

**An Obstacle Neglected by Theodore W. Schultz and
Albert O. Hirschman
– Overcoming Inefficient Land Use in Asia, Africa, Europe, and
South and North Americas**

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Abstract (500 words):

This paper challenges Nobel laureate Schultz's assertions: small farmers are rational; low income countries saddled with traditional agriculture have not the problem of many farmers leaving agriculture for nonfarm jobs; part-time farming is efficient; economies of scale do not exist in agriculture; and investment in human capital counts much more than institutional changes and is the key to agricultural growth. It reveals that inefficient land use by able-bodied part-time/absent small farmers has become a global obstacle with both public and private land ownership, traditional and modern agriculture, low and high income economies, food under-self-sufficiency and overproduction, and developing and developed countries, albeit land property rights have been defined and sale/lease allowed, causing severe uneven development (e.g., in the enlarged EU since May 2004), and other problems. Nobel nominee Hirschman overlooks that it has hampered the linkages.

It has been overcome by China under public land ownership, but not under private one in Europe, Asia, Africa, and Americas. Although a legislation to oblige landowners to cultivate land or lease it for farming is still implemented in Norway because of under-self-sufficiency, it ceased in the EU due to a fundamental dilemma: obliging landowners to do so would cause overproduction; otherwise, much land would be used inefficiently, then how to achieve economies of scale, reduce costs and compete with other countries? Without a solution, the EU turned to protect farmers by high subsidies and tariffs, making them less competitive, and harming other countries. Thus the EU correctly proposed in 2002 to decouple subsidies from production, which, however, could not bypass this dilemma. Once the USA, etc. have followed the EU, this dilemma would also be exposed for them.

This legislation has not been popularized to many other countries with under-self-sufficiency, because it obliges part-time/absent landowners to lease out all their land, so that they could not keep farming skills; and once lost off-farm jobs, would either have no access to the land rented out, or have to withdraw it, affecting the lessees.

The paper suggests a legislation to oblige farmers to either cultivate land or lease the inefficiently used part of it for farming, at under-self-sufficiency stage; and to grant the right to full-time farmers

to lease in the inefficiently used part of the land of other farmers, at overproduction stage [i.e., a farmer is not obliged to either cultivate land or lease it for farming *actively*; but if another farmer wants to lease in his inefficiently used part of land for farming, he is obliged to agree *passively*; subsidies (decoupled from production) and tariffs should be reduced to the WTO standards to prevent incentive for overproduction]. The landowners may keep a part of land for self-consumption, forming a Dual Land System, so that their rural habitation could be reserved, farming skills kept, and small farmers not squeezed from agriculture; while the land for market is leased to full-time farmers to achieve economies of scale and reduce costs. It has obtained appreciation by the EU, coming EU member states, OECD, and World Bank.

I. Introduction

Following Section I Introduction, Section II will challenge five assertions of Theodore W. Schultz: (1) small farmers are rational; (2) low income countries saddled with traditional agriculture have not the problem of many farmers leaving agriculture for nonfarm jobs; (3) part-time farming is efficient; (4) economies of scale do not exist in agriculture; and (5) investment in human capital counts much more than institutional changes and is the key to agricultural growth; and point out that the inefficient land use by able-bodied part-time and absent small farmers has become a global obstacle to sustainable rural development, with world-wide evidence. Section III will indicate that Albert O. Hirschman has overlooked that this obstacle has hampered the functioning of the linkages. Section IV will introduce that this obstacle has been overcome by China under public land ownership, but not under private land ownership world-wide; analyze a Western European legislation which has functioned at the food under-self-sufficiency stage, and the fundamental and derived dilemmas the EU faces at the overproduction stage; and present the author's solutions under private land ownership and their possible global relevance. Section V will provide conclusions. Section VI will acknowledge the various policy-makers in the EU, coming EU member states, OECD and World Bank for their appreciation and attention to the author's policy proposals and many people who have kindly given help to the author.

II. Schultz's Assertions versus the History and Reality¹

(I) Rationality of Small Farmers, Pursuit of Nonfarm Jobs, and Efficiency of Part-Time Farming

In *Transforming Traditional Agriculture* [1964] (reprinted in 1983 without changing views) which won the 1979 Nobel Economics Prize, Schultz makes the very important point that farmers in low income countries are *rational* and make *effective* use of their resources. They are poor because their resources are very limited and because the knowledge is not available that would permit them to *produce the same output with fewer resources or a larger output from the same resources.*' (Johnson 1983)

But here Schultz treats the low income countries as *closed* from the high wage stage or high income economy, as he clarifies ([1964] 1983: 3-4, 11, 15): 'Farming based wholly upon the kinds of factors of production that have been used by farmers for generations can be called traditional agriculture.' 'A major new problem has arisen in a number of high income countries in which the

¹ A first-time systematical and analytical criticism of most assertions of Schultz mentioned in this section has been made in the author's book (Zhou 2001: 11, 26-9, 76, 131, 152, 218, 244, 265, 288, 344, 373, 382, 384, 429), while this paper highlights and develops it. The book has cited 763 references most of which serve as evidence against his assertions on Japan (Ch 4 with nine features of the Japanese model), other rice-based economies under private land ownership in monsoon Asia (Ch 5: 184-88), China (Ch 6-7 with 13 features of the Chinese model), other rice-based economies under public land ownership in monsoon Asia (Ch 8), the USA (Ch 9-10 with eight features of the American model), OECD and EU in general (Ch11: 397-8), CEECs-NIS (Ch11: 399-430), whereas this paper summarizes these lengthy texts into paragraphs and adds proofs in West Asia, Africa and Latin America. Therefore this section is a supplement to that book in terms of the criticism of Schultz's assertions and evidence.

agricultural sector has been most successful in adopting and using modern factors of production. It is the problem of adapting agriculture with its high rate of increase in labor productivity to a high income economy in which the demand for farm products is of slow growth. It becomes an acute problem when the labor force required for farming begins to decline at a substantial rate and many of the farm people . . . leave agriculture . . . for nonfarm jobs' . 'But countries still saddled with traditional agriculture are not up against this particular problem.' Thus, the 'related economic issues' of 'the relatively low rate of increase in the demand for farm products as income rises' and 'the adaptation of the agricultural sector to growth in high income countries' are not considered' by him.

This paper, however, stresses that at least from the early 1950s on, the low income countries still saddled with traditional agriculture have been increasingly *open* to the high income economy, as small peasants there would migrate to those rural areas which have entered the high wage stage, cities and abroad to earn higher income as part-time and absent farmers, thus also are up against the particular problem of adapting the agricultural sector to a high income economy.²

For example, although prewar Japan in East Asia was developed, its industrialization from the very beginning on was based on its imports of foods from, and exports of industrial goods to, colonies (Taiwan Province of China during 1895-1945 and Korea during 1910-45), 'as it found that capitalistic rice-growing was a low-productivity undertaking' in its agricultural sector, which was really 'relatively stagnant and "sick" in the decades leading up to World War II' (WWII) (Oshima 1987: 39, 109). After WWII, of all farm households, its full-time households accounted for 50% in 1950, 34.8% in 1955, 33.7% in 1960, and 20.5% in 1965; and of total farm household population, persons engaged mainly in farming (both those engaged exclusively in farming and those engaged in farming for more days than in other jobs) took 53.2% in 1955, 42.3% in 1960, and 38.3% in 1965 (JSY 1977: 99, 103). Schultz ([1964] 1983: 18) also cites that in Northwest Europe (Austria, Belgium, Denmark, France, West Germany, Ireland, the Netherlands, Norway, Sweden, and the UK) employment in agriculture declined over one-fifth during 1950-59.

How then about the low income countries which are *open* to the high income economy? Schultz ([1964] 1983: 124) claims that 'in communities where nearby off-farm jobs are readily available on both a part-time basis and a full-time basis the contributions of a human agent become divisible and part-time farming becomes possible; and it can be efficient.'

But this paper emphasizes a reality as contrary to Schultz' s assertion. From natural, economic and technological point of view, when there were few off-farm activities, rural development was at the low income economy or low wage stage, and peasants had to rely on agriculture. As population grew, they had to reclaim uncultivated normal land, then marginal (ecologically sensitive or weak) land for food. As relatively easily reclaimable land diminished, shortage of land would appear, and land rent would rise as many tenants compete for land.

From institutional point of view, under the feudal system, a few landlords owned large areas of land, while most peasants owned none or little and had to be either tenants paying exorbitant rents or wage laborers. Under the centrally planned economy, land was publicly owned and collectively operated. Both systems could not bring about enough individual incentives of farmers for production. Hence the land tenure reform for equitable individual ownership or individual possession under public ownership of land, which usually distributed land to families with a combination of good, bad, remote and nearby parcels, resulting in fragmented small individual farms. The individual farms could raise incentives of individual farmers (private landowners, or individual holders of public land) for production, increase productivity and release surplus peasants from agriculture.³

² It would be more appropriate to call absent farmers as nominal farmers since an absentee cannot farm. They are called so just in order to reflect their psychology of not abandoning the title of farmers so as to facilitate their return to farming once having lost off-farm jobs. This point is not contained in the author's book (Zhou 2001).

³ *Small farms* may not be equivalent to *inefficiency*. (1) At the low income economy, the land tenure reform for equitable individual ownership or individual possession under public ownership of land may bring huge incentives for

However, in general, the elasticity in consumption of *cereals* is lower than that of *non-cereal agricultural goods* (cash crops, meat, fish, etc.) which in turn is lower than that of *industrial and service products* [keeping in mind that certain special agricultural products (vegetables, fruits, cheese, wine, ham, fish, and even a few cereals, etc.) may only be produced in some special localities and may have a relatively high elasticity]. After people become richer, on one hand, they first tend to consume less cereals and more non-cereal agricultural goods; but the increase of their consumption of the latter may be limited and such consumption may even relatively decline afterwards too (in order to avoid obesity). On the other, they still have to consume certain agricultural goods. Therefore the income of the full-time (or active) cereal farmers would become lower than that of non-cereal farmers, which would in turn be lower than that of off-farm workers. This would induce many able-bodied peasants to first turn to non-cereal production, and then seek off-farm employment, which would result in agricultural labor shortage and higher wage demand. As the economy enters the high income stage, and labor becomes more expensive than large machinery, it would be necessary for the remaining full-time farmers to acquire more land, use large machinery, achieve economies of scale, reduce costs, and be viable and competitive,⁴ if the part-time and absent farmers could either sell or lease their inefficiently used land⁵ to them.⁶

But a global problem has been that under both public and private land ownership, with both traditional and modern agriculture, in both low and high income economies, at both stages of food under-self-sufficiency and overproduction, and within both developing and developed countries, even though land property rights have been well defined and restrictions on land sale or lease have been removed, many able-bodied part-time and absent small farmers earning higher off-farm income still inefficiently use land, without much incentive to sell it, in order to keep security (so that they could return to farming once having lost off-farm jobs), and enjoy the rural environment (for a more natural, primitive, less polluted and vocational living). The modern rural facilities similar to those in cities (car, bus, train, electricity, gas, refrigerator, tap water, washing machine, television, telephone, fax, computer, Internet, etc.) have made living in the rural areas convenient. They do not have much incentive to lease it out either, due to low rent (the full-time farmers could

production to farmers even upon fragmented small farms (evidence is in the author's book Zhou 2001: 123-7 for Japan; 191-209 for China; 333-4 for the USA; 416-8 for Armenia, Georgia and Albania). (2) At the high income economy or the transition from the low to high income economy, there are also small farms whose owners or holders are fulltime or active farmers, love farming and till land efficiently. Of them, those who could get more land could achieve economies of scale and become competitive [evidence is in Zhou 2001: 135, 138 for Japan; 223-94 for China; 378-80 for the USA; 416-8 for Armenia and Georgia; 419 for Croatia; 422 for Slovenia (implicitly)]; while those who could not get more land would be difficult to even survive without huge government subsidies or changing to part-time and absent farmers (evidence is in Zhou 2001: 138-46 for Japan and Taiwan Province of China; 209-22 for China; 382-4 for the USA; 414 for Poland; 416-8 for Armenia and Georgia; 419 for Croatia; this paper will add evidence for Mexico).

⁴ *Family farming* may not be equal to *small farms'* farming. The author's book has collected evidence that most of the successful and efficient large-scale farming is based on family farming (Zhou 2001: 135, 138 for Japan; 248-77 for China; 321-7 for the USA; 416-8 for Armenia and Georgia; 419 for Croatia; 422 for Slovenia).

⁵ Inefficient land use denotes land under-utilization. Generally speaking, when a country has not achieved stable self-sufficiency in staple foods, any land insufficiently cultivated or idled may be regarded as inefficiently used. When a country has encountered constant overproduction, if a land insufficiently cultivated or idled is requested by another farmer for farming, but the landholder does not agree to lease it out, it may be perceived as inefficiently used; but if it is not needed by any other farmer, it may not. This dynamic definition is formulated by the author in this paper. A reference for the criterion of insufficiently used land is in the Italian 'Rules for the Utilization of the Uncultivated, Abandoned or Insufficiently Cultivated Lands' of 4 August 1978 (Art. 2): 'Those lands whose average ordinary production in the last three years have not reached 40% of those obtained under the same cultivation, in the same period, on the lands of the same census zone, with the same cadastral characteristics, the cultural features being taken into account, are regarded as insufficiently cultivated'.

