PART 3.

TAIWAN
THE EFFECTS OF LAND REFORM ON
CHANGES IN THE STRUCTURE OF
AGRICULTURE IN TAIWAN IN THE 1950s

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Introduction

Agrarian reform has been conceived of as a vital precondition for takeoff in economic development. Narrow definitions of reform focus on changes in rights to the use of land, while broad definitions include the transformation of the rural socioeconomic structure so that social relations and class composition are also changed.

Land reform in rural areas of Taiwan focused on realization of the land-to-the-tiller ideal. The first-phase farmland reform, which was implemented in the period from 1949 to 1953, provided a social infrastructure favorable for development in the Taiwan Area. While the importance of this land reform is recognized, opinions differ about to its actual impact. This paper examines the effects of the land reform implemented in Taiwan Province in the 1950s.

Implementation of Land Reform

Farm land reform in Taiwan consisted of three phases: (1) rent reduction beginning in 1949; (2) sale of public lands which began in 1951; and (3) the land-to-the-tiller program which was implemented in 1953.\(^1\) The rent reduction program was initiated in 1949 and limit-

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ed farm rents to a maximum of 37.5 percent of the annual yield of the major crop. This new rent level was substantially lower than the average farmland rental at that time, which had amounted to approximately 50 percent in the more fertile areas. \(^2\) In practice, rental amounts were determined according to the annual yield of the major crop in 1938.

The tenant’s rights were firmly protected by “37.5 percent Rent Reduction Act.” It provided that all farm lease contracts must be written and that the lease period should not be shorter than six years. For the duration of the contract, the landlord might not, except for legally specified reasons, terminate the contract even if the lessor should give up his right of ownership to a third party. If, at the end of the lease contract, the lessee was willing to continue the lease, the contract must be renewed, unless the lessor was prepared to take back the land for his own cultivation, in accordance with legally specified procedures. In practice, the provision of such safeguards for tenants made eviction and even non-renewal difficult.

The second stage of the reform was the sale of public land that had been acquired after World War II from Japanese nationals. The amount of public land that could be purchased by one farm family was limited to between 0.5 and 2 chia (1 chia = 0.97 hectare) of paddy land and 1 and 4 chia of dry land, depending on land quality. \(^3\)

The last step of the land reform program consisted of the Land-To-The-Tiller Program. The work began with a thorough investigation of private land in order to determine the area to be subject to compulsory purchase. The Land-To-The-Tiller Act was passed by the Legislative Yuan on January, 1953. The law limited land ownership by current landlords to a maximum of 3 chia of paddy field of a standard grade. For the land transferred, landlords were paid 2.5 times the amount of annual yield. Compensation to landlords was paid 70 percent with land bonds in kind and 30 percent with government enterprise stock shares. Land bonds were of two kinds according to different categories of land: rice bonds and sweet potato bonds. Compensation for

\(^2\) Ibid., p. 1.
\(^3\) Ibid., p.19
paddy fields was paid with rice bonds, and compensation for dry land with sweet potato bonds. The two kinds of bonds were to be paid in 20 equal installments spread over a period of 10 years, and bore an interest of 4 percent per annum.

The price of farmland offered by the government for resale was calculated on the same basis as that of farmland compulsorily purchased from landlords, namely, 2.5 times the annual yields plus 4 percent per annum. The entire price was to be paid in equal installments spread over a period of 10 years. The farmland-purchaser could pay the price for the land before the ten years was completed. Also, once the land was paid for, the purchaser could sell the land either to another cultivator or to someone else who wanted to construct a factory or houses.

On the completion of land reform, 143,568 chia of farmland had been transferred from 106,049 landlords to 194,823 land purchasers. The tenancy rate was reduced from 38.6 to 15.7 percent. It is evident that the major effects of land reform were to reduce the proportion of tenants and to convert the land-tenancy system into one relying preponderantly on owner-cultivators.

Changes of Agricultural Structure and Land Tenure

Trends in Agricultural Inputs and Productivity

Table 1 provides various quantitative indicators of agricultural inputs used annually between 1949 and 1960. The table reveals that the amount of cultivated areas remained basically constant over the 1949-1960 period, but the crop areas increased continuously, as reflected in the significant rise in the multiple cropping index. The total number of agricultural workers, total number of man-days of labor, and the average number of man-days per agricultural worker rose remarkably, revealing more intensive use of labor. The numbers

of draft cattle rose substantially, reflecting the growing use of animal power. Consumption of chemical fertilizer increased gradually because of more intensive use of land.

Table 1. Quantitative Indicators of Agricultural Inputs 1949-1960

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Crop Area (1,000 ha)</th>
<th>Crop Area (1,000 ha)</th>
<th>Multiple Cropping Index</th>
<th>Ag. Workers (1,000)</th>
<th>Total Mandays</th>
<th>Mandays per Worker (1,000)</th>
<th>Draft Cattle (1,000)</th>
<th>Fertilizer (1,000mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1949</td>
<td>865</td>
<td>1438</td>
<td>166.2</td>
<td>1413</td>
<td>221</td>
<td>157</td>
<td>348</td>
<td>223</td>
</tr>
<tr>
<td>1950</td>
<td>871</td>
<td>1435</td>
<td>164.8</td>
<td>1414</td>
<td>225</td>
<td>159</td>
<td>355</td>
<td>415</td>
</tr>
<tr>
<td>1951</td>
<td>874</td>
<td>1502</td>
<td>171.9</td>
<td>1419</td>
<td>229</td>
<td>162</td>
<td>364</td>
<td>400</td>
</tr>
<tr>
<td>1952</td>
<td>876</td>
<td>1521</td>
<td>173.6</td>
<td>1434</td>
<td>242</td>
<td>169</td>
<td>382</td>
<td>688</td>
</tr>
<tr>
<td>1953</td>
<td>873</td>
<td>1488</td>
<td>170.4</td>
<td>1471</td>
<td>247</td>
<td>168</td>
<td>389</td>
<td>558</td>
</tr>
<tr>
<td>1954</td>
<td>874</td>
<td>1501</td>
<td>171.7</td>
<td>1493</td>
<td>246</td>
<td>165</td>
<td>405</td>
<td>522</td>
</tr>
<tr>
<td>1955</td>
<td>873</td>
<td>1508</td>
<td>172.7</td>
<td>1489</td>
<td>243</td>
<td>163</td>
<td>410</td>
<td>628</td>
</tr>
<tr>
<td>1956</td>
<td>876</td>
<td>1544</td>
<td>176.3</td>
<td>1479</td>
<td>252</td>
<td>170</td>
<td>412</td>
<td>658</td>
</tr>
<tr>
<td>1957</td>
<td>873</td>
<td>1566</td>
<td>179.4</td>
<td>1439</td>
<td>269</td>
<td>187</td>
<td>412</td>
<td>674</td>
</tr>
<tr>
<td>1958</td>
<td>884</td>
<td>1588</td>
<td>179.6</td>
<td>1454</td>
<td>276</td>
<td>189</td>
<td>426</td>
<td>670</td>
</tr>
<tr>
<td>1959</td>
<td>878</td>
<td>1590</td>
<td>181.1</td>
<td>1469</td>
<td>275</td>
<td>187</td>
<td>417</td>
<td>721</td>
</tr>
<tr>
<td>1960</td>
<td>869</td>
<td>1600</td>
<td>184.1</td>
<td>1464</td>
<td>270</td>
<td>184</td>
<td>417</td>
<td>681</td>
</tr>
</tbody>
</table>

In order to estimate total productivity in Taiwan's agriculture, indices for both output and input for the crop sector were calculated. Crop sector is used for analysis because land transferred during the period of land reform were only paddy field and dry land. From Table 1, we can derive the productivity indices of agricultural inputs and the growth rate of outputs, inputs, and productivity. These are shown in Table 2 and 3. During the period 1949-1960, either land productivity or labor productivity rose remarkably, especially during the periods 1949-1950 and 1952-1953. It is evident that the Rent Reduction and the Land-To-The-Tiller Programs exerted some positive effects on incentives for production.
**Table 2. Productivity Changes of Crop Farm Inputs in Taiwan**

