfare of the rural population smaller, than they could otherwise be.

Addressing these problems will require, in part, continued vigorous growth of private sector and cooperative organizations in which incentives for efficient behavior dominate economic decision-making. State endorsement of hybrid and private sector institutions, and active support for the transition away from SOEs, will be a necessary part of the solution.

Further along the marketing chain, freight charges, port fees, customs and loading fees, and other transactions costs must also be lowered wherever possible. Infrastructural improvements are central to this; farm to market roads, ports, and communications infrastructure are all in need of upgrading. Vietnam's performance in international freight handling is not the worst in the region (e.g. Figure 12), but by comparison with its neighbors (and competitors in some agricultural export markets) such as Thailand and Indonesia, it shows clear room for improvement.

Finally, maximizing returns to farmers requires capturing the greatest possible share of the international price received for farm exports. Because Vietnam is an exporter of its largest agricultural products (rice, coffee, rubber, and seafood), the opening of the economy to international trade caused the domestic producer prices of those products to rise. This can be seen for the examples of rice price ratios in Figure 14, and seafood exports in Figure 15, which shows how the ratio of domestic prices to those in export markets rose as trade opened up, from about 0.5 almost to parity. Price transmission, or the passing along of such gains from participation in international trade, is another key element of ensuring rising agricultural profitability. Raising the efficiency and competitiveness of intermediaries in agricultural trade is one requirement for this. A competitive exchange rate and neutral trade policies are also essential to profitable and dynamic agricultural trade. Vietnam made great strides in this direction in the lead-up to WTO accession in 2007, but subsectoral distortions still remain and act as impediments to exploitation of comparative advantage in the global marketplace (Athukorala et al. 2009).

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Figure 14: Export price ratio (USD FOB): Vietnam/Thailand

Figure 15: Shrimp Unit Values: Vietnamese Exports Relative to Importer Aggregate



Sectoral resource allocation

The third category of issues concerns agriculture and the rural economy in broader context, and is captured in our decomposition expression by the land-labour ratio NA/ LA. Vietnam's land-labour ratio is one of the lowest in the world (Figure 10), and this is a key factor responsible for depressing farm incomes and constraining their growth. There are many reasons for this persistently low ratio. Farm land fragmentation (especially in northern Vietnam), land size limits, and imperfect land markets preventing consolidation and expansion are all constraints operating on land. Labour, too, is in many instances prevented from departing the industry for more productive employment elsewhere. This is due to credit constraints and migration costs (Phan and Coxhead 2009), risk aversion, and adverse labour market conditions in potential outmigration destinations.

A sound long-term development strategy for the country as a whole must include facilitating mobility in labour markets. Skills training may be an important part of this, but the concentration of most tradable industries in large urban centers like Ho Chi Minh City and Hanoi also requires that in order to change jobs, workers must also be ready to relocate. The economic logic of industry concentration in ports and large cities is undeniable, and to induce industry to relocate to rural areas is likely to be very costly and quite possibly ineffective-as China's experience with development of inland provinces has shown. Therefore, policies to reduce pressure of population and labour force on limited agricultural land resources in Vietnam must eventually come to terms with the need for continued, and possibly rapid, transfer of population to urban areas. Alternative strategies are likely to fail any reasonable cost-benefit test on the efficient use of public funds.

6.3. Agricultural and rural development to 2020: Strategic choices

In October 2008, the Vietnamese government published Resolution No. 26/2008/NQ-CP on agriculture, farmers and rural areas (the "Tam Nong" resolution; Government of Vietnam, 2008). This document lays the groundwork for an ambitious set of policies and programs to encourage efficiency improvements, productivity growth and enhanced competitiveness in agriculture, a more productive and higher-skilled rural workforce, and other social and environmental goals consistent with a higher level of wellbeing in the rural population.

The Tam Nong resolution is now being developed as a large number of programs involving many different government agencies. The scope and ambition of this set of programs is enormous, and the budgetary implications seem also top be staggeringly large. In an era of persistent and large government budget deficits and declining donor commitments, it will be important to scrutinize this set of proposals carefully to ensure that scarce resources are used in the most efficient manner possible.