⁶ Relatively easily reclaimable land largely disappeared in Asia before the 1950s (Ishikawa 1967: 61), and also in many other continents following the population explosion in the post-war period, which Schultz ([1964] 1983: 179) has also recognized - 'But good farm land is no longer around for the taking, except in a few parts of Latin America and in some areas elsewhere which are still inaccessible from lack of roads and other transport facilities'. Until then, part-time farmers would not affect full-time farmers very much since the latter could reclaim new land. But afterwards, the latter could not easily increase farm size if part-time and absent small farmers did not sell or lease out their inefficiently used land.

not pay high rent because the revenue from production of cereals and many other agricultural goods would not be high due to their low elasticity in consumption), avoidance of possible misuse by tenants (who may apply much chemical fertilizer in order to gain a short-term high output), jealousy in preventing neighbors from prospering, and self-use for family consumption and hobby. The higher off-farm income has made the part-time and absent farmers unnecessary to either sell or lease land. These are the major reasons why the free market mechanism itself could not effectively lead the able-bodied part-time and absent farmers to transfer their inefficiently used land to the full-time farmers. Actually, the higher the off-farm income, and the more stable the off-farm jobs the able-bodied part-time and absent farmers have obtained, the less incentive they would have in selling or leasing their land. The inefficient land use by able-bodied part-time and absent farmers tend to expand from seasonal to year-around.⁷

Part-time and absent small farmers may have both rational and irrational aspects. Their concern over their direct interests in land security could be perceived as rational. Thus if the part-time and absent farmers could be guaranteed with a back-up basic social welfare and provided with appropriate remuneration, then some of them (especially old ones who owing to physical restrictions normally carry out relatively less farm or off-farm activities and wish to earn some rent) would be willing to transfer their inefficiently held land in various suitable forms to the full-time farmers for effective use, yet others (particularly able-bodied ones) would still be unwilling to do so.⁸ As a result, the remaining full-time small farmers, largely non-viable as the economy develops into the high wage stage, could not easily get the resources inefficiently held by the able-bodied part-time and absent small farmers for effective use, although the knowledge and other conditions are available to both the full-time, and part-time and absent small farmers that would permit them to produce the same output with fewer resources or a larger output from the same resources. It is important to notice that even if such knowledge is available, the part-time and absent farmers may not have enough time to learn and apply it, especially the modern scientific knowledge, as Schultz admits ([1964] 1983: 203-4) that 'Farm people even more than many workers in nonfarm jobs must acquire skills and knowledge drawn from science if they are to be effective in using modern agricultural factors of production', and 'Much of what is learned that is vocationally relevant at the time will be wholly obsolete as agriculture in the community adopts and uses ever more modern agricultural factors.' They may not

⁷ The author's book (Zhou 2001: 7) shall be the first in literature to systematically reveal the inefficient land use by able-bodied part-time and absent small farmers as a global obstacle. The monsoon Asia part is based on his PhD thesis defended in February 1998 in European University Institute (EUI, Florence, Italy) which received the unanimous praise of an international jury of experts: 'We recommend the award of the PhD and congratulate the candidate on a comprehensive analysis of a highly complex and significant problem and for his carefully considered suggestion for its solution.' It was the second PhD thesis in economics receiving the jury's congratulations in the history of EUI. They regarded it as publishable as the Department of Economics of EUI stipulated that a thesis could be defended only after all the examiners have determined it as publishable. Indeed, even before the defense, two publishers (Edward Elgar Publishing and Ashgate Publishing) had already accepted its entirety. Edward Elgar (1997) declared that this book 'will make a significant contribution to an important but rather *neglected* area'. Of 167 theses defended in the Department of Economics of EUI since its foundation in 1976 until 2 February 2001, only 13 or 7.8% had been published as books, including this one. (Zhou 2001: xxi-xxii, 24). After the defense, the thesis was revised and extended to the USA and Europe. Before the publication, four components were published by FAO [see (www.fao.org)] and four by CABI, and various parts accepted by international conferences held by FAO, USDA, WIDER, etc., in Bulgaria, Finland, France, Greece, Hungary, Italy, Morocco, the Netherlands, Norway, Russia, Slovenia, Spain, the UK and USA respectively (e.g., the part on the USA was accepted by a USDA conference on small farms while that on CEECs-NIS by four international conferences on transition). The book has received endorsements [see (www.e-elgar.co.uk) (www.amazon.com)], and positive reviews in 'World Agricultural Economics and Rural Sociology Abstracts', October 2001, Vol. 43, No. 10, Abstract 6046; 'Rural Development Abstracts', December 2001, Vol. 24, Abstract 2480; 'Journal of Economic Literature', March 2002: 301-2; and 'Agricultural Economics', January 2003, Vol. 28, Issue 1: 71-4. The author has provided consultations to FAO, OECD, EU Commission and DEFRA, and acted as a referee for 'Agricultural Economics' at their invitations and been asked by 'Contemporary Authors' to be listed there.

⁸ Evidence that old part-time and absent small farmers are much more willing to lease land out than able-bodied ones is in the author's book (Zhou 2001: 134 for Japan; 377-8 for the USA; 416 for CEECs-NIS; 419 for Croatia; 424 for Poland).

have enough energy to take care of their idled land.⁹ National food security could only be kept at the subsistence level or could not even be maintained without huge government subsidies. Budget burden, unnecessary food under-self-sufficiency and import, higher domestic and international prices of agricultural goods, artificial food overproduction, insufficient cultivation or idleness of land, waste of other resources, soil degradation, environmental deterioration, etc. would also be incurred. Therefore at least some of the part-time and absent small farmers are *not so rational* to the society' s and their own fundamental interests, even if they may be rational enough to their egoist and superficial interests.

Similarly, *part-time farming may have both efficient and inefficient aspects*. That on some of the family land to cater self-consumption could be regarded as efficient. But that on the rest of the land which could have been transferred to the full -time farmers for more effective use while not affecting the self-consumption of the part-time farmers is *not so efficient*.¹⁰ [A detailed discussion on the inefficient land use by able-bodied part-time and absent small farmers in terms of the property rights and transaction costs theories including those by Coase, North, Demsetz, Furubotn and Pejovich, Laffont, Milgrom and Roberts, and Varian is in Zhou (2001: Ch 3)].

Japan provides a typical example. The Japanese model of rural development began by (feature 1) a land reform for individual ownership in 1946-50 with protection of tenants from eviction, low land rent, and land-holding ceiling in order to prevent the revival of feudal landlordism through land repurchasing. Although numerous fragmented small farms were maintained, it brought in huge incentives to peasants for production. Meanwhile national rural cooperatives were set up to provide overall services to family farms. Through (feature 2) government policies supporting rice production and rural development (chiefly rice self-sufficiency, rice price support, farm credit and subsidies, technological research and extension services); (feature 3) construction of rural infrastructure (mainly irrigation, land improvement, transportation, communication, electrification, and education); (feature 4) higher yielding and multiple cropping of rice and other cereals (which raised both land and labor productivity and released labor from cereal culture); (feature 5) diversified cropping and non-crop agriculture (which increased peasants' income, changed agricultural structures, and resulted in the establishment of rural enterprises for processing, transporting and marketing crop, livestock, fishery and forestry products); (feature 6) off-farm employment (which offered peasants jobs in both urban and rural enterprises, further raised peasants' income, altered rural structures, and promoted urbanization); and (feature 7) peasant migration to cities and work in town and village firms mainly by able-bodied males, full employment was realized and wages rose, which led to (feature 8) agricultural mechanization with small machinery. In 1960, rice self-sufficiency was attained, the first transition (agriculture to industry) completed, labor shortage appeared, and the second transition (industry to services) started.

However, even though the purchase of land by farmers was subsidized by the government from 1961 on, the land-holding ceiling was relaxed in 1962, land rent control removed in 1970, and landlords were allowed to retrieve land after long-term lease in 1970 and after short-term lease in

⁹ Evidence that the part-time and absent farmers may not have enough time and energy to learn and apply the modern scientific knowledge and take care of their idled land is in the author's book (Zhou 2001: 138-9 for Japan; 185-8 for other rice-based economies in monsoon Asia under private land ownership; 214-6, 248 for China; 383 for the USA; 397-8 for Portugal, OECD and EU in general; 416 for CEECs-NIS; 413 for Kazakhstan; 415-7 for Armenia; 418 for Georgia and Albania; 419 for Croatia; 421-2 for Slovenia; 424 for Poland). This paper will add evidence for West Asia, Latin America and Africa.

¹⁰ The points that part-time and absent small farmers may have both rational and irrational aspects and part-time farming may have both efficient and inefficient aspects are implicit in the author's book (Zhou 2001: 28), but explicitly indicated here.

1980, (feature 9) *the inefficient land use by able-bodied part-time and absent small farmers* has remained as an obstacle still unresolved to sustainable rural development.¹¹ In order to be viable and gain higher incomes, farmers (mainly full-time ones) and cooperatives lobbied for government protection of rice production. The ruling party yielded, fearing the loss of votes. Rice import prohibition during 1961-93 caused international protests. The government subsidies to farmers through buying rice at higher, and selling it at lower, prices resulted in major budget deficits and also artificial overproduction. In order to reduce surplus the government again paid farmers to cut young crops or turn rice to forage. It also set up non-tariff barriers to restrict rice import since 1994. Its trade-distorting agricultural subsidies (over 60%) has been much higher than the WTO standards (10% of the total value of production for a developing country and 5% for a developed one), as Table 1 shows. Rice costs and prices rose well above the prevailing international levels. Its self-sufficiency has been kept until 1996 and reduced to 99%, 90% and 93% during 1997-99. Most of other agricultural products, with less or no government subsidies, have lost self-sufficiency since the 1960s, and all have fallen into this situation since 1994. The only exception is whale, whose self-sufficiency has been maintained at the expense of this scarce sea animal despite the continuous international protests. Of all farmers, those in full-time decreased from 33.7% in 1960 to 18.2% in 2000, and those in part-time 1 (mainly farming) from 21.2% in 1980 to 15% in 2000. During 1965-2000, there has been a general trend of a decrease of the total agricultural labor force and those males and females aged between 15-64, and an increase of those aged 65 and over. The utilization rate of cultivated land has ever been dropping from 133.9% in 1960 to 100% in 1993 and 94.4% in 1999. (JSY 1977: 100; 1986: 159; 1992: 153; 1993/94: 272; 1997: 235, 276; 2000: 268; 2002: 230, 231, 237, 278). While cultivated land abandonment ratio grew from 2% in 1975 to 3.8% in 1995 (in so doing, the owners abandoned operation but not ownership, and consequently others still could not use their land). (For a detailed discussion, see Zhou 2001: 123-46)

In East Asia, the Japanese model has just been repeated by Taiwan Province of China since the 1970s and South Korea since the 1980s (TTNN 2003). During 1978-83, mainland China contracted village collectively owned land in fragmented small forms to households for individual operation, which aroused peasants' incentives for production and released surplus labor to off-farm activities. At the beginning of the 1980s, inefficient land use by part-time and absent small farmers has also appeared. (For more information, see Zhou 2001: 7, 146, 184-5, and Chapter 6)

Although Malaysia, Thailand, Indonesia and the Philippines in Southeast Asia; Bangladesh, India, Pakistan, and Sri Lanka; and Bhutan and Nepal in South Asia are generally at the earlier phases of the Japanese model under private land ownership, inefficient land use by part-time and absent landowners has already happened, although to different extent, as rural labor force has been induced to abandon agriculture (but not necessarily land ownership) to go to cities. In those rural areas where many peasants still rely on land for subsistence, there are also landowners who hold land without leasing it. For example, India has not yet eliminated mass poverty and hunger in rural areas. In the late 1990s, the government has embarked upon an ambitious target of doubling food production and making India hunger-free in 10 years. But even so, large amount of land is idled by absent landowners who have no intention of renting it out. (For more presentation, see Zhou 2001: 185-7). According to Chakrabarti (2001), the problem has been aggravated in many developing countries since the late 1990s as the WTO free agricultural trade agreement has made their agriculture more unprofitable and compelled more farmers to seek off-farm income while idling land (e.g., in India), in front of the heavily subsidized exports and high tariffs of the developed countries. Cambodia, Laos and Vietnam in Southeast Asia have transformed the former public land ownership under the centrally planned economy into a nominal state - but *de facto* private - land

¹¹ The author (Zhou 2001: 7) has cited Oshima's view (1987: 65) that the last obstacle to sustainable rural development in monsoon Asia is fragmented small farms, but added that the inefficient land use by able-bodied part-time and absent small farmers (private landowners or individual holders of public land) is the cause. Here it is developed into regarding that cause as a remaining obstacle to sustainable rural development globally no matter the land is fragmented and small or not.

ownership, i.e., the state-owned land was possessed by households permanently and the possession could be sold, and in Cambodia the residential land became privately owned and salable. This has resulted in both newly landless and inefficient land use. (For more analysis, see Zhou 2001: Chapter 8)