<table>
<thead>
<tr>
<th>Year</th>
<th>Output</th>
<th>Area</th>
<th>Crop Area</th>
<th>Ag Workers</th>
<th>Total Mandays</th>
<th>Crop Indexes</th>
<th>Cattle</th>
<th>Fertilizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1949</td>
<td>78.7</td>
<td>99.1</td>
<td>96.6</td>
<td>96.1</td>
<td>89.5</td>
<td>97.5</td>
<td>89.5</td>
<td>40.0</td>
</tr>
<tr>
<td>1950</td>
<td>85.9</td>
<td>99.7</td>
<td>96.4</td>
<td>96.1</td>
<td>91.1</td>
<td>96.7</td>
<td>91.3</td>
<td>74.4</td>
</tr>
<tr>
<td>1951</td>
<td>85.9</td>
<td>100.1</td>
<td>100.9</td>
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<td>92.7</td>
<td>100.9</td>
<td>93.6</td>
<td>71.7</td>
</tr>
<tr>
<td>1952</td>
<td>92.0</td>
<td>100.3</td>
<td>102.2</td>
<td>97.5</td>
<td>98.0</td>
<td>101.9</td>
<td>98.2</td>
<td>123.3</td>
</tr>
<tr>
<td>1953</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>1954</td>
<td>100.7</td>
<td>100.1</td>
<td>100.9</td>
<td>101.5</td>
<td>99.6</td>
<td>100.8</td>
<td>104.1</td>
<td>93.5</td>
</tr>
<tr>
<td>1955</td>
<td>99.3</td>
<td>100.0</td>
<td>101.3</td>
<td>101.2</td>
<td>98.4</td>
<td>101.3</td>
<td>105.4</td>
<td>112.5</td>
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<td>1956</td>
<td>107.8</td>
<td>100.3</td>
<td>103.8</td>
<td>100.5</td>
<td>102.0</td>
<td>103.5</td>
<td>105.9</td>
<td>116.8</td>
</tr>
<tr>
<td>1957</td>
<td>113.9</td>
<td>100.0</td>
<td>105.2</td>
<td>97.8</td>
<td>108.9</td>
<td>105.3</td>
<td>105.9</td>
<td>120.8</td>
</tr>
<tr>
<td>1958</td>
<td>120.3</td>
<td>101.3</td>
<td>106.7</td>
<td>98.8</td>
<td>111.7</td>
<td>105.4</td>
<td>109.5</td>
<td>120.1</td>
</tr>
<tr>
<td>1959</td>
<td>119.9</td>
<td>100.6</td>
<td>106.9</td>
<td>99.5</td>
<td>111.3</td>
<td>106.3</td>
<td>107.2</td>
<td>129.2</td>
</tr>
<tr>
<td>1960</td>
<td>121.9</td>
<td>99.5</td>
<td>107.5</td>
<td>99.5</td>
<td>109.3</td>
<td>108.0</td>
<td>107.2</td>
<td>129.0</td>
</tr>
</tbody>
</table>

**Farmland Rent Reduction**

Under the rent reduction program, the rent payment could not exceed 37.5 percent of the annual standard yield of the main crop. The annual standard yield was evaluated according to soil fertility and productivity by the Commission of Farmland Tenancy. The first evaluation was done in 1949. However, since then, the Commission had never re-evaluated the annual standard yield. That is to say, tenants pay no more than 37.5 percent of the annual standard yield in 1949 regardless of what amount is actually harvested. The results of the rent reduction program area are shown in Table 4. The rent payment made per tenant was equivalent to 720 kg of rice, a reduction of over 1,100 kg on average.
Table 3. Growth Rate of Inputs, Output, and Productivity

<table>
<thead>
<tr>
<th>Year</th>
<th>Output (1)</th>
<th>Area (2)</th>
<th>Crop Area (3)</th>
<th>Ag Workers (4)</th>
<th>Total Mandays (5)</th>
<th>(1)/(2) (6)</th>
<th>(1)/(3) (7)</th>
<th>(1)/(4) (8)</th>
<th>(1)/(5) (9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>9.1</td>
<td>0.6</td>
<td>-0.2</td>
<td>0.0</td>
<td>2.2</td>
<td>8.6</td>
<td>9.3</td>
<td>8.8</td>
<td>7.3</td>
</tr>
<tr>
<td>1951</td>
<td>0.0</td>
<td>0.4</td>
<td>4.5</td>
<td>0.4</td>
<td>1.8</td>
<td>-0.5</td>
<td>-4.5</td>
<td>0.6</td>
<td>-1.7</td>
</tr>
<tr>
<td>1952</td>
<td>7.1</td>
<td>0.2</td>
<td>1.3</td>
<td>0.1</td>
<td>5.7</td>
<td>6.9</td>
<td>5.8</td>
<td>5.4</td>
<td>1.3</td>
</tr>
<tr>
<td>1953</td>
<td>8.7</td>
<td>-0.3</td>
<td>-2.2</td>
<td>2.6</td>
<td>2.0</td>
<td>9.1</td>
<td>11.1</td>
<td>5.9</td>
<td>6.5</td>
</tr>
<tr>
<td>1954</td>
<td>0.7</td>
<td>0.1</td>
<td>0.9</td>
<td>1.5</td>
<td>-0.4</td>
<td>0.6</td>
<td>-0.2</td>
<td>-0.8</td>
<td>1.1</td>
</tr>
<tr>
<td>1955</td>
<td>-0.1</td>
<td>0.1</td>
<td>0.4</td>
<td>-0.3</td>
<td>-1.2</td>
<td>-1.3</td>
<td>-1.8</td>
<td>-1.1</td>
<td>-0.2</td>
</tr>
<tr>
<td>1956</td>
<td>8.6</td>
<td>0.3</td>
<td>2.9</td>
<td>-0.7</td>
<td>3.7</td>
<td>8.3</td>
<td>6.0</td>
<td>9.4</td>
<td>4.8</td>
</tr>
<tr>
<td>1957</td>
<td>5.7</td>
<td>-0.3</td>
<td>1.3</td>
<td>-2.7</td>
<td>6.8</td>
<td>6.0</td>
<td>4.2</td>
<td>8.6</td>
<td>-1.0</td>
</tr>
<tr>
<td>1958</td>
<td>5.6</td>
<td>1.3</td>
<td>1.4</td>
<td>1.0</td>
<td>2.6</td>
<td>4.3</td>
<td>4.1</td>
<td>4.5</td>
<td>3.0</td>
</tr>
<tr>
<td>1959</td>
<td>-0.3</td>
<td>-0.7</td>
<td>0.2</td>
<td>1.1</td>
<td>-0.4</td>
<td>0.3</td>
<td>-0.4</td>
<td>-1.5</td>
<td>0.0</td>
</tr>
<tr>
<td>1960</td>
<td>1.7</td>
<td>-1.1</td>
<td>0.6</td>
<td>-0.4</td>
<td>-1.8</td>
<td>2.8</td>
<td>1.1</td>
<td>2.1</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Table 4. Amount of Rent Reduction Per Farm Family by Size of Holding
(Double-cropped rice farm households)

<table>
<thead>
<tr>
<th>Size of Holding</th>
<th>Average Size (ha)</th>
<th>Rent Reduced (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>below 0.5 ha</td>
<td>0.36</td>
<td>268</td>
</tr>
<tr>
<td>0.5 – 1.0</td>
<td>0.73</td>
<td>559</td>
</tr>
<tr>
<td>1.0 – 2.0</td>
<td>1.36</td>
<td>1000</td>
</tr>
<tr>
<td>2.0 – 3.0</td>
<td>2.42</td>
<td>1623</td>
</tr>
<tr>
<td>3.0 – 5.0</td>
<td>3.69</td>
<td>2554</td>
</tr>
<tr>
<td>over 5.0</td>
<td>7.05</td>
<td>5307</td>
</tr>
<tr>
<td>average</td>
<td>1.55</td>
<td>1116</td>
</tr>
</tbody>
</table>


Structure of Farmland Tenure

After the implementation of the Land-to-the-Tiller program, the number of owner-cultivators increased drastically. There were 24,437
farm families who owned land in 1949. This number increased to 45,357 by 1957. The share of these farms to all farms rose from 38.1 percent in 1940 to 60.0 percent, in 1957 an increase of 21.9 percent. During the same period, the number of tenant farm families was reduced from 239,939 to 125,653. As a result, the share of these farms decreased from 37.4 percent to 16.5 percent, a diminution of 20.9 percent.