The Tam Nong resolution identifies many objectives, ranging from agricultural modernization to enhancement of the spiritual life of rural communities and the health of the environment. Obviously, some of these are impossible to define clearly, let

alone to quantify. For the purposes mapping out a ten-year development strategy we take a very broad view of these goals. We interpret the revealed preference of development policy as striving for poverty alleviation, acceptable levels of inequality, and economic and environmental sustainability. These goals subsume many others, such as improving the efficiency and productivity of agriculture and increasing the skills of the rural labour force²¹.

Our review of the past two decades of Asian regional development and of development in Vietnam itself has yielded some fairly robust indicators of likely success achieving these goals. One path is clearly to increase rural incomes, primarily by raising the profitability of agriculture. Higher agricultural incomes mean higher rural incomes and lower poverty – as was so clearly demonstrated during the first round of liberalization in the 1990s. We have seen, however, from international comparisons and from examination of the Vietnamese case itself, that there is more than one way to achieve and sustain rural income growth.

Our review of regional experience, and the empirical literature on productivity growth in Vietnamese agriculture, points very strongly toward the desirability of policy reforms that continue the process of lifting economic and institutional barriers to agricultural incentives and leveling the sectoral playing field. If we assume that the literature showing rural income multipliers from agricultural growth of 1.5 - 2.0 is accurate for Vietnam, then these are likely to be the "low-hanging fruit" (that is, the least-cost policy options) in agricultural and rural development. Skills acquisition and vocational training will help, but only if those services are designed with a clear view to their demand, something which appears not to be clearly articulated in current plans (See SEDS-8, Coxhead et al. 2009)

Within the sector, one set of reforms that demands attention is reducing policy biases that favor activities where the state is directly or very heavily engaged in production agriculture: rubber, and especially sugar. Too much capital and land is devoted to these activities, resources which would generate more income and foreign exchange if reallocated to other farm subsectors. A second set of reforms that is urgently needed is to reduce the role of SOEs in input markets and postharvest storage, processing and trade. There is no evidence that SOEs can perform these functions better or more cheaply than private actors – indeed, the evidence from Vietnam, Indonesia, the Philippines and elsewhere points firmly in the opposite direction. SOEs with privileged access to capital and licenses, and with the political power to slow the pace of liberalization in industries that they dominate, impose barriers to growth and are fertile breeding grounds for corruption and mismanagement.

Another policy channel is to increase public investment in agriculture and rural areas. Clearly, there is great merit in public provision of basic infrastructure-roads, electrification, water supply, sanitation, and so on. There are also strong grounds for

²¹This encapsulation of the goals of Tam Nong is, in our view, consistent with elaborations of the strategy by Dang Kim Son (2009) and with statements by other senior Ministry of Agriculture and Rural development officials (e.g. Deputy Minister Ho Xuan Hung, 2008).

increased (and better focused) public spending on adaptive R&D for the farm sector. But beyond these basic areas, the case for state activism becomes much weaker. China is a regional example of a country that has devoted huge fiscal resources to offset rising rural-urban inequality, and the Chinese Communist Party's 2007 resolution on agriculture, farmers and rural development proposes increased expenditures in such areas. But when evaluating this option, two points must be carefully considered. First, the apparent demand for public investment is itself determined, in part, by the presence of other distortions in agricultural and economic policy that reduce incentives for private sector investment. Second, government budgets are constrained, so every commitment of public funds to one activity means denying them to another. Before any decision is taken to increase public spending on agricultural or rural development, careful consideration should be given to its opportunity cost, in terms of jobs, incomes, poverty alleviation and other important social targets²².

This reminds us that there is a second path to faster rural development that runs not through agriculture at all – at least not directly. The experience of labour-intensive industrialization in other countries-notably although by no means exclusively Thailand-shows that when workers can freely migrate to take advantage of new opportunities, non-farm employment growth and rising output per worker in non-farm sectors has a very strong impact on rural labour productivity and incomes. Nonfarm growth helps resolve the problem of too many workers 'trapped' in agriculture and rural areas, with low-productivity, low-wage occupations, for want of a better alternative. Thailand's record of rural poverty reduction even without active government policy support for the sector, indicates a clear path that Vietnam should evaluate for policy guidance.