Table 1 Producer Support Estimate (%PSE) * of 22 Countries, EU and OECD 1986-2000
(Percentage in Value of Production)

| <i>Year</i> | 86-90 | 91 | 93 | 95 | 96 | 97 | 98 | 99 ^p | 2000 ^e |
|----------------|-------|------|-----|-----|-----|-----|----|-----------------|-------------------|
| Bulgaria § | | -39 | -4 | -25 | -54 | -10 | 2 | -6 | 2 |
| Czech R. § # | 57 | 51 | 27 | 17 | 16 | 4 | 20 | 20 | 18 |
| Estonia § | 75 | 59 | -32 | 0 | 7 | 5 | 19 | 5 | 10 |
| Hungary § # | 32 | 13 | 22 | 14 | 10 | 5 | 19 | 23 | 18 |
| Latvia § | 80 | 83 | -40 | 5 | 3 | 4 | 16 | 17 | 18 |
| Lithuania § | 77 | -262 | -37 | 0 | 1 | 3 | 13 | 14 | 9 |
| Poland § # | -4 | -1 | 12 | 11 | 15 | 14 | 21 | 21 | 20 |
| Romania § | 45 | 15 | 16 | 10 | 12 | 3 | 28 | 18 | 11 |
| Slovakia § | 50 | 39 | 30 | 12 | 1 | 8 | 27 | 24 | 22 |
| Slovenia § | | | 28 | 37 | 29 | 37 | 44 | 48 | 43 |
| Russia | 78 | 60 | -24 | 16 | 24 | 29 | 14 | 2 | 3 |
| EU-15 # | 43 | 50 | 42 | 38 | 34 | 34 | 39 | 43 | 38 |
| OECD | 39 | 39 | 37 | 33 | 30 | 29 | 34 | 37 | 34 |
| <i>Year</i> | 86-88 | | | | | | 98 | 99 | 2000 ^p |
| EU-15 # | 44 | | | | | | | | |
| OECD | 39 | | | | | | | | |
| Australia # | 9 | | | | | | 7 | 5 | 6 |
| Canada # | 33 | | | | | | 17 | 17 | 19 |
| Iceland # | 75 | | | | | | 67 | 67 | 63 |
| Japan # | 67 | | | | | | 62 | 64 | 64 |
| Korea, South # | 71 | | | | | | 57 | 69 | 73 |
| Mexico # | -1 | | | | | | 14 | 15 | 18 |
| New Zealand # | 11 | | | | | | 1 | 1 | 1 |
| Norway # | 66 | | | | | | 67 | 67 | 66 |
| Switzerland # | 73 | | | | | | 70 | 72 | 71 |
| Turkey § # | 14 | | | | | | 25 | 23 | 13 |
| USA # | 25 | | | | | | 23 | 25 | 22 |

* Producer Support Estimate (PSE) is an indicator of the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm-gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income. Support expressed as percentage of gross farm receipts (%PSE) shows the amount of support to farmers, irrespective of the structure of a given country. For this reason, the %PSE is the most widely used indicator for comparisons of support across countries, commodities and time. It is equivalent to that for the trade-distorting agricultural subsidies.

p - Provisional.

e - Estimate.

§ Candidate countries of the EU.

Member states of the OECD.

Source: OECD 2000: 25, 101-2. OECD 2001a: 71, 76-7. OECD 2001b: 181-2.

The general situation in Southeast Asia is summarized in the 'Symposium Theme' of the International Symposium (2002) in Chiang Mai, Thailand: 'The dynamic economic and demographic development in many regions of Southeast Asia has brought about fundamental changes for rural areas and the agricultural sector. Rapid population growth, urbanization and increasing purchasing power of populations in more developed regions through industrialization

induce changes in the quantity, quality and structure of food consumption. At the same time income disparities between urban centers and rural areas and among social/ethnic groups have risen. These developments tend to result in an overexploitation and degradation of natural resources, decreasing agricultural productivity and thus risks of rural livelihoods. *Migration into urban centers* and further encroachment of agriculture into marginal areas are on the rise creating a vicious circle of increasing poverty and destruction of natural resources.'

In Lebanon and Yemen of West Asia, according to Owaygen (2002) and Destremau (2001) respectively, land is privately owned, and many able-bodied male part-time and absent farmers went to earn higher income in cities or abroad, while leaving women to cultivate, hence land insufficient cultivation. Land idling is also serious.

In Latin America, population living in the countryside dropped from 58% in 1950 to 25% in 1995 (Abramovay [1996] 1997: 56). In Mexico of North Latin America, in the 20th century, 'rural areas across the heartland have been sustained by', 'or thrived on, the earnings of men and women who *temporarily* migrated to the USA for work. Farmers in many parts of Central Mexico made temporary forays up north and used the money they earned to maintain their families back home.' 'Migrants also pooled their money and filled in for strapped or corrupt local governments by supporting public works projects that ranged from paving streets and installing portable water systems to refurbishing churches and furnishing classrooms with computers.' 'The abandonment of villages . . . would seem little more than an inevitable progression because declining federal agricultural subsidies have made it hard for the farming industry to support large numbers of small growers.' (Thompson 2001: 2)

'At the turn of a new century, however', as the USA increased border control, '*permanent* emigration has squeezed parts of Mexico's rural core to the verge of extinction. Officials in Michoacan State reported that the number of migrants leaving for the USA had increased to some 50,000 people each year. About half of them move permanently to the USA'. 'In village Casa Blanca, the families – usually fathers first, followed years later by their wives and children – have been swept north by the desperate torrent that carries floods of immigrants to the USA, leaving widening swaths of Central Mexico *abandoned*. In the 1990s, most of the 5,800 people once living in Casa Blanca have moved to Tulsa, Oklahoma. Fewer than 2,500 remain, and many of them have begun referring to this desert village as a ghost town.' 'Migration experts worry that having entire families and villages transplanted north of the border could pose serious economic consequences because incentives to send money home could wane.' Thus, while President Vicente Fox 'has been a vocal advocate for making the US-Mexican border more open to the free flow of Mexican workers, he has also said that he aims to carry out projects that would help lift rural areas out of poverty to encourage more Mexicans to stay home.' In the week of 11-15 June 2001, 'he inaugurated a micro-lending program aimed at supporting homespun businesses in the poorest regions of the country. But of the 2,000 people who lived in the Michoacan village of Huacao 10 years ago, only 400 remain – nearly all of them are women, children too young to trek across the border or elderly people who feel too weary.' (Thompson 2001: 2)

According to NAFTA (North American Free Trade Agreement), from 1 January 2003 on, Mexico should open the agricultural markets to the USA. During the week of 16-22 December 2002, the Lower House of the Mexican Parliament passed a resolution to ask the Upper House to abolish the NAFTA articles for such opening. In the afternoon of 26 December, the national 'Permanent Agricultural Delegates Congress' issued an ultimatum to President Fox, demanding him to sign the 'National Rural Agreement' by 30 December, otherwise they would launch a campaign on 31 December to block the roads and harbors of the whole country to hamper the imports of the cheaper US agricultural goods. In the evening of the same day, he had to yield to them by agreeing to establish a dialogue mechanism with farmers' organizations, assist farmers who suffer from the shocks of the cheaper imports to raise competitiveness and open markets, and sign the 'National Rural Agreement' which imitated the EU approach of providing *subsidies*, sanitary assistance,

vocational training, legal consultation to farmers, thus temporarily resolving the crisis of resisting NAFTA. (TTNN 28 December 2002)

Therefore, in Mexico, on one side, so much land is idled by the part-time and absent small farmers; while on the other, many farmers could not increase farm size, achieve economies of scale, reduce costs and become more competitive in front of the cheaper US imports, and have had to press the government to provide more subsidies.

In Brazil of South Latin America, there has been a bimodal of large land estates and small farms. During 1972-96, those larger than 1,000 ha have reduced from 48.3% to 45.1%, while those smaller than 100 ha increased from 16.4% to 20.4%, owing to the ongoing land reform (OECD 1999-7: 21). But Abramovay [1996] (1997: 62-3) reports that 'An FAO team noted that the most recent rural exodus, at least in the regions where family farming has a significant weight, mainly affects young people. This poses very serious succession problems although I have found *no university research on this problem in Brazil*. However, this is a subject which provokes increasing concern in the social movement, as it questions the ability of family farming to reproduce itself. This theme deserves much more attention from the researchers and international organizations dealing with rural development.' Moreover, in the regions where family farming dominates, 'self-employed professionals who live in towns often buy land from farmers in difficulty or from aged farmers.' The State authorities of Santa Catarina were thus worried by not only 'the prospect of a rural exodus involving young people' but also 'the destructive effect on rural communities of the systematic buying of lands by people who were not going to live on them (doctors, lawyers, etc.).'

In Peru of South Latin America, according to Ganoza Roncal (2003), because the mountainous areas are poorer than the plain regions, numerous young farmers have abandoned agriculture in the mountains to replace the young farmers in the plain areas who had migrated to the USA, Europe or cities to earn higher incomes. It is worried that the next step of the newly arrived young farmers would be to leave the plain regions for the USA, Europe and cities too, just as already happened in Mexico and Brazil.

In Egypt of North Africa, the rural areas are still less developed as 'the poor are absolutely dependent on public services', 'simply because they do not have the means to acquire literacy, good health, adequate nutritional standards or irrigation facilities through the private sector'. However, there has been a shift from anti-poverty and equalitarian strategies towards economic growth and trade liberalization since 1985 as prompted by the World Bank and IMF. The 1952 land reform law of protecting tenants from eviction and guaranteeing a low level of land rent was repealed by the 1993 law which permitted the land rent to be determined by the market forces from 1996-97 on. As a result, the production costs of small farmers increased, many landowners recovered land from numerous tenants who in turn became dependent on being hired as farm workers, their real wages declined, and land rent rose sharply. The share of small landowners of less than 2 ha decreased, while that of medium landowners of 10-20 ha increased. (El-Ghonemy [1996] 1997: 183-6). But the free market mechanism has not necessarily led to efficient land use: waste of cultivated land has already happened at such a low income stage, and become so serious that Vice Prime Minister and Minister of Agriculture Yousuf Amin Wali had to declare on 6 April 1998 that idling and wasting cultivated land was illegal, and each province had the power to stop such behavior by administrative means (XHNA 1998).

In Madagascar, Malawi, and Mauritius of Southeast Africa, according to Razafindravonona (2001), Thangata (2002) and Bhukuth (2001) respectively, land insufficient cultivation and idling by part-time and absent private landowners are serious.

In the 11 countries of Benin, Burkina Faso, Côte d' Ivoire, Ghana, Guinea, Guinea Bissau, Mali, Niger, Senegal, Sierra Leone and Togo of West Africa, onchocerciasis (river blindness) has been one of the causes for depopulation and emigration from the ORZs (Onchocerciasis Reference Zones) during the 1960s-70s, which led the valleys to be abandoned. The OCP (Onchocerciasis Control Program) launched in 1974 by the World Bank, WHO, UNDP, FAO, etc., finally turned the

ORZs into OFZs (Onchocerciasis-Freed Zones) in 1991. The OFZs and notably the valleys have been repopulated increasingly from the mid-1980s on. (CICRED 1999: 3, 29, 46, 111-5)

In the latter half of the 1990s, FAO's research in nine of these countries (without Guinea Bissau and Sierra Leone) (CICRED 1999: VIII, 3) finds that the land tenure system before the abandonment and after the recovery has always been in communal ownership, under the control of the elders of tribes/lineages. The new settlers are their tenants. (Ciparisse 25 February 2002). However, 'in some cases, elders have sold pieces of land with or without the agreement of their lineage, to settlers, mainly due to the necessity/possibility of easy money gain for the elder owners; increased feeling that who directly farms could progressively acquire some *de facto* permanent rights on the piece of land where he/she settled; and local marriages' (Ciparisse 13 March 2002).

'The unit engaged in agricultural production and commercialization is the household', as 'small holders'. The new settlers have been carrying out *traditional* agriculture, as 'agriculture is not mechanized', and 'the prevailing production system is based on the principle of the extensive land occupation. The system, of course, is highly dependent on labor and incorporates few commercial inputs. Moreover, it presents the disadvantage of low yields per unit of cultivated areas since an increase in production depends more on extending the cultivated areas than on any real transition towards intensive production. This is especially the case in food producing areas.' (CICRED 1999: IX, 86, 92, 104)

'Most of the rural areas of Sub-Saharan Africa are currently undergoing the highest population growth in the history. At the same time, migrations have increased and diversified.' 'The OFZs in West Africa are a good example of this type since they are not yet densely populated. They are experiencing high immigration flows'. 'The most innovative information emerging from this research turned out to be the high degree of mobility of the young adults whose families had settled in the OCP valleys'. 'Their young populations continue to emigrate to the capitals, towns or rural areas of neighboring countries or to Europe.' 'If the ways in which the valleys are being repopulated were to continue as they are today, this would lead to an increase in the proportion of women and children in the agricultural work force with consequent decline in production capacities.' (CICRED 1999: VIII-IX, 11). The migration by male adults to other rural areas is usually for producing cash crops which are more profitable than cereals (Ciparisse 13 May 2002), while that to cities is for off-farm activities, which are even more lucrative than cash crop production. Hence the appearance of the inefficient land use by able-bodied part-time and absent small farmers in low income countries still saddled with traditional agriculture and developing towards the high income economy under both public and private land ownership.

CEECs (Central and Eastern European countries - 15 in total) and NIS (Newly Independent States of the former Soviet Union or CIS - Commonwealth of Independent States - 12 in whole), since the early 1990s, have implemented land privatization or farm restructuring mainly by (1) restitution of land to former private owners, and (2) distribution of individual land (and asset) shares for private ownership or private possession in public ownership to farm members. Individual land owners or possessors then had the choice to either set up individual farms, or remain in the collectively operated large farms. In Poland and former Yugoslavia, about 80% of agricultural land have always remained at private land ownership after WWII.