**Size of Farmland Holding**

In 1952, there were 303,224 farms of a size below 1 hectare. The number increased to 583,051 in 1955. As a result, the share of farms of a size less than 1.0 hectares rose from 70.6 percent in 1952 to 73.9 percent in 1955, an increase of 3.3 percent. The number of farms of a size more than 10 hectares was 5,051 in 1952. This decreased to 1,516 in 1955. The share of farms of a size less than 10 hectares diminished from 0.8 percent in 1952 to 0.2 percent in 1955. The significance of these trends is the more equal distribution of land ownership. Average farm size decreased from 1.1 hectares to 0.9 hectares. Many economists criticized this, arguing that the land reform had led to further fragmentation of farmland. However, the Land-to-the-Tiller program equalized the size of landholding rather than the size of operating units.

**Effects on Input/Output Change**

Land reform is conceived as a vital means to change the institutional arrangements (Tenure Laws) of agriculture and is expected to result in higher productivity. The main reason is that farm owners have a greater incentive than tenants to increase land improvement (digging better irrigation equipment) and land use (multiple cropping). After the land reform program in Taiwan, the index of multiple cropping shot up from 120 in 1953 to 190 in 1964, while the annual growth rate of crop production was 5.15% during that period. Though the increase of crop production can not be fully explained by institutional change, it was certainly a significant contributing factor.
Chao argued that "land reform must be assessed on the basis of net gain. To claim that an institutional change is beneficial to economic production, one must demonstrate either that it can increase the quantities of inputs beyond what would have otherwise been used, or that it is capable of raising the production function to a higher level." He points out that after land reform the production function of agriculture can be shifted by three possible forces: (1) a rise in the productivity of aggregate input immediately after land reform; (2) the land recipients have stronger incentives than before to adopt new farming techniques which would lead to higher yields; and (3) possible scale economies or diseconomies.

Table 5. Productivity Changes of Aggregate Farm Inputs in Taiwan

<table>
<thead>
<tr>
<th>Year</th>
<th>Output</th>
<th>Input</th>
<th>Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1953</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>1954</td>
<td>100.4</td>
<td>106.4</td>
<td>94.4</td>
</tr>
<tr>
<td>1955</td>
<td>100.0</td>
<td>104.4</td>
<td>95.8</td>
</tr>
<tr>
<td>1956</td>
<td>108.9</td>
<td>109.8</td>
<td>99.2</td>
</tr>
<tr>
<td>1957</td>
<td>118.5</td>
<td>112.3</td>
<td>105.5</td>
</tr>
<tr>
<td>1958</td>
<td>125.7</td>
<td>115.2</td>
<td>109.1</td>
</tr>
<tr>
<td>1959</td>
<td>124.8</td>
<td>114.8</td>
<td>108.7</td>
</tr>
<tr>
<td>1960</td>
<td>124.9</td>
<td>120.3</td>
<td>103.8</td>
</tr>
</tbody>
</table>

Source: Data are from Chao (1986), p. 235.

In Table 5, columns 1 to 3 provide the results of aggregate input analyses for the farm sectors before and after land reform compiled by Chao. He concludes that productivity declined by various degrees until 1956. This seems to suggest either that land reform had little positive effect on production incentives or that a substantially favorable impact on production incentives was offset by a substantially unfavorable effect from the change in the operation scale. If we substitute input/output of crop sector for the data shown in Table 2, the results would be a bit different. In Table 2, we...
saw that either land productivity or labor productivity increased by 7-10 percent during the period 1949-1950 and by 1-11 percent between 1952-1953. The yield per hectare of cultivated land increased by 0.6 percent in 1954, declined a small amount in 1955, and then increased again in the following years. The yield per hectare of cropped land and output per worker declined in 1954-1955, then rose again in the following years except 1959. This seems to reveal that the long-run effects of land reform resulted in higher productivity.

Many persons assume that large farms are the most productive and that they increase production more rapidly than small farms. Therefore, they believe that land reform that reduces farm size will decrease agricultural production since scale economies refer to the size of the operating unit. However, in many areas of less developed countries, land productivity is higher on small farms. Of particular interest is the finding that the relation held in Latin America, where average farm size is large and population density is low, and in Asia, where average farm size is small and population densities are high. The explanation of these results is that agricultural productivity depends on the increased quality and quantity of labor available on small farms.7

Much of the research reviewed by Berry and Cline indicates that, with reasonable agricultural input availability, the adoption curves for new technology by small farmers are similar to those for large farmers, as are rates of increase in yield.8

The above discussion leads to the following conclusions.
1. Land reform had positive effects on production incentives.
2. Land reform did not reduce farm size by transferring ownership. The small size of farms prevailed in Taiwan even before land reform.
3. Even though there might have been a temporary slowing of agricultural growth occur during the transition years of land reform, land reform did not impair the farmers' incentives to produce.

8. Ibid.
As mentioned previously, since the rent actually paid by tenants was fixed at 37.5 percent of 1948 yields, he might gain a larger share (amount) in gross product after land reform than that share he gained before. Koo\(^9\) provides an excellent analysis of the effect of land reform on farmer's income. Koo estimated the effect on a farmer's income of three different rental contracts in Taiwan over a period of 12 years. He concludes that tenants would have made significant gains in gross income even if the rent was fixed at 50 percent of the 1948 yield. Had the land reform not been carried out, landlords would have gained a huge share of the increase in agricultural production as farm productivity evolved. According to calculation done by Samuel Ho,\(^{10}\) the real income of the average tenant would have increased by 107 percent between 1948 and 1959 (if he had become an owner-cultivator) compared to only 16 percent if he had remained a tenant.

In addition to computing the positive effects of the land reform, it is worth considering the reform's effects on landlords. As above mentioned, the land price compensation to landlords was 2.5 times the amount of the annual main crop yield. However, this value was much lower than the actual market value, thereby affecting negatively the wealth of landlords. Furthermore the land bonds that were given to landlords as compensation for the compulsory purchase carried an interest rate of only 4 percent compared to a real market rate ranging between 30 and 50 percent per annum prevailing at the time. As a matter of fact, many landlords sold the land bonds at a value which was substantially lower than the nominal value, indicating a further redistributive effect.\(^{11}\)

The institutional change strategy implemented in Taiwan by land reforms in the 1950s successfully shifted income flows from higher income groups to lower income groups. However, as the industrial sector expanded, factors of production employed in lower-rewarded agricultural activities shifted to higher-rewarded industrial activities, thus causing income disparities between the two sectors. In Table 6,

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9. Ibid., pp. 271-274.
10. See Table A. 36 in Ho, Economic Development, p.549.
11. Ibid., p. 268.
we can see a sharply growing share of total farm family income coming from off-farm wage-income which rose from 13 percent in 1952 to 38 percent in 1967. When farm family incomes are stratified by farm size, Table 6 shows the income disparities among various cells and the increasing reliance on off-farm income by families operating smaller farms, thus revealing problems of deficiencies in agricultural structure.