Finally, our experiments with a general equilibrium model of the Vietnamese economy underscored the equivalences and contrasts between rural-based and urban-based approaches. If the urban-based approach consists of growth in labour-intensive industries, then both strategies are strongly pro-poor. Agricultural growth generates more job growth. But urban growth leads to faster increases in rural incomes, and more decisive reductions in overall poverty. If a conclusion can be drawn, it should be that the task of creating jobs, alleviating poverty and raising incomes in Vietnam is too big to be left to agricultural development alone. The corollary, in an era of tight public sector budget constraints, is that difficult choices must be made in allocating funds for development, job creation and poverty alleviation.

We encourage a continuation of this discussion based on a dispassionate application of cost-benefit principles in the evaluation of policy alternatives, and taking account of likely reactions by, and partnerships with, non-state actors such as private investors and employers. Are there policy areas where Tam Nong asserts too great a role for the state, potentially reducing the opportunities for market-led, incentive-driven improvements in the agricultural economy of Vietnam? Are there areas where it stops short-or, because

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²²In preparing this report, we consulted several leading experts on the Chinese rural economy and agricultural policy concerning the Chinese Communist Party's 2007 resolution on agricultural development. The uniform response was that the valuable parts of this resolution were those addressing basic infrastructure, rural social services like health care, and the environment, while more activist proposals to alter sectoral incentives were unlikely to be implemented.

of limits of the mandate of individual ministries, where to achieve its goals will require coordinated (and possibly costly) actions on the part of other ministries? If agricultural development is the key to poverty alleviation and rural development, then the task of the strategy should be to identify and remove constraints to incentive-compatible private investment growth. It should identify opportunities to add value, retain profits in hands of investors rather than intermediaries, and promote flexible responses to changing circumstances.

What are the easiest (i.e. lowest-cost) targets for this? Reducing transactions costs, impediments to adjustment of production plans, and blockages in information flows are all obvious mandates. In this area, reform or removal of SOEs from the markets for private goods seem to be the lowest-hanging fruit. All of these will improve sectoral incentives and raise the efficiency of agricultural production, leaving more income in the hands of rural households. Policies that impose restrictions on land use or labour mobility, or which use public resources to subsidize top-down (i.e., incentive-incompatible) visions of growth are also relatively easy targets. Institutional improvements of this kind will increase the sector's flexibility and responsiveness to new challenges and opportunities. Finally, fixing macroeconomic and trade policies that distort private incentives and discourage investment at subsectoral and sectoral levels will help promote growth and create jobs not only in agriculture, but in the Vietnamese economy as a whole.

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Date	Institution	Interviewees
8/24	Vietnam Economics Association	Dr. Nguyen Quang Thai, VEA; Dr. Nguyen Van Thanh, DSI
8/25	Centre for Analysis and Forecasting, Vietnam Academy of Social Sciences	Dr. Nguyen Thang, Director Ms. Nguyen Thi Thu Hang
8/25	Center for Economic Policy Research, Vietnam National University	Dr. Nguyen Duc Thanh, Director; Drs. Pham Tuyet Mai, Nguyen Thi Thu Hang, and Dinh Tuan Minh
8/26	IPSARD, Ministry of Agriculture and Rural Development	Dr. Dang Kim Son, Director
8/26	World Bank	Dr. Dang Hong Quang
8/27	Central Institute for Economic Management, Ministry of Planning and Investment	Dr. Chu Tien Quang
8/27	ILSSA, Ministry of Labour, Invalids and Social Affairs	Dr. Nguyen Ba Ngoc Mr. Luu Quang Tuan
8/28	International Labour Office	Dr. Rie Kjeldgaard, Director Ms. Phan Thi Thu Huong
8/31	Fulbright School	Dr. Vu Thanh Tu Anh Dr. Xuan Thanh
8/31	HCMC Inst. Devel. Stud.	Dr. Le Van Thanh
9/1	An Giang University	Dr. Vo Tong Xuan

Annex A.1. Inception mission interviews

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