As a result, on one hand, in *domain 1* (individual or private farms), numerous able-bodied part-time and absent farmers earning higher off-farm income tend to hold fragmented small farms in inefficient use without selling or leasing them to the full-time farmers (most land rented out is from the governments, some city dwellers who were restituted land but only till a small part for subsistence due to the lack of experience and capital to establish their own farms, and some old peasants). Land market has not been activated by the free market mechanism. The remaining full-time farmers could not easily increase farm size or receive necessary community services. These were findings by the World Bank in Croatia, Armenia, and Georgia in 1996, Poland in 2000, and in CEECs-NIS in general in 1997; by OECD in Albania and Kazakhstan in 1998, and Slovenia in 2000; and by IAMO in CEECs-NIS in general in 1999, etc. On the other, many large farm members voluntarily remain

in collective land operation (*domain 2*). Some landowners have got physical parcels (which are typically fragmented as a combination of good, bad, nearby and distant parcels for equity among landowners) and rented them back to large farms (mainly because they possess more facilities and provide more services). Some others (in NIS) have obtained paper shares from a large farm and only upon quitting can they be given physical parcels (which may usually be fragmented). In either case, the large farm has distributed the gathered private land to groups of employees for operation, which, although benefiting from collective services, is a continuation of the operation system under the centrally planned economy and keeps the individual incentives low. Such collectively operated large farms (typically in the NIS) usually also assign small household plots to members for individual operation (which proves efficient, demonstrating the possibility of successful family operation upon larger land). (For a detailed presentation on both domains 1 and 2, see Zhou 2001: 399-430). In fact, the percentage in agricultural land by collectively operated large farms, due to their low individual incentives and ineffective management, has been declining across CEECs-NIS (SYCSEEC 2002: 93-4), and domain 2 is in transition towards domain 1 as some landowners have been persuaded to withdraw land from the collectively operated large farms for individual farming (Lerman: 2003). Thus, the imperative task shall be to foster domain 1 by overcoming the inefficient land use of able-bodied part-time and absent small farmers and, upon this basis, strengthening community's promotion of full-time individual farmers and sustainable rural development.

As Table 1 displays, most CEE candidate countries of the EU have given trade-distorting agricultural subsidies at a higher level (around 20%) than the WTO standards. The EU bears an even higher level (about 40%). In fact, how to overcome the inefficient land use by able-bodied part-time and absent small farmers has become the key in the CAP (Common Agricultural Policy) reform for both the current 15 EU member states and CEE candidate countries (10 of which will join it on 1 May 2004). However, this key has not been noticed. For example, the EU agricultural support to its CEE candidate countries has focused on early retirement, young farmers, training, infrastructure, land consolidation, credits, fine seeds, better quality, higher yields, machinery, organic farming, environment protection, processing and marketing of products, rural tourism, etc. (SAPARD 2000). But no effective measure has been taken on the fundamental issue - to overcome the inefficient land use by able-bodied part-time and absent small farmers. According to the EU, it is the old farmers who inefficiently use land (but actually they are more willing to lease land out), while able-bodied farmers use land efficiently. It is thus not a surprise that while old farmers have been paid for early retirement and transferring land to young farmers, much land is inefficiently used by numerous able-bodied part-time and absent small farmers in the CEE candidate countries.

In the United States, small farmers have been being crowded out of agriculture by large farmers and their number has been declining ever since 1935. But the development in recent decades of off-farm employment pursued as subordinate to the loss-making independent small farming has resulted in inefficient land use by able-bodied part-time and absent small farmers. This has indeed slowed the process of small farmers' exiting farming, but not halted it. In order not to be squeezed out of agriculture, the part-time and absent small farmers could raise their income by leasing out at least a part of land for other farmers to increase farm size, or they themselves could lease in land to become large farmers, forming part ownership. Indeed some small farmers, including African Americans who are the weakest of this group, have succeeded in becoming competitive large farmers by renting in a part of land. But in general only old and female small farmers are willing to lease land out. Even the US Department of Agriculture which has been trying to help small farmers to acquire land and increase farm size, has stuck to the way for them to purchase land, and neglected to promote leasing. (For a detailed study, see Zhou 2001: 313-32, 370-84). This phenomenon also exists in Canada, the EU and OECD in general to some extent (see Zhou 2001: 397-8). On the other hand, artificial overproduction has also persisted in the EU, USA, Canada, South Korea, etc. in the recent decades. This has just largely concealed the inefficient land use by part-time and absent small farmers as if much land were efficiently used. This point will be specially analyzed later in this paper.

The above evidences have shown that inefficient land use by able-bodied part-time and absent small farmers has indeed been a global problem under both public and private land ownership, with both traditional and modern agriculture, in both low and high income economies, at both stages of food under-self-sufficiency and overproduction, and within both developing and developed countries. Schultz, as his many citations reveal, is well informed of the historical and contemporary agricultural situations of Japan ([1964] 1983: 4, 13, 21, 105, 124, 162, 181, 187, 190-1) and China ([1964] 1983: 21, 48-9, 61, 106). It is thus a surprise that when publishing the book in 1964 he does not notice that this problem had emerged in Japan since 1960, and reprinted it in 1983 without changing views when it had become serious at least in Japan, Taiwan Province of China, South Korea, and emerged in mainland China, and been widely reported.

(II) Existence of Economies of Scale in Agriculture

Schultz ([1964] 1983: 9-10) also claims that the tenet 'that the costs of agricultural products fall as the size of the production unit in agriculture increases' has 'no logical basis'. But even he himself ([1964] 1983: 122-3) has admitted that 'Where human effort (labor) is cheap relative to the price of other agricultural factors, a one-man (or family) farm may be efficient with a small garden-type tractor; on the other hand, where human effort is relatively dear, a one-man farm may be efficient with a combination of two or even three tractors that differ in size and type.' However, 'It requires very special conditions for a fleet of big tractors to be efficient, conditions which in fact rarely exist.' Apparently, large farm size is such a condition. But the rare existence of such conditions does not mean that this tenet has 'no logical basis'. Actually, in 'a high income economy in which the demand for farm products is of slow growth', and 'the labor force required for farming begins to decline at a substantial rate and many of the farm people . . . leave agriculture . . . for nonfarm jobs' (Schultz [1964] 1983: 15), increase of farm size of the remaining full-time farmers would already be logically possible, and could be realized if the inefficient land use by the able-bodied part-time and absent small farmers could be overcome.

Schultz ([1964] 1983: 9-10, 17-8) further declares that this tenet has not 'stood the test of time' and 'empirical findings'. His empirical findings are that large-scale farming did not play a role in the excellent growth of agricultural production during 1952-59 in Western Europe, which was an 'old, crowded workshop with a population density much greater than Asia's, and with a poor endowment of farm land generally'. However, the fragmented small farms were efficient in a low wage economy when there was little off-farm employment and labor was cheaper than large machinery, such as in some Western European countries and Japan during the recovery period after WWII and China during the initial reform period (1978 - mid-1980s) (concrete evidence is in Zhou 2001: 7; 123-7 for Japan; 191-209 for China). But in a high wage economy when large amount of labor has been absorbed by off-farm activities, and large machinery has thus become cheaper than labor, that tenet would function, as evidenced by Japan, China, some CEECs and NIS, EU, Australia, New Zealand, Canada and, in particular, Schultz's home country USA (factual analysis is in Zhou 2001: 128-31 for Japan; 248-77 for China; 344-52, 378-80 for the USA). Therefore, unfortunately, it shall be Schultz's accusation that has not 'stood the test of time' and 'empirical findings' in the high income economy.

(III) Role of Human Capital in Agricultural Growth¹²

It is significant for Schultz to raise the concept of human capital ([1964] 1983: 136, 176, 186), 'Capital goods are always treated as produced means of production. But in general the concept of capital goods is restricted to material factors, thus excluding the *skills and other capabilities of man* that are augmented by investment in *human capital*', and emphasize the importance of investments in human capital which 'are of several forms; schooling, on-the-job training, and investments in

¹² In (Zhou 2001: 16-9, 70-1) the author has stated the correct opinions, but without mentioning the wrong views of Schultz criticized in this sub-section.

health rank high', 'schooling is the largest and most easily comprehended of the components of human capital'.

But, although Schultz admits ([1964] 1983: 22) that 'It would be a mistake to infer . . . that the efficient *allocation* of land in farming and investments in *structures* that became a part of the land do not count', he stresses ([1964] 1983: 22-3) that 'It would be correct to infer, however, . . . that improvements in the quality of the material factors employed in farming and in the capacities of farm people count *much more* than land.' He further explains ([1964] 1983: 176), 'The central argument of this study has set the stage for human capital as a major source of economic growth from agriculture. It runs as follows: The economic basis of the slow growth of a penny economy is *not* to be found generally in observable inefficiencies in the way the traditional agricultural factors of production are *allocated*'. 'The *key* to growth is in acquiring and using effectively some modern factors of production', 'these modern factors are often concealed by economists under an expository contrivance called "technological change"'. Therefore, he believes that investment in material capital and human capital in farming (within technological changes) counts *much more* than allocative efficiency of land (within institutional changes), and investment in human capital is the key to agricultural growth.

The author does not deny the importance of investment in human capital and, broadly speaking, technological changes. But it would be inappropriate to raise it to be higher than that of the allocative efficiency of land and, generally speaking, institutional changes. The author holds that institutional changes (in particular allocative efficiency of land) are more fundamental and count much more than technological changes (especially investment in human capital). If the institutional barriers could not be removed *dynamically*, then technological changes (including investment in human capital) could not function well if at all; thus it is the institutional changes which are the keystone to agricultural growth. The following stages may be perceived.

1. '*Growth not dependent on additional schooling.*' 'They include growth from the opening up of new farm land' in 'The settlement by Europeans and their descendents of the Americas and Australia and New Zealand' which 'called for much brute human force and for some capital goods to farm the new land'; 'from water for irrigation provided mainly by public bodies' 'to use by illiterate farmers' in India; 'and from the mechanization of field crops made possible by skilled mechanics imported from other sectors or recruited from agriculture and trained specially to operate and repair machinery' in the Soviet Union. 'They also include some growth from the adoption and effective use of new agricultural factors that are profitable when only a few adjustments are required of farmers', referring 'to hybrid corn as an example' 'in Punjab, India'; and 'when new markets for farm products make it profitable to expand production', e.g., 'as a consequence of the cotton price supports by the United States which, during the early post-World War II period, gave cotton-exporting countries a larger part of the world market (and a stable price for cotton).' (Schultz [1964] 1983: 178-80, 187-8). Apparently, availability of farm land is a pre-requisite even for growth not dependent on additional schooling, as farmers could not achieve growth upon no land. Therefore, institutional barriers should have been resolved to the extent that farmers at least have some land to till, be it large areas in the Americas, Australia, New Zealand, and the Soviet Union, or fragmented small farms in India. Here, although Schultz ([1964] 1983: 178-9) notes that for 'The settlement by Europeans and their descendents of the Americas and Australia and New Zealand' which 'called for much brute human force and for some capital goods to farm the new land', 'The principal explanatory variable was the rapid increase in the supply of farm land', he has neglected that it was after the land reform following the American Revolution through the War for Independence from Britain (1775-83) which abolished the feudalistic quit-rents (paid to absentee landlords in England in exchange for the use right of their land by farmers in the Atlantic coastal areas), prohibition of settlement west of the Alleghenies to protect British land speculators, and tax on the trade of the colonial farm products, that the English settlers could advance into the West; and it was after the Civil War (1861-65) which eradicated the slave system that the individual land ownership could be established in the South (see Zhou 2001: 333-4).

2. *'Growth dependent on additional schooling.* In general, where technically superior factors of production are a principal source of agricultural growth, schooling counts. This proposition also implies that this source of growth is no longer restricted to the adoption of only a simple new factor, but requires the successful adoption of a complex of such agricultural factors, and, furthermore, the adoption process is a long, continuing one' (Schultz [1964] 1983: 189). At this stage, Schultz ([1964] 1983: 196-7) is correct at realizing *'Political handicaps.* There are two major political factors that account for much of the observable *under-investment* in farm people and one such factor that causes serious *disinvestment* in these forms of human capital. They are as follows: (1) where large landowners are powerful politically, it is to be expected that they will have a strong vested interest in maintaining the status quo; (2) where poor countries are committed to investment in industry as the basic approach in achieving economic growth, agricultural skills and knowledge are neglected; (3) where ideology requires the elimination of private property in land and in other (material) means of production, farm people become strictly farm workers and their entrepreneurial skills are lost.'

However, here Schultz is also wrong as he holds a *static* view - once the three political handicaps or institutional barriers have been removed, then investment in material and human capital (within technological changes) will count much more than allocative efficiency of land (within institutional changes), and investment in human capital will become the key to agricultural growth. He ignores that the removal of institutional barriers should be *dynamic*, and in particular, there has appeared a fourth political handicap or institutional barrier: inefficient land use by able-bodied part-time and absent small farmers, which will require a second round institutional reform, otherwise the investment in material and human capital would not function well if at all.