Table 6. Farm Family Income by Size of Farm

<table>
<thead>
<tr>
<th>Size of Farm (ha)</th>
<th>1952</th>
<th>1957</th>
<th>1967</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>On-Farm</td>
<td>Total</td>
</tr>
<tr>
<td>average</td>
<td>12.5</td>
<td>10.8</td>
<td>24.0</td>
</tr>
<tr>
<td>0.0-0.5</td>
<td>5.8</td>
<td>4.0</td>
<td>12.5</td>
</tr>
<tr>
<td>0.5-1.0</td>
<td>8.9</td>
<td>7.3</td>
<td>19.0</td>
</tr>
<tr>
<td>1.0-1.5</td>
<td></td>
<td></td>
<td>39.9</td>
</tr>
<tr>
<td>1.5-2.0</td>
<td>14.1</td>
<td>12.6</td>
<td>26.9</td>
</tr>
<tr>
<td>2.0-3.0</td>
<td></td>
<td></td>
<td>57.2</td>
</tr>
<tr>
<td>3.0 and over</td>
<td>24.7</td>
<td>22.8</td>
<td>48.7</td>
</tr>
</tbody>
</table>

**Effects on Structural Deficiencies**

As the shift of land, labor and capital resources from the agricultural sector to the non-agricultural sector began in the mid-1960s, structural deficiencies in the adjustment of agriculture to the changing socio-economic situations can be observed in Taiwan. These deficiencies became obvious through insufficient supply of land per farm, increasing income disparities, and a growing share of part-time farmers. The rigid farmland tenure system after land reform can be attributed to slow changes of deficiencies in the country's agricultural structure.

Taiwan's average farm size was 1.29 hectares in 1952. This decreased to 0.97 hectares in 1972 because of the increase of farm families, and then increased gradually to 1.03 hectares by 1990 due to
a slight decrease in the number of farms.\textsuperscript{12} If we look at the distribution of farms by size, the core of the problem may become more clear. The number of farms of size less than 1 hectare rose in the share of total farms from 62.8 percent in 1955 to 75.2 percent by 1990. The small scale of all farms has made the adoption of modern technology difficult, costly, and less efficient as compared with the conditions in the 1950s. Therefore, how to increase farm size has become a major issue for agricultural development in Taiwan.

One of the most effective ways to enlarge farm size is to rent land from others who are either short of labor to take care of their farms or intend to quit farming. It is nearly impossible to do this, however, because of the strong protection of tenancy rights. Many part-farmers leave their land to overseers to cultivate or let the land sit idle but will not lease their land to other farmers for fear of losing their land forever. They are afraid that the government may invoke the land reform regulation and eventually force them to give up their land ownership if it is leased to other farmers.\textsuperscript{13}

The second-phase farmland reform which was promulgated in 1982 was designed to break through the constraints of small farm size and establish a new tenure system that would allow the enlargement of farm size without affecting land ownership. This program included (1) loans for the purchase of farmland to expand farm size; (2) joint, entrusted, and cooperative farming; (3) land consolidation; (4) farm mechanization; and (5) supporting measures such as the implementation of regional planning and the revision of related land and agricultural laws to pave the way for improving the land tenancy system.\textsuperscript{14}

However, due to the “shadow effect” of the strict safeguards for tenants and the lack of confidence by farmers in this program, the program has not had significant effects on the structure of agriculture in Taiwan.

\textsuperscript{14} Ibid, p. 33.
Conclusion

The land reform program implemented in Taiwan in the 1950s had a positive effect on farmer income and income distribution in the whole rural society. However, the firm protection of the tenant's rights made it difficult to evict a tenant who is unable or unwilling to make best use of the land to earn a competitive rent. Overall, the beneficial effects of providing security of tenure have to be weighed against the disadvantages of impeding the working of a competitive market in farmland.
URBAN LAND POLICY ISSUES IN TAIWAN

Robert Lin

Introduction

The “Equalization of Land Rights”

Land policy in Taiwan is based on the teaching of Dr. Sun Yat-Sen (1866-1928), the founding father of the Republic of China. In his book, “The Principle of Livelihood,” the idea of Equalization of Land Rights is envisaged as an efficient way of solving land problems. According to Dr. Sun, Equalization of Land Rights (EOLR) does not mean outright redistribution of national land. Instead it provides equal opportunity for all nationals to share the increase in the value of land by means of land taxation. Dr. Sun asserted that people have an equal right to enjoy the benefits of civilization; in other words, the current land value belongs to the landowners but the increase in the value of land which arises from the increasing prosperity of society, in contrast to investment by landowners, is public property which should be enjoyed by the public.

Later this idea was enshrined in the Chinese Constitution of 1948 as one of the fundamental national policies. Section 142 of the Chinese Constitution states that the national economy should be based upon the principles embodied in Dr. Sun’s “Peoples Livelihood” and it put the EOLR program into effect. Section 142 states that land within the territory of the Republic of China belongs to all the citizens, that private ownership of land acquired in accordance with the law should be protected and restricted under it, that private land should be subject to taxation according to land values and the government may purchase...
such land at the same value, and that if the increase of land value does not arise from the investment of capital or labor by landowners, the government will levy thereon an increment tax and the revenue from which will be enjoyed by the people in general.

In order to achieve the EOLR program, four approaches were advocated by Dr. Sun: (a) an approach to assessing land value based on owner declaration, (b) levying the land value tax at the declared land value, (c) providing for compulsory purchase of land at the declared land value, and (d) levying the Land Value Increment Tax. One of the main ideas of the EOLR program is that the current land value belongs to landowners whereas that part of the increment of land value which does not arise from the investment of landowners should be regarded as public property. Therefore, assessment of land value defines the line between the current land value and the further increment. Consequently, the levying of the Land Value Tax (annual) and the Land Value Increment Tax can be effected. Under the EOLR program, landowners are required to declare the value of their land to government once and for all.

The main purpose of self-assessed land value by landowners is that landowners will not assess the value too low or too high under the EOLR program. If they declare less than the value of their land in order to evade the Land Value Increment Tax in the future when the land is transferred, they run the risk of having their land compulsorily purchased by the government at its declared value. If they declare more than the value of their land, they will suffer a high rate of Land Value Tax annually. Within these constraints, the probability of landowners declaring the true market price of their land to the government is high. This type of assessment was claimed to be not only fair to the landowners but also an extremely simple method by which the government can have a basic land value for levying land taxes.

After the land value has been fixed, landowners are liable to pay the Land Value Tax according to Declared Land Value. The levying of the Land Value Tax is one of the effective means of preventing landowners from over-declaring their land value in the hope of obtaining more compensation when the land is compulsorily acquired by the government or of reducing liability to Land Value Increment Tax when the land is transferred in the future.
Furthermore, in order to encourage more effective land use, the Land Value Tax is levied only upon the unimproved value of land. Thus, improvements on the land should be excluded from Land Value Tax. Dr. Sun declared that the levying of the Land Value Tax has three advantages: (a) land will not be idle, (b) there will be an incentive to put land to more effective use, and (c) capitalists will not be able to manipulate the price of land.

The EOLR program empowers the government to compulsorily purchase private land according to the Declared Value when landowners under-declare their land values to the government or when the government needs land for public use. If the declared land value properly reflects the market price, compensation associated with compulsory purchase of land will be a full recompense, as it should be.

Dr. Sun contended that the land value declared by the landowners should be fixed permanently. Moreover, all transactions in private land should be handled by a land authority in order to monitor sale prices. In this way, all the unearned increment of land value would be completely siphoned off from the landowners by the government for public benefit. The levying of the Land Value Increment Tax can also prevent landowners from under-declaring their land values since they will pay more Land Value Increment Tax in the future when the land is ultimately transferred. It can be seen that each of the above four approaches of the EOLR program has its own aims, yet they are interlinked.

In terms of land policy, the EOLR program is the paramount guiding principle of land taxation. On the other hand, from the viewpoint of implementation, land taxation is one of the main instruments for the EOLR program. Through land taxation, the EOLR program aims to achieve the following goals: (a) to bring about public enjoyment resulting from land, (b) to encourage appropriate land use, and (c) to curb monopoly ownership and speculation in land.