Concerning political handicap (1), Japan is an example. Schultz ([1964] 1983: 181, 186-7) claims, 'There is next the issue of investment in farm people associated with little or no favorable effects on agricultural production. It is hard to discern any clear-cut historical cases that support this kind of relationship.' 'But there are apparently none in which better schooling of farm people who continue at farming is associated with a stagnant agriculture.' 'There are all manner of historical clues indicating that there has been a strong positive relation between the level of skills and knowledge of farm people and their productivity at farming.' 'When does schooling matter in farming? Increases in yield per acre over time from the adoption, first by producers in one country and then in other countries, of new yield-increasing inputs strongly imply that a widespread adoption of such inputs' 'in the case of growing rice, or of corn, differences in schooling may be a major explanatory factor.' 'The differences in rice yields correspond closely with the differences in the schooling of rice growers. In countries where the level of this schooling is high, rice yields are also high. The new combination of inputs that accounts for the large increases in rice yields in particular countries, notably in Japan, have not been adopted by rice growers in those countries where the farm people who grow rice are predominantly illiterate.' Schultz is dealing with agricultural growth. But he is not aware that the *high rice yields* of farmers with schooling would not naturally be turned into *high output* of rice of the whole country to reach at least self-sufficiency, nor automatically be associated with *low costs* of rice production. As mentioned above, in Japan, after the land reform in 1946-50 to remove political handicap (1), rural education has been strengthened and farmers have indeed developed high-yielding technology. But since 1960, because much land has been held by able-bodied part-time and absent small farmers (who have been well educated too) in inefficient use, full-time farmers could not easily increase farm size to reduce costs, rice self-sufficiency could not be maintained without extremely distorted government price supports which then led to artificial overproduction. The Japanese model has been repeated by Taiwan Province of China and South Korea. In fact, farmers in Japan and Taiwan have transferred and applied their advanced technologies in mainland China (TTNN 16 December 2002) because it has found effective ways to transfer the land inefficiently used by able-bodied part-time and absent small farmers to the full-time farmers including external and foreign ones. Interesting enough, advanced large agricultural machinery made in Japan could find much use in itself, but be imported

into China as it is able to achieve economies of scale. (For more information see Zhou 2001: 258-9, 263, 283)

Regarding political handicap (2), in the recent decades, poor countries have been increasingly attaching importance to agricultural skills and knowledge, rather than committing themselves to investment in industry as the basic approach in achieving economic growth. Even so, their efforts could not be well realized due to the obstacle of the inefficient land use by able-bodied part-time and absent small farmers. Mexico is a case in point. Schultz ([1964] 1983: 193) mentions that 'No doubt Mexican nationals working in the United States gain much from the on-the-job training they acquire. Meanwhile, many higher skills can presently be had by Mexicans more cheaply at home than abroad by attending one of Mexico's technological institutes'. Unfortunately, on the large areas of land whose operation (but not necessarily ownership) has been abandoned by the able-bodied part-time and absent small farmers emigrating temporarily or permanently to the USA as above-cited, the higher skills of themselves or other farmers learned at home and abroad could not be used.

As for political handicap (3), China and CEECs-NIS are illustrating. As above-presented, both have reformed the former centrally planned economy into a market economy: China contracted the village owned land to households for operation during 1978-83, while CEECs-NIS made land privatization or farm-restructuring in the early 1990s. Afterwards, however, inefficient land use by able-bodied part-time and absent small farmers has appeared in both, which has hampered the full-time farmers with entrepreneurial skills from increasing farm size, achieving economies of scale, reducing costs and becoming competitive.

Therefore, when Schultz ([1964] 1983: 195) stresses 'an optimum allocation of resources available for investment not only among capital goods but importantly also between such goods and the capabilities of people' (i.e., between material capital and human capital), he neglects that there is a need for an optimum allocation of land between part-time/absent small farmers and full-time farmers and this fundamentally counts much more than the optimum allocation of investment between material capital and human capital.

As the author (Zhou 2001: 16-9) presents, agricultural production is a function of many variables including institutions, technologies, policies, prices, production structures, labor, capital, education, health, weather, etc. These variables, however, play different roles.

According to Oshima (1987: 47, 53), in previous studies of development theories and strategies, the growth of per capita product was explained as owing to either proximate *sources* or ultimate *causes*. There was a tendency to group various inputs into the category of sources (labor, capital, education, structural changes, etc.); and to group the explanations of changes in the productivity of inputs into the category of causes, the major ones being changes in institutions and technologies. Oshima himself (1987: 5-6) studies the underlying long-term ultimate causes that sustain economic growth by assuming that growth is largely the outcome of the interplay of institutional and technological changes, as emphasized by Kuznets (1966), and finds that it is the *institutional component* that is the most important in the interaction of institutions and technologies underlying the growth of developing countries. Examples of the institutional changes are land tenure reforms from the feudal landlord ownership to individual land ownership (such as in Japan during 1946-50), and from the centrally planned economy to family-based operation (such as in China during 1978-83).

The author (2001: 70-1) has presented technological efficiency - a production plan is (technologically) efficient if there is no way to produce more output with the same inputs or to produce the same output with less inputs, as Varian argues (1992: 4).

Static or short-run technological efficiency could be attained *without* changing technologies but with higher incentives and/or better division and coordination of labor through institutional changes. It could also be reached by adopting already invented more advanced technologies which were not used before peasants gained incentives and/or achieved better division and coordination of labor. For example, the land reform and setting-up of cooperatives in Japan during 1946-50 gave huge

incentives and better division and coordination of labor to peasants, and the land tenure reform in China during 1978-83 also highly motivated farmers. They increased production quickly with the already used technologies, and then adopted the existing more advanced technologies unused before.

Dynamic or long-run technological efficiency needed for achieving sustainable growth depends heavily on the technological progress embodied in construction of rural infrastructure, higher yields and multiple cropping of rice and other grains, diversified cropping and non-crop agriculture, off-farm employment, peasant migration to cities and work in town and village firms, agricultural mechanization with small or large machinery (features 3-8 in the Japanese model and features 3-8 and 10 in the Chinese one respectively), as well as regional transfer of development and environmental improvement (features 11-13 in the Chinese model), which would take longer time (e.g., finding a higher yielding variety of rice, building a big dam, transforming a desert, or educating peasants may cost several years).

But once production has reached the frontier permitted by the established institutions, even though increases of production or reduction of costs are still technologically possible (through agricultural mechanization with large machinery), they tend to be hampered by vested interests, just as the inefficient land use by able-bodied part-time and absent small farmers in feature 9 of the Japanese model has suggested. At this stage, a second round of institutional changes is needed to allow sustainable rural development, just the overcoming of this obstacle in feature 9 of the Chinese model around the mid-1980s has shown. Therefore, Barker, Herdt and Rose (1985: 157) conclude that of so many variables for rural development, the institutional changes are the keystone.

3. *Coexistence of growth not dependent and that dependent on additional schooling.* Schultz asserts ([1964] 1983: 183), ‘it is true that programs to improve the skills and knowledge and health of workers were generally not a pre-requisite to the advances made during this phase of the Industrial Revolution. Why, then, should schooling be essential today? The answer lies in the fact that poor countries now entering upon industrialization are not employing the simple, primitive machinery and equipment of a century or two ago. Nor could they do so even if they wished to, because such things have become collectors’ items for museums.’ Here, Schultz has ignored the existence or persistence of the *dual economy*, i.e., modern industry mainly in cities and traditional agriculture in rural areas (see Zhou 2001: 35). ‘The simple, primitive machinery and equipment of a century or two ago’ have been employed not only still in 1964 (such as in China), but even now (such as in Africa as above-mentioned), and not yet completely become collectors’ items for museums. Of course, it does not mean schooling is not important today. But availability of farm land inefficiently used by able-bodied part-time and absent small farmers to full-time farmers has increasingly become more essential.

Schultz ends his book by claiming ([1964] 1983: 205), ‘in sum and substance, the man who is bound by traditional agriculture cannot produce much food no matter how rich the land. Thrift and work are not enough to overcome the niggardliness of this type of agriculture. To produce an abundance of farm products requires that the farmer has access to and has the skill and knowledge to use what science knows about soils, plants, animals, and machines.’ He is not aware that access to land is more fundamental as efficient land use is the basis of sustainable agricultural and rural development, without which, other agriculture-promoting measures (early retirement, young farmers, training, infrastructure, land consolidation, credits, fine seeds, better quality, higher yields, localized production, small and especially large machinery, organic farming, environmental protection, market access, etc.), would not function well (if at all), and the development of off-farm activities would even weaken the agricultural sector.

But the author’s views against the above-mentioned five assertions of Schultz do not as yet seem like a commonplace idea. This is mainly because ‘Schultz’s arguments have had a substantial impact on some of the economists who are actively involved with structural aspects of public policies and with project evaluation’ (Bowman 1983); ‘The notion that “farmers’ behavior is rational” has been recognized and accepted by Western economists in general since the publication of Schultz’s *Transforming Traditional Agriculture*’ (Lin, Justin Yi-Fu 1988: 63); ‘It has had a

significant effect upon economic research and thinking about agriculture in low income countries, and it has had an effect upon what governments and international agencies have done with respects to agricultural policies.' If this seems like a commonplace idea, it is so because of the writings of T. W. Schultz.' (Johnson 1983). The above-mentioned assertions of Schultz have become so imbedded a commonplace idea, that many economists do not even appeal to or mention him, while his influence could be clearly seen.

For instance, although Lerman and his World Bank colleagues had found just to the contrary in Croatia, Armenia and Georgia in 1996 (as above-cited), he (1999: 20) still believes that free market forces could effect the transfer of land inefficiently used by the able-bodied part-time and absent small farmers to full-time farmers, as if they were rational enough to automatically and voluntarily make such transfers in the land markets:

Once land has been allocated to individuals through the various processes of restitution and distribution, the new owners may immediately sense a need for adjustment of their holdings. Some landowners have no inclination to farm their land: they are too old, too frail, have better jobs outside agriculture, or do not have sufficient knowledge to become successful farmers. The optimal course of action for these landowners may be to get rid of their land. Other individuals, who know how to farm efficiently, may wish to increase their holdings in order to achieve higher earnings and greater welfare. The optimal course of action for these individuals is to acquire more land. The land market provides a meeting place where both groups of agents may enter into appropriate transactions for adjustment of land-holdings through transfer of ownership rights (buying and selling of land) or use rights (leasing of land). The economic role of land markets as a stage for *farm size optimization* explains the *considerable interest* in this issue in transitional economies, where the new farm sizes are decided abruptly and quite arbitrarily through administrative and political processes.

Although without mentioning Schultz, Lerman and these transitional economies have evidently been deeply influenced by his allegations.¹³ Another example is that in the above-mentioned International Symposium (2002) in Chiang Mai, Thailand, Dillon, a senior Southeast Asian economist states to the author that whatever peasants do, they are correct and have good reasons. He further specifies (2002): 'In the sixties, Schultz' s research in India proved "small but efficient". Since then there have very many studies showing that farmers are generally very close to "allocative efficiency" although they might be quite distant to "technical efficiency"'. Apparently, he and the authors of the 'very many studies' have also been imbedded with Schultz's assertions, so that they do not notice the *allocative inefficiency* of the able-bodied part-time and absent small farmers with their inefficient land use while full-time farmers could not have access to their land.

In a democratic society, if a view were found as inappropriate, it would be rebutted. For instance, Amartya Sen (Nobel economics laureate 1998) writes 'Surplus Labor in India: A Critique of Schultz' s Statistical Test' (in his 1964 book), Schultz defends himself in 'Significance of India' s 1918-19 Losses of Agricultural Labor - A Reply' , and Sen argues further in 'Surplus Labor in India: A Rejoinder' - all in *Economic Journal* (March 1967: 154-65). Another example is that Schultz in his 1964 book attacks the 'zero marginal product' hypothesis of Arthur Lewis (1954), but the Nobel Economics Prize Committee democratically and fairly made these two academic 'foes' share the 1979 Prize albeit neither school has convinced the other (even now).

But the author is unaware anyone else (besides Zhou 2001) who has criticized the above-mentioned five assertions of Schultz in literature. Apparently, this was not because other authors were lenient to him, but because they were not found as inappropriate. Now that they have already

¹³ Fortunately, in commenting the earlier version of this paper presented in the UNESCO Seminar 'Poverty and Sustainable Development' in Bordeaux, France during 22-23 November 2001, Lerman has actually recognized that his above-cited view is not compatible with the world-wide evidences and turned to be positive to the author's proposals to solve the problems, for which the author is very grateful.

been unsuitable in 1964, more so in 1979, further so in 1983, and still so presently, a systematical and analytical refutation of them would be necessary, and researches of the suitable solutions to the obstacle neglected and misjudged by him imperative.

III. Failures of Backward and Consumption Linkage Effects on Agriculture Underrated by Hirschman¹⁴

The inefficient land use by able-bodied part-time and absent small farmers has also caused the failures of the backward linkage effects of the agro- and other industries and the consumption linkage effects on agriculture, which has been paid little attention by Hirschman and others.

Hirschman has developed the linkages theory in 1954, 1958, 1977 and 1987. A linkage (or linkage effect) is a characteristic, more or less compelling sequence of investment decisions occurring in the course of industrialization and, more generally, of economic development. More specifically, the linkage effects of a given product line are investment-generating forces that are set in motion, through input-output relations, when productive facilities that supply inputs to that line or utilize its outputs are inadequate or nonexistent. *Backward linkage* leads to new investment in input-supplying facilities and *forward linkage* to investment in output-using facilities, both are *physical* or *production linkage*. *Consumption linkage* is the stimulus towards domestic production of consumer goods that will be undertaken as newly earned incomes are spent on such goods (which are often initially imported). *Fiscal linkage* includes direct fiscal linkage whereby the state extracts (and subsequently spends) revenue through taxes on exports, and indirect fiscal linkage whereby it raises (and then disposes of) receipts via tariffs on imports. *Inside linkage* describes situations in which the same economic operators who are already engaged in the ongoing activity are impelled to undertake the new activity (either yielding a new product at the same place or producing the same product in a new place); while *outside linkage* depicts circumstances under which the new activity is taken up by foreigners or the state. Backward, forward and consumption linkages can be either inside or outside linkages, whereas fiscal linkage is outside linkage. Hirschman claims that the linkages capture much of the development story: development is essentially the record of how one thing leads to another, and the linkages are that record. They focus on certain characteristics inherent in the productive activities already in process at a certain time. These ongoing activities, because of their characteristics, push or invite some operators to take up new activities. Whenever that is the case, a linkage exists between the ongoing and the new activity. (Hirschman 1977: 72-3, 80-1; 1987: 206-9). This paper is mainly concerned with the relevant problems in the backward linkage effects of the agro- and other industries and consumption linkage effects on agriculture.

Hirschman's linkages theory has been very influential and widely accepted. For instance, FAO stresses that 'Industries based on agricultural raw materials played a major part in the early stages of the industrialization of developed countries, and they are no less important in the industrialization now under way in developing countries. Such industries are estimated to account for nearly half of the total manufacturing value added and almost two thirds of the employment in the manufacturing sector in the developing countries, and their share in the developed countries, although smaller, is still substantial. The development of such industries also has many beneficial feedback effects on agricultural production itself' as there exist 'the strategic links and interdependencies between agriculture and agro-industries.' (Santa Cruz 1998: iii). Of these feedback effects, 'The most direct one is, of course, the stimulus it provides for increased agricultural production through market expansion. Often, in fact, the establishment of processing facilities is itself an essential first step towards stimulating both consumer demand for the processed product and an adequate supply of the raw material. The provision of transport, power and other infra-structural facilities required for agro-industries also benefits agricultural production. The development of these and other industries provides a more favorable atmosphere for technical

¹⁴ The author's comments on Hirschman's linkages theory are not in Zhou (2001).

progress and the acceptance of new ideas in farming itself.' (FAO 1997). 'An effect that is sometimes overlooked is the substantial increase in employment in the production of the raw material that may result from setting up an industry using it. Even if the industrial process is itself capital intensive, considerable employment may be generated in providing the raw material base.' (Marsden & Garzia 1998: 13)

However, as presented above, Japan has provided an inconsistent case. Now that the agro- and other industries have been well developed in that country (features 5-7), why could not their backward linkage effects on agriculture be realized (regarding the decline in agricultural production and employment of able-bodied labor force in agriculture)? Contrary to the domestic-products-oriented consumption linkage effects which should lead to import substitute as defined by Hirschman, there appear *reverse* or import-oriented consumption linkage effects which have substituted domestic products with imports (of agricultural goods in this case). (The reverse or import-oriented consumption linkage effects is a concept formulated by the author.)

Therefore, the following questions arise: can the backward linkage effects of the development of the agro- and other industries on agriculture be realized always? Can the more favorable *atmosphere* for technical progress and the acceptance of new ideas in farming itself provided by the industrial development be turned to *reality* all time? If not, mainly at which stage of rural development? What are the major reasons? How to resolve them?

In fact, although admitting (1987: 209) that 'Some or all of the linkages can fail to materialize and an inquiry into these failures permits a preliminary sorting out of major conceivable reasons for negative developments', Hirschman has not endeavored to go beyond the preliminary study to systematically research the failures either in one or more linkages, deeply analyze the major reasons, and make great efforts to seek solutions. Rather, he mainly takes delight in talking about the normal functioning of the linkages. But this would be not only futile in front of the failures, but even harmful, as it may lead to the ignorance of them and the illusion as if once, e.g., the agro-industries have been established, their backward linkage effects on agriculture would automatically be realized. An analogy could be that, when mankind did not know the circulation of blood in the human body, its discovery was significant. Afterwards, further researching the normal blood circulation is still necessary, but more importance should be attached to elucidating and curing the mal-circulation, since these tasks cannot be fulfilled by merely talking about the normal circulation. It would be inappropriate and even detrimental if medical scientists remained at mainly speaking on the normal circulation, while paying little attention to so many diseases of mal-circulation. Just think if doctors cheerfully talked about the normal blood circulation in front of so many blood cancer patients who are going to die currently still without solutions. Similarly, despite Hirschman (1998: 80, 83, 101) has been an economic adviser to Colombia since 1952 and then other parts of Latin America, developed the linkages theory basically out of his studies there, happily felt that Colombia 'was moving forward' and believed that 'there is no doubt that Latin America has made considerable progress in the 30 years since World War II', how to explain why the 'moving forward' in that country did not lead to more wonderful advancement and the 'considerable progress' in that continent did not expand to more successful development through the linkages but fell into decline in the 1980s, and how to solve the persisting mal-functioning of the linkages there? In fact, it is systematic studies, discovery of main reasons, and solutions of the failures of the linkage effects which are desperately longed for by the vast people in deteriorating poverty there.

Correspondingly, the above-cited FAO report (1997) has primarily repeated the normal backward linkage effects of the agro- and other industries on agriculture raised by Hirschman, as if these effects could be taken as granted. By the same illusion, the afore-mentioned FAO document (Marsden & Garzia 1998) has only indicated problems in the development of the agro-industries, and emphasized its backward linkage effects on agriculture, while essentially ignored the failures in the realization of them. It is interesting that the recommended methodology 'was field-tested during an FAO project in Thailand' (Santa Cruz 1998: iii), but the above-mentioned 'Symposium Theme'

of the International Symposium (2002) has reported a worsening agricultural situation exactly in Thailand and Southeast Asia. Therefore, it is imperative to systematically study the failures in the realization of the backward linkage effects of the agro- and other industries and the consumption linkage effects on agriculture, their main reasons, and the effective solutions.

As analyzed in the author's book (Zhou 2001) and earlier parts of this paper, it is the inefficient land use by able-bodied part-time and absent small farmers which has restricted the functioning of the market mechanism, and restrained the full-time farmers from achieving economies of scale. Thus, fundamentally it is this obstacle which has hampered the realization of the backward linkage effects on agriculture of the agro- and other industries, and caused the reverse consumption linkage effects, as the demand for agricultural products these linkages have induced could not be matched domestically (without huge government trade-distorting subsidies) and imports have to be resorted to. Although this obstacle appeared mainly in Japan in 1960, it has increasingly become global under both public and private land ownership, with both traditional and modern agriculture, in both low and high income economies, at both stages of food under-self-sufficiency and overproduction, and within both developing and developed countries.

IV. Seeking Suitable Solutions under Private Land Ownership

(I) China's Successful Experiences Based on Public Land Ownership

The author's book (Zhou 2001) finds that for realizing food self-sufficiency, both the models of Japan with fragmented small farms (followed by Taiwan Province of China, South Korea, etc.), and the USA with joined large farms (pursued by Canada, the EU, etc.) under private land ownership and the Chinese model based on public land ownership have been successful, which are exemplars for other countries still facing food under-self-sufficiency to learn. Afterwards, however, the former models could not overcome the inefficient land use by able-bodied part-time and absent small farmers, and the governments had to turn to protectionism, which caused overproduction and many other problems, while the Chinese model could. That is why following Oshima who treats the fragmented small farms as the last obstacle to sustainable rural development in monsoon Asia, the book implicitly and this paper explicitly regards its cause - the inefficient land use by able-bodied part-time and absent small farmer, as a remaining obstacle to sustainable rural development globally no matter the land is fragmented and small or not.

During 1978-83, China carried out a land tenure reform from the centrally planned economy to market economy by keeping public land ownership of villages, while contracting the land to households as the basic operation level whereas the villages provided general management and services, hence successfully reached food self-sufficiency in 1984. Although the contracted land could be sub-let, inefficient land use by able-bodied part-time and absent small farmers also happened at the beginning of the 1980s and became serious afterwards. Thus around the mid-1980s a second round of institutional changes was conducted. The villages kept a smaller land for self-consumption for the part-time and absent small farmers, while allocating the rest of their land competitively to the full-time farmers. The government also encouraged part-time and absent small farmers to be fully engaged in off-farm activities or become permanent residents of small and medium cities and towns, and transfer all their land to the fewer remaining full-time farmers to achieve economies of scale. During 1995-99, it also encountered temporary food overproduction. The government has then obliged farmers on the marginal land to convert it back to the nature forever, and paid them a basic income support until they could earn a living through animal husbandry, fishery, fruit production, planned cutting of wood with reforestation, processing, transportation, rural tourism, etc. It has meanwhile maintained the efficient use of the normal land to produce surplus food, which is allocated to the farmers of the marginal land converted to the nature. Therefore, nation-wide, the food supply and demand have been balanced and chronic overproduction prevented, whilst the environment improved. Owing to the overcoming of the

inefficient land use by able-bodied part-time and absent small farmers, China has given trade-distorting subsidies to agriculture by only 2% of the total value of production, much less than 10% as a developing country could enjoy. (For details see Zhou 2001: Ch 6-7)

Public land ownership, however, may not be acceptable to many other economies.¹⁵ Then how to solve this obstacle under private land ownership?

(II) Unsuitable Solutions under Private Land Ownership

1. *Those solutions which had functioned from the Middle Ages to the 1950s in Western Europe* (land enclosure, primogeniture, massive emigration, land sale due to the then backward conditions of rural areas) would not work now (see Zhou 2001: 146-50).

2. *Traditional land consolidation* [exchange of the private ownership and location of spatially dispersed parcels of farms to form new holdings containing a single (or as few as possible) parcel(s), with the same (or similar) value as that of the original areas] currently being carried out in some CEECs, NIS and other developing countries incurs enormous individual bargains, and costs tremendous time (even decades), financial and human resources. But after the parcels have been joined, it would not give part-time and absent small landowners much incentive to rent out land, since cereals and many other products from the joined land may not necessarily enjoy much higher sales than those from the dispersed parcels due to their low elasticity in consumption, and the joined land would not raise rent a lot in comparison with the much higher off-farm income, as the experiences of Japan and Taiwan Province of China have demonstrated. Moreover, population growth and inheritance could easily re-fragment the joined family farm, as the Indian practice has shown. (For a comparative international survey of land consolidation under private farmland ownership and its shortcomings, see Zhou 2001: Appendix 3.1)

3. *Stopping rice production*, as Bray (1986: 217) recommends at the conclusion of her book: 'The chief problems of Japanese agriculture today seem largely to be caused through Japanese farmers' reluctance to abandon growing rice'. This is an issue more political than economical. This is because if a country relied on imports for its staple food, then it might be threatened in diplomatic conflicts and have its throat cut during wartime. Thus, Japan could tolerate under-self-sufficiency and rely on imports for all the other agricultural goods but not for rice (as well as whale), which has consequently been heavily subsidized ever since 1960 for reaching artificial self-sufficiency and whose import since 1994 was mainly due to the international pressure. One may also suggest the EU to keep the landscape for tourism and import everything else, e.g., cheaper agricultural and industrial goods from Australia, the USA and some developing countries. Would the EU agree? In fact, inefficient land use by able-bodied part-time and absent small farmers is a global obstacle. If the solution were to abandon the staple food production, then who would produce to feed the population world-wide?

4. How about imposing a *land waste tax* which seems more market oriented? In fact, such a tax has been repeatedly proposed, e.g., as early as in (1956: 563) by Schiller (and may even be earlier by others), and as recently as in (2002) by Onchan for Thailand where the inefficient land use by able-bodied part-time and absent small farmers has become very serious. The Hungarian Land Act of 1994 prescribes that an agricultural land must be either self-cultivated or leased for farming (section 36 and chapter III), otherwise a financial penalty will be imposed on the landowner (section 42). Such a penalty is actually also a land waste tax.

However, a land waste tax is unable to function effectively. (1) If the tax were low, some farmers would be willing to pay, while still idling the land. For example, in China, the village collectively owned land was contracted to households which should produce a quota of cereals and/or other products to be sold to the state and could then dispose of the extra output in the market.

¹⁵ The author attended the above-mentioned International Symposium (2002) in Chiang Mai, Thailand, where participants also expressed that though the Chinese reform experiences are successful, it would be difficult to transplant them into other countries, because China holds public land ownership, while most other countries have private one.

But there were landholders who paid cash to fulfill the quota while still idling the land, so as to spare all their time onto earning higher off-farm income (Zhou 2001: 215). (2) If the tax were high, some farmers could claim that they could not afford. It would not be so easy to punish them by imprisonment. (3) Many farmers are absent, earning higher income in other rural areas, cities or abroad. It would almost be impossible for the police to wait in their home unknowing when they would return, or search and arrest them elsewhere either directly or indirectly via the International Criminal Police Organization or other countries' police. There is also the question whether other countries' police would cooperate. For instance, many Albanian landowners are working in Italy while idling land in home. But tax evasion in Italy itself is widespread and the police often close one eye. While the police are having troubles in finding and arresting the tax evading absent farmers, the land is still being idled. (4) The tax is normally paid to the governments, although a part might be channeled to local communities to improve services to full-time farmers. But if the full-time farmers could not get the fundamental service they need, i.e., access to the inefficiently used land by the able-bodied part-time and absent small farmers, other services would be insignificant. Thus they may not have the incentive to report an insufficiently cultivated or idled land to the tax officers. The tax officers may not have the incentive to charge the tax because it does not enter their own pocket. Rather they might have the incentive to take bribes and allow tax evasion. But if a proportion of tax could be given to tax officers as bonus, they might charge it arbitrarily and exorbitantly. As a result of such difficulties, some Hungarians in city who have been restituted agricultural land, have never cultivated or leased it, but never been fined either (Borzak 2001).

5. A law to *confiscate idled private land* has been adopted in a presidential decree issued in November 1997 in Tajikistan (EIU 1998: 27); and has been debated in the Romanian Parliament in the spring of 2002, but has met difficulty in getting it passed mainly because it was regarded as too harsh to private landowners (Atanasiu 2002).

Thus the author tries to find a new model which would work at both food under-self-sufficiency and overproduction stages with private land ownership, and raises 'the principles of the new model' at (Zhou 2001: 165-6), and several possible applications of them.

One application is Proposal 5.1: village-wide corporate ownership of physically *unwithdrawable* but financially salable private land shares, which was published by FAO in October 1997 first (Zhou 2001: 154-65). It is then found that this would meet psychological barriers as landowners prefer that their private land could be withdrawn from the use by others.

Another application is raised when dealing with the EU (Zhou 2001: 398 second paragraph), which does not require such unwithdrawability. It is this one, although only occupying less than half a page in the book, that this paper develops into a set of major policy proposals. The following Sections will first analyze a Western European legislation which has functioned at the food under-self-sufficiency stage, the dilemmas the EU faces at the overproduction stage as the background, and then present the author's policy proposals and its possible global relevance.