**The Application of EOLR in Taiwan**

The idea of EOLR was first advocated in 1904. However, there was no opportunity for the government to put the idea into practice until
Urban Land Policy Issues

1949 when it evacuated to Taiwan. The EOLR program was launched in 1956 but only applied to certain urban areas. By 1977 the program was enforced on all registered lands in Taiwan.

Valuation

According to Dr. Sun, landowners should assess the value of their land. However, under the current EOLR program, the assessment of land value is made initially by the land authority and is known as the Government Assessed Land Value which is then published as a reference for individual landowners to declare their land values.

1. Government Assessed Land Value

There are seven features of the land assessment procedure.

i. Recent transfer prices of land are collected including data on income derived from land and information on the other factors influencing the transfer prices and incomes, from purchasers, vendors, estate agencies, landlords, etc.

ii. “Unit value” by lot is calculated according to the income capitalization and market-comparison approaches. The information collected is used to calculate the values of each lot of land within the valuation area. The results are adjusted to a common valuation date by the use of the wholesale price index and other factors influencing the transfer prices.

iii. Land, according to the approximate “unit value” and land classification, is classified into various sections.

iv. Land prices within a section are sampled and “section values” (NT$/m²). In built-up areas, 2.5 to 20 percent of aggregate plots within the same section, and in other areas 1 to 5 percent within a section are subjected to sampling.

v. Land values are calculated by lot. The value of land in the general area is obtained by multiplying the “section value” by area; but the value of land along busy roads and streets is required to equal the “unit value” times the area.

vi. The Land Appraisal Committee must approve the findings.

vii. The Government Assessed Land Value is published as a reference for landowners to declare their land values.
2. The Practice of Declaring Land Value

During the period of valuation, landowners are required to declare the value of their land according to the Government Assessed Land Value. Revaluation is carried out once every 5 years. The landowners can only declare their value between 80 percent and 120 percent of the Government Assessed Land Value. Three situations can arise from this valuation system:

i. Where the declared value is less than 80 percent of the Government Assessed Value, the government may choose to levy the Land Value Tax according to 80 percent of Government Assessed Land Value or to compulsorily purchase the land at the declared value.

ii. Where the declared value exceeds 120 percent of the Government Assessed Land Value, the declared land value is deemed to be 120 percent of Government Assessed Land Value.

iii. Where there is failure to declare land value during the period of valuation, the Government Assessed Land Value is deemed to be the declared value.

Annual Taxation

1. Land Value Tax

The Land Value Tax is levied upon urban land in Taiwan with the exception of the following categories: i) Land designated by urban planning schemes as agricultural or for existing public uses; ii) Land in urban areas being used for agriculture before the completion of fundamental infrastructure to be provided by the government, namely, roads, sewers, electricity and water supply; iii) Urban land being used for agricultural purposes which is reserved for future public facilities in accordance with urban planning proposals.

Landowners must pay the Land Value Tax and it is collected yearly according to the land value declared by the owners. Furthermore, the Land Value Tax is levied on the aggregate value of land owned by the same landowner in the same county or city. Therefore, the land value declared by each landowner in the same county or city will be added together to work out the aggregate land value entered in the Valuation
List which provides information about land and land values as well as the names and addresses of the taxpayers who are liable.

Rates of Tax

The basic rate of the Land Value Tax is one percent of the aggregate Land Value. If the aggregate Land Value exceeds the Progressive Starting Value (PSV), a progressive rate is applied. The Progressive Starting Value is the average value of seven acres of land in the county or city where the land being taxed is located, excluding land for industrial and agricultural uses, and land exempt from the Land Value Tax.

Where the aggregate value of the land owned by the taxpayer exceeds the Progressive Starting Value by less than 500 percent, an additional rate of 0.5 percent is levied. Where the aggregate land value exceeds the Progressive Starting Value by more than 500 percent, an additional rate of one percent is levied on each 500 percent in excess until the maximum rate of 5.5 percent is reached. In other words, the rate of the Land Value Tax is progressive in accordance with the scale shown in Table 1 below.

<table>
<thead>
<tr>
<th>Portion of Aggregate Land Value in Excess of PSV</th>
<th>Tax Rate(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. On aggregate land value less than PSV</td>
<td>1.0</td>
</tr>
<tr>
<td>2. On the first 500% in excess of PSV</td>
<td>1.5</td>
</tr>
<tr>
<td>3. On the second 500% in excess of PSV</td>
<td>2.5</td>
</tr>
<tr>
<td>4. On the third 500% in excess of PSV</td>
<td>3.5</td>
</tr>
<tr>
<td>5. On the fourth 500% in excess of PSV</td>
<td>4.5</td>
</tr>
<tr>
<td>6. On land value in excess of the fourth 500% of PSV</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Reliefs and Exemptions

Although the Land Value Tax is levied at a progressive rate, preferential rates and exemptions are adopted under certain conditions.

i. Land reserved for public works in accordance with urban planning proposals which is not used and is located away from used land, is exempt from the Land Value Tax. However, if the land in question is currently used as a residence, the tax is levied
at 0.3 percent of the aggregate land value. If the land is currently used as the site of other kinds of building, 0.6 percent of aggregate land value will be levied.

ii. Public land used for public purposes may be either exempt from the Land Value Tax or it is levied at the basic rate only.

iii. In relation to land used for principal private residence which does not exceed 3 ares in an urban area or 7 ares in a non-urban area, the Land Value Tax is levied at 0.3 percent of the aggregate land value.

iv. Land located in Enterprise zones or land in other areas which are approved by the Industrial Authority to be used for industrial purposes, is subject to tax at one percent of aggregate land value.

v. Land used for public purposes—such as for education, churches, and charitable facilities provided by non-profit organizations—is exempt from the Land Value Tax.

**Penalty Provision**

If taxpayers have not paid the Land Value Tax after the expiration of the prescribed period, they are liable to a fine at one percent of the tax liability for every two days they are late in settling for up to 30 days, after which legal action is taken against them. Should taxpayers no longer be entitled to preferential rates or an exemption from the Land Value Tax, they need to inform the tax authorities of the changed circumstances or suffer a penalty of quadruple the amount which should have been paid.

**2. Vacant Land Tax**

The Vacant Land Tax is a special land value tax and is employed to promote land use as well as to curb land speculation. It is levied to bring more land into the market. The following two types of land may be identified as vacant land by local authorities: (a) private lands which have been designated as building sites but which have not been developed; and (b) private building sites with buildings and other improvements the value of which is assessed at less than 10 percent of the declared land value of the site.

The government may prescribe a time limit during which vacant land should be developed or a Vacant Land Tax at 200 percent of the
Land Value Tax liability will be levied. The levying of the Vacant Land Tax was first introduced in 1968 but was suspended during the world recession of 1974. It was revived in 1979 and again suspended in August 1989 due to an economic slowdown.

3. Land Value Increment Tax

The Land Value Increment Tax is levied upon landowners or done when an interest in land is disposed of, namely by (a) sale, (b) the creation of Dein Right, or (c) when a gift is made. Section 176 of the Chinese Land Act 1975 provided that a Periodic Land Value Increment Tax should be levied on the tenth year after the first land assessment, even if the interest in land has not been disposed of. However, the Equalization of Land Rights Act 1977 did not adopt this idea. There were three reasons. First, a Periodic Land Value Increment Tax levied upon unrealized Increments of Land Value will increase the burden on landowners, in particular in relation to principal private residences. Second, land values are reassessed every three years and the Land Value Tax is levied in accordance with the reassessed land value. Accordingly, part of the increment of land value is taken away by the yearly Land Value Tax. Third, when local government undertakes special public works, “special assessments” are imposed upon land and buildings according to the extent to which the owners enjoy benefits from the public works.