(III) A Western European Legislation at the Food Under-self-sufficiency Stage, and the Fundamental and Derived Dilemmas the EU Faces at the Overproduction Stage

1. At the food under-self-sufficiency stage, a legislation to oblige farmers to either cultivate land or lease it for farming had been adopted by the EU, Denmark, Germany, Italy, the UK and Norway. It ceased functioning in the EU following food overproduction, but is still implemented in Norway due to endured under-self-sufficiency caused by the cold weather.

At the EU level, 'A number of directives affect the ownership of farmland as a farmer.' The EC Council 'Directive 1963/262 provides for the right to pursue agricultural activities on agricultural holdings that have been abandoned or left uncultivated for at least two years. No special permit is required.' 'Directive 1967/531 provides for the abolition of discriminatory restrictions on the application of the law on agricultural leases. Directive 1963/261 concerns the right to take on

lease any property.' After the appearance of overproduction, these directives terminated (officially on 30 July 1999 but actually in the 1980s), and the EC Council Regulation 1094 of 1988 and Regulation 2328 of 1991 decided to set aside arable land, although the 'Member States have to take the necessary measures to keep the land in good agricultural condition. They can make the necessary provisions for managing the land so that the environment and natural resources are protected [article 2(3)].' (Van der Velde & Snyder 1992: 9, 13-4)

In Denmark, the Agricultural Holdings Act of 17 July 1989 sets down that 'Agricultural holdings and their lands must be used for agriculture, horticulture, and forestry.' 'Subdivision of agricultural holdings may not be carried out without a license from the land authorities. This ensures that the holdings are not split up into small enterprises, for example in case of succession.' 'The person who actually manages an agricultural holding, whether it is the owner him- or herself, a tenant, or a manager, must live permanently on the holding.' 'Landowners who wish to use their land for a purpose other than farming must obtain a permit from the many authorities that deal with the legislation mentioned above' (the Queen, Parliament, Ministry for the Environment, Ministry of Agriculture, local government - county and municipal councils, and courts). 'Each authority is free to refuse a permit if it feels that the landowner's project would be harmful to the interests the legislation tries to protect.' 'If the yield of the land is too feeble to make farming worthwhile, the farmer must at least not use the land for other purposes.' In this case, he can lease out the land. 'The statute only requires a written contract specifying the rent and the term of the lease. It does not regulate the rent, which is solely determined by the market place.' As a result of such promotive measures, the problem that 'the technical and economic development in agriculture in the last decades have made most registered holdings too small for survival' has been overcome, the farms' 'number has fallen and their size has increased', and 'most Danish farms today consist of a holding owned by a farmer who has rented adjoining land.' Adjusting to the happening of food overproduction, it 'does not compel a farmer to cultivate marginal farmland, and he may also profit from the set-aside scheme of the EC Regulation 1094 of 1988'. (Wulff 1992: 36, 38-9, 40, 44, 46-7). The Agricultural Holdings Act of 15 July 1999 further permits owners to idle or set aside normal land. Although landowners are not obliged to set aside land according to the government planning, possibilities of expropriation exist within the specific Danish rules on nature conservation, nature restoration and wetland restoration (the Nature Protection Act of 3 January 1992) which are not related to the EC agricultural law. (Anker 4 March & 13 May 2002)

In Germany, 'Previous scarcities of foodstuffs prompted the legislation to adopt provisions to help guarantee an adequate food supply by obliging farmers to cultivate agricultural land in accordance with good husbandry. If a farmer did not satisfy this legal obligation, the law provided sanctions, such as the compulsory leasing of the land to another person willing to cultivate the land in accordance with good husbandry.' This obligation was set up in the 'Law of Cultivating the Land' of 31 March 1915 and removed in 1961 owing to the appearance of surplus production. (Winkler 1992: 83. Kroescbell 1982: 69)

In Italy, the 'Rules for the Utilization of the Uncultivated, Abandoned or Insufficiently Cultivated Lands' of 4 August 1978 requires (Art. 4) that the regions assign such lands 'for cultivation to the requesters who are obliged to cultivate them in a single or associated form'. After the EU had met overproduction, this law has not been implemented, but still valid; and could be exercised again if food security once more became a problem.

In the UK, the Agriculture Act of 6 August 1947 demands that the owner of agricultural land bear the responsibilities of good estate management to enable an occupier of the land 'to maintain efficient production as respects both the kind of produce and the quality and quantity thereof' (section 10); and that the occupier of agricultural land bear the responsibilities of good husbandry to maintain 'a reasonable standard of efficient production, as respects both the kind of produce and the quality and quantity thereof, while keeping the unit in a condition to enable such a standard to be maintained in the future' (section 11). The minimum lease period is one year (section 40). It renders the Minister of Agriculture the power to supervise whether these responsibilities

have been fulfilled (section 12), and if not, to impose a fine and/or imprisonment on the bearers of these responsibilities (section 14), and to purchase compulsorily the land (section 16). Following the occurrence of surplus production and EC Council Regulation 1094 of 1988 on set-aside arable land, the implementation of this Act has also been relaxed (Rodgers 1992: 149).

In Norway (which has not joined the EU), the Land Act of 18 March 1955, the Act of Tenancy of 25 June 1965, and the Concession Act of 31 May 1974 lay down that a farmland must be either self-cultivated, or leased for farming even if the rent is not so high as to satisfy the landowner (of course, the owner can choose the highest rent bidder, thus a leasing market still exists; but the rent can be fixed by the Municipal Agricultural Board if there is disagreement); unreasonably high rent is unlawful; the minimum lease term is five-year; a reasonable yield must be produced; the landowner must live in the farm even though the land is leased out (so as to keep rural population); otherwise the land will be compulsorily sold; sufficient farmland is secured for active farmers, and it is possible to keep the price of farmland lower than the market price. Although these regulations have been criticized as 'communist', Norwegians do not want to change them. For Norway, 'with a hard climate and marginal conditions for agriculture, development could lead to an increased movement of people from the districts to the centers and the end of agrarian activities in many districts.' 'The legislation securing arable land for agricultural purposes has, as a whole, been successful. Use of arable land for densely built-up areas, roads, and other purposes has decreased. The aim of being self-sufficient in food has been achieved for husbandry products, most vegetables, feed grains, and half the grain used for human consumption.' (Austena 1992: 140-3, 146-7). The cited legislation is still implemented because food under-self-sufficiency has not been fully achieved.

2. At the overproduction stage, this legislation ceased functioning because the EU has faced a fundamental dilemma and some derivative dilemmas still without a solution.

The fundamental dilemma is: still obliging farmers to either cultivate land or lease it for farming would strengthen overproduction; but if not, much land would be held by able-bodied part-time and absent small farmers in inefficient use, while full-time farmers could not easily achieve economies of scale to be competitive in front of the USA, Canada and Australia with much larger farm size and much lower general production costs and some developing countries with much lower labor costs, or even be viable.¹⁶ Without a solution, farmers (mainly full-time ones) pressed the governments for a high standard living against the difficulties cause by the lower prices following the overproduction. The governments had to yield to them in order to get their votes. Thus the EU turned to protectionism of coupling between subsidies and production, trade-distorting price supports to maintain agricultural products at prices higher than the international levels, and high tariffs against cheaper imports. The following analysis will mainly be on the coupling.

(1) The coupling not only could not solve that fundamental dilemma but has even led to some derived dilemmas.

Concerning overproduction. Under the coupling, if farmers have produced surplus, the EU has to buy it, which has naturally encouraged overproduction. Thus on one hand, the EU intends to avoid the surplus, and has established quotas on some products (e.g., milk, sugar); and set-aside arable land scheme (with subsidies for farmers to join voluntarily) to stop production of cereals (and other arable crops, i.e., food-used oilseeds and protein plants), which includes mainly normal but also marginal land. On the other, however, overproduction has not been prevented because the coupling as an engine is still yielding it. Derived dilemma 1.

Regarding competitiveness. Under the coupling, farmers' competitiveness through lowering costs seems not so important, because if they could not sell products, the EU would buy them. Thus on one side, the EU has the incentive to make the land use more efficient via economies of scale to reduce the endured high costs, and has exercised an early retirement scheme in both the EU and CEE candidate countries through SAPARD (2000) to pay old farmers to transfer land to young

¹⁶ The author is unaware anyone else who has revealed this fundamental dilemma in the literature.

farmers. But it would in turn contribute to overproduction. Therefore, on the other, inefficient land use by able-bodied part-time and absent small farmers exist in many EU states (Finland, France, Germany, Ireland, Italy, Portugal, Spain, Sweden, etc.) and candidate countries. Derived dilemma 2.

In respect of the budget. The coupling has led to overproduction and cost the taxpayers and consumers huge amount of money. The EU wishes to reduce the heavy budget deficits and has introduced in the setting-aside and early retirement schemes, which however, have added financial burdens too, meanwhile have resolved neither overproduction nor inefficient land use. Derived dilemma 3.

In the field of the international cooperation, the EU aims to help the developing countries and has set up many programs with economic and technological assistance. But the coupling, price supports and high tariffs have just unfairly restricted imports and harmed the interests of the Third World. Therefore, the EU has been continuously criticized in this aspect. Derived dilemma 4.

(2) The decoupling could not bypass that fundamental dilemma.

Realizing some of the shortcomings of the coupling, the EU conducted incremental partial decoupling between subsidies and production during 1992-99, and released the 'Mid-Term Review of CAP of Agenda 2000' (MTR 10 July 2002) as a watershed document in the CAP reform. Its major importance is that the EU has finally proposed to completely decouple the link between direct payments and production, so that farmers would fully compete in the market, rather than gearing production to the trade-distorting subsidies. It will be implemented by the 10 countries to join the EU in May 2004, thus reducing the financial burdens of the enlargement. It would also improve market opportunities for the developing countries, and constitute a good example for the other developed countries to follow.

The MTR is very significant also in that the decoupled direct payment to each farm will be conditional upon cross-compliance with the environmental, food safety, animal health and welfare, and occupational safety standards. This would bring about chiefly positive results in these fields.

At the demand side, the decoupling has increased the need for more efficient use of land. As mentioned above, under the present system of coupling, competitiveness of farmers seems not so important, because if farmers could not sell their products, the EU would buy them. After the decoupling, however, the EU would cease doing so. Therefore farmers would have to fully compete in the market for selling their products. Higher quality and localized special trade marks could promote their sales. But with the same or similar quality, in the sea of numerous localized special trade marks (each of which would claim that it is the best), and for many staple foods which could not be easily specialized locally, lower costs would be more competitive. This would in turn necessitate the increase of farm size so as to achieve economies of scale and reduce costs by the full-time farmers.

At the supply side, some MTR measures may strengthen the inefficient land use. First, after the decoupling, farmers would have to sell their products in the market because the EU would no longer purchase their surplus, and market prices would be lowered due to more competition. This would lead to a positive result that farmers would no more have the incentive to produce more than what they could sell, but also a negative consequence, i.e., 'in some cases abandonment of land', as MTR (2002: 19) anticipates, rather than leasing it to the full-time farmers who would require it for achieving economies of scale. Second, after the decoupling, a direct payment would be given to each farm to guarantee the basic living of the farming family, even if it does not produce any product, as long as it has fulfilled the cross-compliance with the environmental standards (the cross-compliance with the food safety, animal health and welfare, and occupational safety standards would be irrelevant if the farm neither produces any crop, nor raises any animal, nor hires any labor). This would give the incentive to some farmers to just enjoy a direct payment without production, and spend all their time on earning off-farm income, without leasing the land to the full-time farmers who would need it to increase farm size.

Therefore, the decoupling could not bypass the above-revealed fundamental dilemma. Rather, it would only expose it which has been largely covered by the protectionism of coupling. In

fact, although the MTR anticipates the risk of land abandonment after the decoupling, it has provided no solution to deal with it. Thus if this fundamental dilemma could not be overcome, then the decoupling might fail, as the full-time farmers would again exert pressure on the political parties to resume coupling so as to guarantee them a high standard living.

3. This legislation could not both promote large farmers and retain small farmers in agriculture, which is also an unsolved dilemma persisting in the EU, USA, Canada, and other developed and even developing countries.

During the incremental partial decoupling of 1992-99, the EU has gradually replaced price subsidies by direct income subsidies, reduced intervention schemes, and successively decreased administrative prices towards the international levels, aiming to achieve a 'farming without subsidies' and let the market decide prices in the long-run. As a result, 'not all EU agricultural production is sheltered by high tariffs and the EU prices may be close to international levels for a significant share of EU production, depending on market price fluctuations' (Beaumont 2002). Such market-oriented measures have been relatively favorable to the large farmers, because they have lower costs due to economies of scale and are stronger in the market competition; but unfavorable to the already weak small farmers, and have led to more exiting by them from agriculture, and consequently encountered protests from farmers out of their gained interests. Thus the EU wishes to both strengthen large farmers and retain small farmers in agriculture, because on one hand, urban unemployment has already been so high and homeless people so many, and on the other, rural development should be promoted to avoid the increase of 'ghost towns' with nearly empty population. (Zhou 2001: 398). But how to combine these two seemingly contradictory aims? Apparently, the above-mentioned Western European legislation could not provide a solution.

Moreover, now that this legislation has been successful at overcoming food under-self-sufficiency, why could not it be popularized to many other countries still at that stage? One of the reasons is that it obliges part-time/absent farmers to lease out *all* their land, so that they may not be able to keep farming skills; and once lost off-farm jobs, they would either have no access to their land rented out, or have to withdraw it within the contractual period (because many developing countries still cannot afford to provide them with a basic social welfare), hence affecting the lessees.