In accordance with the Equalization of Land Right Act of 1977, the levying of the Land Value Increment Tax should be based on the difference between the cost of acquisition and the current transfer price. Nonetheless, the government has not designed a mechanism for monitoring the transaction price. Thus, the landowners who transfer their land to private individuals can pay less Land Value Increment Tax than upon sales to public authorities. Therefore, the Government Assessed Current Price is published yearly by the government to examine the declared land price.

1. Dein Rights are created when the obligee lends money to the landowner (obligor) and occupies the land of the obligor for his use and benefit. If the land becomes irredeemable after two years of extinction of Dein Rights, the Dein Right entitles the obligee to the ownership of the land. This is the reason why the creation of Dein Rights is subject to the Land Value Increment Tax.
Whenever the interest in land is disposed of, the vendor together with the purchaser should, within 30 days from the date of signing the contract for transfer, apply for the registration of the transferred ownership with the Land Authority. Before the registration, the vendor is required to declare the transfer price, known as the Declared Current Land Price, and to pay the Land Value Increment Tax. If the Declared Current Land Price exceeds the Government Assessed Current Price, the Land Value Increment Tax is levied according to the Declared Current Land Price. Where the Declared Current Price is low, the government may choose either to levy the Land Value Increment Tax at the Government Assessed Current Price or to purchase the land at the Declared Current Land price. In the circumstance of compulsory acquisition, the purchaser is thus denied the land he had contracted to buy.

When land is sold by public auction or transferred to a creditor by the decision of a court as a result of bankruptcy or liquidation, the levying of the Land Value Increment Tax is given priority over the claims of other creditors, including mortgages, and is levied on the auction or transferred price.

The levying of the Land Value Increment Tax is only upon the land gains and should exclude the increase in value which arises from investment by landowners. Therefore, the calculation of the net aggregate of increment of land value should exclude expenditures incurred by the landowners, such as Special Assessments and payments under an urban land consolidation scheme, from the gross aggregate of increment of land value.

*Rates of Tax*

According to Dr. Sun, the unearned increment of land value should be completely taken away from private landowners by the government for public benefit. This idea was not totally incorporated into the Chinese Land Act 1930 and the Equalization of Urban Land Rights Acts, although the rate of Land Value Increment Tax has at times reached 100 percent of the increment of land value. The current rates of Land Value Increment Tax, shown in Table 2 are also different from the ideas of Dr. Sun.
Table 2. The Current Rates of the Land Value Increment Tax (1977-1991)

<table>
<thead>
<tr>
<th>Percentage by which a part of total increment exceeds the previous purchase price or the original declared value</th>
<th>Tax Rate(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. On the first 100%</td>
<td>40</td>
</tr>
<tr>
<td>2. On the second 100%</td>
<td>50</td>
</tr>
<tr>
<td>3. On the rest</td>
<td>60</td>
</tr>
</tbody>
</table>

**Reliefs and Penalties**

 Preferential and penalty rates are widely applied in the following situations for the levying of Land Value Increment Tax. Rates are reduced for three principal circumstances. First, where land is used for a principal private residence which is less than 3 ares in urban areas or 7 ares in non-urban areas, the rate of the Land Value Increment Tax is 10 percent of the increment of land value. However, this preferential rate can only be enjoyed once in a lifetime by a landowner. Second, where land has been developed following a land consolidation scheme, a reduction of 20 percent of the Land Value Increment Tax on the first transfer is provided. The third circumstance is where land is compulsorily purchased by the government. In that instance, a reduction of 40 percent of the Land Value Increment Tax is provided; but where the land has been reserved for public facilities, the reduction is 70 percent.

**Exemptions**

 There are two principal classes of exemption. The first is private land transferred by inheritance upon the death of the owner. The second is farmland which is used for agricultural purposes in accordance with the law and is transferred to another farmer who will continue to cultivate the land by himself.

**Refunds**

 The Land Value Increment Tax can be refunded under certain conditions. However, the refund cannot be in excess of the amount of Land Value Increment Tax actually paid. The tax can be refunded where the landowner has purchased another plot of land to be used for
a principal private residence not in excess of 3 ares in an urban area or 7 ares in a non-urban area, within 2 years after the sale of land occupied by a principal private residence. Another case is when a landowner purchases land located in Enterprise Zones or in industrial areas, and the land previously owned by that purchaser had been used for industry but was compulsorily purchased by the government or the land was sold in accordance with a removal plan approved by the Industrial Authority. A third case is when self-cultivated farmland is sold or compulsorily purchased by the government and the farmer purchases other farmland for his own cultivation. A fourth example is when the Land Value Increment Tax is refunded, without the payment of any interest, after the Dein Right expires and the obligor redeems the land. Finally, after the revaluation of land value, the payment of the Land Value Tax may be increased. The increased portion of the Land Value Tax can be deducted from the Land Value Increment Tax if the interest in land is disposed of. However the deduction cannot be in excess of five percent of the Land Value Increment Tax.

**Penalties**

i. When an interest in land is disposed of, the landowner together with the purchaser should, within 30 days from the date of signing the contract for transfer, apply for the registration of the transfer of ownership with the Land Authority; otherwise the registration fee is doubled every ten days for default, but the aggregate amount of the fine cannot be in excess of 20 times the registration fee.

ii. When people who purchase land re-sell the land without first applying for the registration of the transfer of ownership, they will be fined an additional 20 times the cost of the registration fee as well as under (i) above. In other words, they will be fined an amount equivalent to 40 times the registration fee.

iii. Any person engaging in land speculation may be liable to imprisonment for three years and may also be fined NT$7000 as laid down by Section 85 of the Equalization of Land Rights Act 1977.
Compulsory Purchase at Declared Value

The rolling program of compulsory purchase and disposal of land is regarded as an example of tax in kind in the field of land taxation. The EOLR program empowers the government to compulsorily purchase private land if the following situations arise:

i. Where Declared Land Value is less than 80 percent of the Government Assessed Land Value;

ii. Where Declared Current Land Price is less than the "Government Assessed Current Price" when an interest in land is disposed of;

iii. Where building sites, except sites for industry and schools—which are in excess of the maximum limitation area (10 ares = 0.1 ha)—are owned by private individuals and have not been used for building or been sold after the expiration of the two year period allowed by government;

iv. Where farmland designated for building sites had not been used for building one year after the expiration of the lease and cessation of agricultural use; and

v. Where land has been identified as vacant by the government and has not been used during the prescribed time limit.

From the above five situations, it can be seen that the compulsory purchase of private land at the declared land value has two objectives. These are to provide for the levying of the Land Value Tax and Land Value Increment Tax as well as to prevent speculation and the monopoly holding of land so as to promote better land use. When land in multiple ownership is compulsorily purchased, the original boundaries are extinguished and the site is resold to those who need land for development schemes.

Urban Land Consolidation Scheme

Besides the four approaches mentioned above of the EOLR program, the EOLR Act also provides for further attention to land use. In order to mitigate the problem of fragmentation of land and the financial difficulty faced in providing public facilities necessary for urban development, the Urban Land Consolidation Scheme was launched in Kaohsiung city in 1958 to secure the more economic use
Urban Land Consolidation was carried out by 48 districts in different counties and cities from 1958 to 1980 and eventually an aggregate land area of 2058 hectares was consolidated. In 1980 a 10-year project was started under which 14,370 hectares of urban land is expected to be consolidated in the following locations: Taiwan Province (10,000 ha), Taipei City (1,862 ha) and Kaohsiung City (2,508 ha).

From 1958 to 1983, a total of 5162 hectares of urban land was consolidated throughout Taiwan of which 3,531 hectares were provided for building sites and 1,631 hectares were made available to the government for public facilities at no additional direct cost. Urban Land Consolidation is implemented through exchange, division, and reallocation of land so that fragmented and irregularly shaped land can be consolidated into economic-size holdings of suitable shapes. In such schemes, 60 percent of land is then returned to the original landowners for development. The other 40 percent, known as cost-equivalent land, is partly sold to cover the administrative costs of consolidation and partly used for the provision of public facilities, such as roads, parks, public squares, and markets.