(IV) Possibly Suitable Solutions under Private Land Ownership

In order to overcome the global obstacle of the inefficient land use by able-bodied part-time and absent small farmers and achieve efficient and sustainable land use under private land ownership at both stages of food under-self-sufficiency and overproduction, the author, in a dynamic and variable approach, proposes to introduce a legislation to oblige the farmers to either cultivate their land or lease the inefficiently used *part* of it (as *land for market*) for farming, if a country has not achieved stable self-sufficiency in staple foods; and to grant the right to the full-time farmers to lease in the inefficiently used part of land of the part-time and absent farmers (as *land for market*), if a country has encountered constant overproduction [i.e., a farmer may not be obliged to either cultivate his (her) land or lease it for farming *actively*; but if another farmer wants to lease in his inefficiently used part of land for farming, he (she) is obliged to agree *passively*; subsidies (decoupled from production) and tariffs should be gradually reduced to the WTO standards so that farmers would have no incentive to produce more than what they could sell; when a cultivable land is not demanded for farming, the owner should keep it in a good agricultural or environmental condition]. In both stages, the landowners may keep a part of the cultivable *land for self-consumption*, forming a Dual Land System. The maximal length for the inefficient use of a land would be one year, beyond which it could be obliged to be leased actively at the under-self-sufficiency stage or passively at the overproduction stage. The minimum lease term would be one- (preferably five-) year (longer term possible). Having rented in contiguous parcels of different owners, the full-time farmers would have the right to remove their boundaries and join parcels together so as to eliminate

fragmentation (which is also a difficult and unresolved task under private land ownership), with the original boundaries recorded in the cadastre and a map and showable by field signs. Once the lease contract is over, the landowners would have the right to withdraw their land. But if they did not use it efficiently, they would have to lease a part of it (beyond the self-consumption need) to the full-time farmers actively at the under-self-sufficiency stage; or passively when demanded by the full-time farmers at the overproduction stage. The lease could be available to the nationals of other countries on a reciprocal basis.

Some explanations are necessary.

1. The above-proposed legislation does not intend to replace land reform of distributing land for individual ownership out of equity reasons, which is still necessary where a few persons own large areas of land while many peasants own none or little (especially in some countries in Africa, Latin America, and South and Southeast Asia). Nevertheless, there would be no harm but benefits in adopting it before the land reform, as well as during and after it.

2. After the land reform, if there are few off-farm activities and peasants still have to rely on land for survival, the protection of tenants from eviction, control of land rent at the low level, and land-holding ceiling in order to prevent the revival of feudal landlordism through land repurchasing would be necessary, as Japan implemented following the land reform of 1946-50. But once off-farm activities have developed and absorbed many part-time and absent farmers, such restrictions should be removed so as to facilitate the land transfer to the full-time farmers, as Japan did during 1962-80. Those countries which have reached the similar stage but not yet abolished such restrictions, e.g., Thailand (Onchan 2002), are advised to do so now too.

3. Implementing this legislation could reach the aim of the traditional land consolidation, but without the difficulties of exchanging ownership and locations of fragmented small parcels, and regardless of the inheritance which may further fragment the ownership and location of the family farms. Of course, it does not exclude the implementation of the traditional land consolidation.

4. By this legislation, at the food under-self-sufficiency stage, as long as the land authorities have seen a land as having not been properly cultivated for agriculture for maximally one year, and the landowner still does not agree, or has not shown up at all, to cultivate or lease it for the next year, they could oblige the lease of the part beyond the self-consumption need of the owner to the full-time farmers competitively. At both the under-self-sufficiency and overproduction stages, full-time farmers would have the incentive to report any inefficiently used land to the land authorities because it would be they who would have access to it. Therefore, this legislation would be much more effective than the land waste tax.

5. This legislation is much more lenient than land confiscation while still reaching the same aim of avoiding land waste.

6. This legislation may overcome the fundamental dilemma between overproduction (if farmers are obliged to either cultivate land or lease it for farming) and inefficient land use (if they are not), and the derived dilemmas under the coupling and prevent the failure of the decoupling.

7. Under the proposed Dual Land System, the land for self-consumption is still held by the part-time and absent landowners so that their rural habitation could be reserved, family need for vegetables and cereals catered, farming skills kept, and small farmers not crowded out of agriculture; while the land for market is leased competitively to the full-time farmers, so that they could achieve economies of scale, reduce costs, be more competitive and obtain incentives for longer term investment. Therefore, these solutions would be suitable for both traditional and modern agriculture, both low and high income economies, both stages of food under-self-sufficiency and overproduction, and both developing and developed countries under private land ownership.

8. The rationale for this legislation is the same as that for the above-mentioned Western European legislation at the under-self-sufficiency stage: land is not only a private property, but also a scarce natural resource, and should thus be used in a most efficient way for the social, economic and environmental interests of the whole society. By implementing this legislation, private land

ownership will not be affected, but inefficient land use could be avoided. If the landowner does not cultivate the land but is obliged either actively or passively to lease out the part beyond his self-consumption need, then at least he could earn a rent, even if it is not so high as to satisfy him. As for how to organize the lease while catering the interests of the landowners, tenants and society, and in particular avoiding the misuse of land by the tenants, if the landowner himself leases the land to a tenant, he could choose the highest rent bidder, and they could share the inputs and outputs, so that not only the landowner but also the tenant would have the incentives to achieve the highest profits, prevent losses, and avoid deterioration of the land quality. This has been practiced in the USA (see Zhou 2001: 374-7). If the landowner is absent and the land authorities have to rent out a part of his land (beyond the self-consumption need), then they should call for tender and rent the land to the person who is the most experienced and skillful, and bids for achieving the highest output or rent, and investment in improving the infrastructure (e.g., irrigation) and quality of the land, using more organic fertilizer and less chemical one, protecting the environment, etc. If, after winning the contract, the lessee did not implement it, then the land authorities will have the right to stop it and transfer the contract to another competent full-time tenant via tender.

In so doing, not only the market is not repealed, it will be promoted. (1) If the landowner himself cultivates the land, he can certainly compete in the market. (2) If a part of his land is obliged to be leased to a full-time farming tenant, this tenant can be selected via competition of tender, hence a leasing market. (3) After winning the contract, this tenant can compete in the market. (4) If after winning the contract, the lessee failed to fulfill it, then the landowner or land authorities will have the right to stop the contract and transfer it to another full-time tenant, so as to guarantee that the land is *really* operated competitively according to the market principles. Therefore these solutions reflect a third way between the former command economy and the present free market mechanism, and variable mixed economies between the appropriate government intervention and market mechanism (for the variable mixed economies, see Zhou 2001: 55-62).

(V) Potential Global Relevance

The implementation of the above-proposed solutions may promote fair competition and fraternity among nations of the world.

1. In the recent decades, there have been serious conflicts between developing and developed countries, and among developed ones, as most developed nations (except Australia and New Zealand) have provided high trade-distorting subsidies coupled with production to their farmers and tariffs against cheaper imports. Why should they rely on protectionism? One of the major reasons is the above-mentioned fundamental dilemma. On one hand, following the development of off-farm activities, more and more able-bodied part-time and absent small farmers inefficiently use land without incentive to sell or lease it, while full-time farmers could not easily increase farm size, achieve economies of scale and reduce costs. On the other, if the governments obliged farmers to either cultivate land or lease it for farming, there would be overproduction. Without a solution, the political parties have had to yield to the pressure mainly from the full-time farmers for a high standard living by coupling subsidies with their production so as to get their votes. The coupling has concealed the above-mentioned fundamental dilemma, since under this protectionism, much land is devoted to farming as if land were efficiently used, and the governments even have had to set aside some land in order to reduce overproduction. But actually the land is not so efficiently used as it seems to be, because if the coupling were lifted, then the operation of some (or even much) land would be abandoned, while the full-time farmers would have much difficulty in becoming competitive (or even viable) as they would not easily get the inefficiently used land of the able-bodied part-time and absent small farmers for achieving economies of scale. Currently the USA, Canada, Japan, South Korea, etc. still have not determined to decouple subsidies from production (as the MTR has appealed to them) and have thus faced continuous international criticism. Once having decided to follow the EU, this fundamental

dilemma would also be disclosed. Accordingly, the above-proposed solutions would resolve it so that both developed and developing countries could compete fairly on the basis of the WTO standards, hence promoting fraternity among nations.

2. In the EU enlargement, the negotiations have focused on agricultural and forest land purchase. Many EU candidate countries in CEE, fearing that their cheaper land may be bought quickly after the accession, have concluded with the EU for a transition period of seven-12 years during which Western EU citizens could not buy their land (Enlargement April 2002). On one hand, this would hinder the advanced Western EU farmers from working in agriculture of CEECs, hence a separated European 'Union' after the enlargement. On the other, a potential risk has been neglected: once a land has been purchased by Western EU citizens after the transition period, it may still be inefficiently used since it could be treated merely as an asset. In contrast, if the above-proposed legislation could be adopted in both the EU and candidate countries, then Western EU citizens could *immediately* lease in the inefficiently used part of their land for farming in CEE, without affecting its ownership, while the inefficient land use by the Western EU purchasers could also be prevented, thus achieving a true European *union* in agriculture after the accession. Moreover, this legislation is a major improvement and development of a Western European one implemented once in the EU and still in Norway. Thus adopting it would also promote CEE's integration with Western Europe.

3. In the EU enlargement negotiations, the EU has requested the CEE candidate countries to postpone free movement of their cheap laborers into the Western EU areas up to seven years after the accession, worrying that they may easily take jobs away from the Western EU workers. Most of them have agreed on a reciprocal basis vis-a-vis the Western EU member states (Enlargement June 2002), again dividing the enlarged EU. In contrast, the author's book (Zhou 2001) and this paper have discovered that in the agricultural sector, the reality and trend in the world as well as the EU is that many able-bodied farmers are more interested in earning higher off-farm income, so that allowing the fewer full-time farmers including those from CEECs to lease in the inefficiently used part of their land would not constitute competition with the part-time and absent small farmers and crowd them out of agriculture [in fact there is already an agricultural labor shortage in some parts of the EU, e.g., the Italian Labor Ministry is drafting a law to permit hiring workers for its agriculture from outside the EU with possible priority to the candidate countries (Bani 2002)]. Moreover, while the CEE full-time farmers could benefit the Western EU by their lower labor costs, their Western EU counterparts could help CEECs by capital and technology. The competition among Western and CEE full-time farmers in the leasing markets in both the Western and CEE EU areas would be mutually constructive. Therefore, at least in this sector, there would be no harm for the EU and CEE candidate countries to allow reciprocal free labor movement immediately (or through a much shorter transition period) after, or even before, the accession, hence increasing fraternity between the Western and CEE parts of the EU.

4. If all countries of the world could adopt these suggestions and allow not only nationals but also foreigners to lease in the inefficiently used part of the land (beyond the self-consumption need) of their part-time and absent farmers, then resources would be more efficiently used, environment protected, sustainable rural development achieved, fair competition boosted, and fraternity among nations further advanced. There is already a successful example: China has allowed external and foreign farmers to lease in its land for agriculture, and farmers from its external regions (Hong Kong and Taiwan Province) and foreign countries (Australia, Brazil, Canada, Germany, Israel, Japan, Singapore, Thailand, the USA, etc.) have indeed done so there (see Zhou 2001: 258-9), while Chinese farmers have rented land in other countries, e.g., Hungary and Russia, for agriculture.

V. Conclusions

This paper reveals that inefficient land use by able-bodied part-time/absent small farmers has become a global obstacle with both public and private land ownership, traditional and modern agriculture, low and high income economies, food under-self-sufficiency and overproduction, and developing and developed countries, albeit land property rights have been defined and sale/lease allowed, causing uneven development (e.g., in the enlarged EU since May 2004), and other problems. Nobel economics laureate Schultz and nominee Hirschman have overlooked it.

It has been overcome by China under public land ownership, but not under private one in Europe, Asia, Africa, and Americas. A legislation to oblige landowners to either cultivate land or lease it for farming was implemented in the EU, Denmark, Germany, Italy and UK and is still exercised in Norway at the food under-self-sufficiency stage, but ceased functioning in the EU due to a fundamental dilemma at the overproduction stage: obliging landowners to do so would strengthen overproduction; otherwise, much land would be used inefficiently, then how to achieve economies of scale, reduce costs and compete with other countries? Without a solution, the EU turned to protect farmers by high subsidies and tariffs, making them less competitive, and harming other countries. Thus the EU correctly proposed in 2002 to decouple subsidies from production, which, however, could not bypass this dilemma. Once the USA, etc. have followed the EU, this dilemma would also be exposed for them.

This legislation has not been popularized to many other countries with under-self-sufficiency, because it obliges part-time/absent landowners to lease out *all* their land, so that they could not keep farming skills; and once lost off-farm jobs, would either have no access to the land rented out, or have to withdraw it, affecting the lessees.

The paper suggests a legislation to oblige farmers to either cultivate their land or lease the inefficiently used part of it for farming, at under-self-sufficiency stage; and to grant the right to full-time farmers to lease in the inefficiently used part of the land of other farmers, at overproduction stage [i.e., a farmer is not obliged to either cultivate land or lease it for farming actively; but if another farmer wants to lease in his inefficiently used part of land for farming, he is obliged to agree *passively*; subsidies (decoupled from production) and tariffs should be reduced to the WTO standards to prevent incentive for overproduction]. The landowners may keep a part of land for self-consumption, forming a Dual Land System, so that their rural habitation could be reserved, farming skills kept, and small farmers not squeezed from agriculture; while the land for market is leased to full-time farmers to achieve economies of scale and reduce costs.

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