The main objectives of Land Consolidation are to improve the economic use of the land and to alleviate the financial problems faced by government in providing public facilities for urban development. The implementation of Urban Land Consolidation involves not only the promotion of improved land use but also a charge on betterment and a tax upon land gains.

In Taiwan, 54.48 hectares of urban land in 11 districts were consolidated by the landowners themselves by 1988. As part of these schemes local government has acquired 18.95 hectares of land for public facilities without any direct payment by way of compensation.

**Requisition of Lands by Districts Scheme**

Generally government intervenes in the land market to improve efficiency, equity, and to raise revenue for public expenditures. Intervention takes many forms, including land use regulation, taxation, subsidies, nationalization, etc. However, the difficult problem that government faces is how to finance public infrastructure to
accommodate a rapidly growing population and associated urban development. Therefore, government constantly seeks more direct forms of intervention by which it may achieve not only the objective of equity and raising revenue, but also that of promoting land development. The Requisition of Lands by Districts Scheme (RLDS) is an approach the government can apply to specific areas in order to reach the above objectives. RLDS is a way to promote land use for integrated development so as to pursue the goals of landowners sharing the benefit of land development and the community sharing in any increase in land values brought about because of planning or other actions of the community.

According to the EOLR Act, there are four cases in which the government may adopt the RLDS to develop specific areas:

1. All or part of the newly established urban area where urban development and constructions are to be carried out.
2. The inner area where renewal is to be implemented for the improvements of public, public sanitation, and public transportation or for promoting the reasonable land use.
3. Urban area where a new community is to be developed.
4. Rural community areas in need of public facilities, and public sanitation, or in accordance with the agricultural development planning to carry out rural renewal or development of new community. In such a scheme, in principle 50 percent of the area of RLDS, but not less than 40 percent except approved by the requisitioning authority of the higher level government, known as value-equivalent land which is available for construction of building, is used to compensate the landowner. The other 50 to 60 percent is partly sold for public housing, or appropriated with payment to the government institution to cover the administration cost of the scheme, and partly (35%) used for the provision of public facilities, such as roads, ditches, parks, green lands, children’s playgrounds, public squares, parking lots, and primary schools, etc.
Urban Land Problems and Policies Analysis
The First Stage (1956-1977)

Background

Agriculture and horticulture made a big contribution to Taiwan's economic development from the 1950s through the 1960s by providing a sound basis for industrial and export success. In addition, the government initiated numerous reforms and new programs promoting economic growth. For instance, the “First Four-year Economic Development Plan,” launched in 1953, sparked rapid economic growth that Taiwan has sustained over a period of almost 40 years.

In this first stage of urbanization, the rate of employment in the agricultural sector declined from 53.19% of total employment in 1956 to 26.1% in 1977, while employment in the secondary and tertiary sectors expanded from 18.32% to 37.63% and from 28.49% to 35.6% respectively. It is obvious that with such development, the center of gravity shifted from agriculture to industry. From 1956 to 1977, the gross national product (GNP) increased by 5.3 times. During the same period, the average yearly economic growth rate was 9.2% and per capita GNP grew from NT$22,537 in 1956 to NT$83,643 in 1977.

The total population of Taiwan increased from 9,390,000 in 1956 to 16,788,000 in 1977. The urban population increased from 3,210,000 to 10,474,000 during the same period. This represented an increase from 34.19% to 62.39% in terms of the ratio of urban population to the total population. The area of urban land expanded from 1890.46 km$^2$ to 4738.85 km$^2$. Furthermore, the total households of Taiwan in the period ranging from 1961 to 1977, increased from 2,002,493 to 3,307,224. Household size declined from 5.57 persons to 5.08 persons during this period.

The changes just described created an increasing demand for urban land and had a colossal influence on land values. In Taipei city, between 1956 and 1977, the land value index climbed from 133.35 to 6,959.22, whereas the wholesale price index only climbed from 112.71 to 338.86 during the same period.

The Economic Development Plans during this time reached its objectives of economic growth. However, the plan did not pay much attention to urban infrastructures because of financial limitations.
Consequently, the land reserved for infrastructure could not be acquired by government. Meanwhile, speculation in urban lands proved to be a very profitable activity in the early 1970s.

Problems and Policies Analysis

1. Enforced Areas of EOLR Program

The Equalization of Land Rights (EOLR) program was launched in 1956 but only applied to certain urban areas. As a result, the EOLR program was not applied to the places which had development potential but were not subject to urban planning. However, the EOLR program was implemented in some areas which only had a small hinterland with limited development potential. In addition, it is important to recall that the landowners whose land was located in the area of the EOLR program had to pay the Land Value Tax annually and Land Value Increment Tax when their land was transferred; whereas the landowners whose land was located outside the EOLR program did not pay these taxes. This significant difference resulted in land speculation in areas right outside the EOLR program area. One effect was to make it difficult for government to acquire land for public use.

To deal with this problem, the government amended the EOLR Act in 1964 so that all urban lands became subject to the EOLR program. In 1969, the ruling party adopted the proposal that the EOLR program should be applied on all lands in Taiwan. Consequently, the “Equalization of Urban Land Rights of 1954” was amended into the “Equalization of Land Rights Law” in February, 1977.

2. Land Taxation

Land Value Tax

The assessment of land for the purpose of the Land Value Tax was adjusted by the Wholesale Price Index before the implementation of the EOLR program. After the implementation of the EOLR program, the assessment of land for the Land Value Tax was first calculated according to the recent transfer prices of land and data on income derived from land so that the real market value of land could be ascertained for the purpose of the Land Value Tax. Furthermore, a surtax of 30% of the Land Value Tax was levied for the purpose of national
defense. These changes in assessment procedures resulted in an increased tax base while the imposition of the surtax lifted up the tax rate. This heavier tax liability led to higher rents for land and housing.\textsuperscript{2} Consequently, people questioned the application of EOLR program.

\textit{Land Value Increment Tax}

In 1964, the EOLR Act was amended to provide that the acquisition cost of land for the levying of the Land Value Increment Tax should be the new value in the revaluation table. As a result, the revenue collected from the Land Value Increment Tax was reduced from NT\$156,365,000 in 1961 to NT\$25,214,000 in 1965. However, the revision of the acquisition cost of land not only violated the objective of public enjoyment derived from land but also caused land speculation.

To help overcome the above problems, the acquisition cost of land mentioned above was repealed. In its place, the law stipulated that the original acquisition cost of land or the first Declared Land Value should be used as a standard for the levying of the Land Value Increment Tax.

3. The Aspect of Land Use

\textit{Land designated for public facilities}

Legislation in place as of 1959 indicated that the government can acquire land designated for compulsory purchase in accordance with urban planning proposals at any time. In order to protect the interest of landowners, the Urban Planning Act of 1964 provided that land reserved for public facilities before the promulgation of the Act should be acquired by government authority within five years from the date of its proclamation. Otherwise, the reservation was deemed to be repealed. The above period was subject to extension to ten years upon approval by a higher level of government.

\textsuperscript{2} The EOLR Act of 1958 indicated that the rent for land and housing should not be higher than 2\% of the Declared Land Value and 10\% of the housing value. The above provision for land rental was increased to 3\% in 1964 and 5\% in 1968.
However, considering the financial problems government faced in terms of providing compensation, the period mentioned above was extended to 15 years through revision of the Urban Planning Act in 1973. Simultaneously, the same Act provided that the Land Value Increment Tax should be decreased by 70% of the tax liability on the conditions that (a) the land in question had been compulsorily purchased, (b) that its value had been assessed before the amendment and promulgation of the Urban Planning Act on the 5th of September, 1978 and (c) that the ownership had not been transferred after the amendment and promulgation of the Act.

Based upon financial considerations, the first extension of five years for the government authority to acquire the land in question could be regarded as expedient. However, the extension of 5 years to 15 years could cause an adverse effect for the prestige of government. In addition, the landowners would suffer from the depreciation in the value of their land. The reduction of liability to the Land Value Tax was not an appropriate way to eliminate these problems. The fundamental point is that any urban planning proposal should be accompanied by a financial plan. Government needed a new policy approach to public services provision with several interconnected objectives and it needed innovative ways of distributing the cost of public facilities between private and public sectors so as to avoid too much reliance on public sector financing.

4. Urban Vacant Land

Speculation in urban land was a profitable activity in the 1960s. Private companies hunted for land more out of hoped-for land gains than out of actual need. Consequently, speculation-based demand invited more speculative demand which-surpassed the limited supply of untapped land. The land price went steeply up in Taipei city in particular. The city government of Taipei thus initiated a survey of vacant land in its jurisdiction in 1960. As a result, a time limit (one year) was prescribed during which vacant land should be developed, or a Vacant Land Tax at 200% to 500% of the liability to Land Value Tax would be levied. The levying of a Vacant Land Tax was first introduced in Taipei city in 1968 and in Taiwan province by 1971 but it was suspended during the world recession of 1974.
The Vacant Land Tax was levied to curb land speculation, to discourage land hoarding, and to bring more land into the market. However, the levying of the Vacant Land Tax needed to pay attention to the economy as a whole to prevent adverse effects on the macro-economy. The tax can generate some undesired consequences. The owners of vacant land start to use their land to avoid the tax, but some of them only under-use their land. For example, a site is authorized to be built up with a six storied building, but the owner only builds a bungalow in order to avoid the Vacant Land Tax. Finally, the levying of Vacant Land Tax is not an effective way to promote land use because the rate of the Vacant Land Tax is much lower than the appreciation of land prices.

The Second Stage (1978-1986)

Background

Rapid economic growth led to power shortages, transportation bottlenecks, and similar problems. To remedy these infrastructural shortcomings, the government implemented its “Ten Major Construction Projects” in 1978. Six of these projects were related to transportation problems, while three others dealt with petrochemical and heavy industries. The last one treats nuclear power generation. As a follow-up to the “Ten Major Construction Projects,” “12 New Development Projects” were initiated in 1978 to expand the transportation network and construction of additional nuclear power plants.

In this stage, employment in the agricultural sector decreased gradually, while employment in the tertiary sector was higher than in the secondary sector. The increment in the size of the tertiary sector in the city brought about crucial changes in land use and land prices.

Between 1978 and 1986, the “Government Assessed Land Price” increased by 500 percent in Taipei, 460 percent in Kaohsiung, and 350 percent in Taiwan province. Thus, the general public called on the government to play an aggressive role in curbing land speculation. A series of measures, e.g., raising bank and investment trust company required reserves, and increasing rediscount rates and bank deposit interest ceilings, were announced by the Central Bank of China in order to reduce the money supply to curb land speculation.
The rapid economic and urban growth led to the expansion of urban planning areas from 2,824.03 km$^2$ in 1978 to 4,245.27 km$^2$ in 1986. While the ratio of urban planning areas was increasing, that of residential and commercial areas was decreasing. On the other hand, the ratio of land designated for public facilities and preservation increased so as to promote the objectives of lifting up the general welfare and life qualities of the "Four-year Economic Development Plan" in 1936. During March 1986, there were 414 urban planning areas equaling 381,172 ha. Within this capacity, the land designated for public facilities was 48,532.15 ha, 27,000 ha of which was not acquired and did not develop according to the Urban Planning Act.

Problems and Policy Analysis

1. Revaluation

Under the EOLR program, the assessment of land value was made initially by the land authority and is known as the Government Assessed Land Value. This is published as a reference for individual landowners to declare their land values. During the period of valuation or revaluation, landowners are required to declare the value of their land at between 80 to 120 percent of the Government Assessed Land Value; and revaluation is carried out once every three years.

However, developments in this period suggest that the government is paying the price for the failure of the previous administration to stick to the revaluation schedule based on the three year cycle in accordance with the Equalization of Land Rights Act of 1977. The last general revaluation was in 1978, but the 1981 and 1984 reevaluations were postponed to 1987. After the 1987 revaluation, taxpayers who were suddenly hit by a mammoth tax increase refused to pay the Land Value Tax, although there was a reduction in the tax rate when the Equalization of Land Rights Act was modified in 1986 (see Table 3).

The tremendous increase of liability to the Land Value Tax also caused a violent reaction from the city and county councilors and legislators. In response to widespread public protest, the government compromised by agreeing to the following measures:

1987 January-June on 100% of 1987 value
July-December on 60% of 1987 value
1988 on 60% of 1987 value
1989 full year on 80% of 1987 value
1990 full year on 100% of 1987 value

<table>
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<td>7. Remainder</td>
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2. Government Assessed Current Price

The Government Assessed Current Price (GACP) is used as the standard of compensation on compulsory purchase and levying of the Land Value Increment Tax instead of the use of transferred price. The GACP was frequently much lower than the current market price because from the actual assessment to the publishing of the GACP, there is always a time lag of approximately two years. As a result, the compensation on the compulsory purchase to the dispossessed owner is "just" compensation rather than "just compensation." Moreover, it is difficult for the government to restore to the community the increase in value of land arising from its effort.

3. Land Designated for Public Facilities

Skyrocketing land prices and failure to actually acquire lands reserved for public facilities caused serious fiscal problems for government once it was prepared to acquire those lands. The total cost to acquire the lands designated for public facility before 1973 was NT$280 billion. During this stage, the following four measures were adopted in order to accelerate acquisition of lands for public facilities: i) Measure for multiple use of land designated for public facility; ii)
Regulations for urban land consolidation; iii) Regulations to encourage landowners to implement urban land consolidation; and iv) Regulations to encourage the construction of public facilities. Although the government introduced these measures to accelerate acquisition of land designated for public facilities, the effect was limited. According to the Urban Planning Act 1973, the government should acquire 13,000 ha of the land reserved for public facilities before 1988, otherwise the reservation is deemed to be repealed. The government proposed an Urban Construction Charge in 1983 in order to collect revenue for supporting acquisition of the land in question. However, the Urban Construction Charge never reached the Statute Book. Consequently, during this stage, the government still didn’t take any further actions to acquire the land in question.

4. Urban Vacant Land

In 1979, inflation was threatening Taiwan and speculation-based demand of land led to rapidly increasing land prices. These developments caused complex social and urban land problems. To work out the problems, the government adopted the proposal to enforce use of vacant land by levying a Vacant Land Tax or alternatively by compulsory purchase at the Declared Land Value of vacant land. Moreover, preferential and penalty rates were applied to vacant land for the levying of the Land Value Increment Tax. First, when private vacant land which was improved or built upon after purchase is transferred, the liability for the Land Value Increment Tax is reduced by 20 percent. Second, the liability to the Land Value Increment Tax was increased by 10% when land that was bought vacant is resold in the same condition.

In this stage, the approaches government adopted were either to purchase compulsorily the vacant land or to levy a Vacant Land Tax. The radical way of compulsory purchase is a direct measure to keep land price down and stabilize it. However, urban vacant land owned by public authorities was not subject to these standards, a point which led to much public resentment against the policy. Moreover, although landowners started to use their land, some landowners under-used it in order to avoid the tax liability or lose the land through compulsory purchase by the government. As a result, Section 26 of the EOLR Act of 1986 provides that the cost of any building erected upon vacant
land should exceed 50% of the Declared Land Value or the required license for construction will not be given by the local authority.

**Restriction on Land Loans**

The annual growth rate of money supply came to 47.7% in 1988. To reduce the money supply so as to curb land speculation, the Central Bank of China (CBC) raised bank and investment trust company required reserves, and increased rediscount rates and bank deposit interest rate ceilings and also requested banks and credit corporations to give them a report on land loans, especially on land loans for owners of vacant land to curb land speculation. Following the CBC policy, the Land Bank of Taiwan noticed that applicants for land loans must show certified plans for vacant land. Nevertheless, the measure did not have much impact, because speculators simply paid architects to draft a few blueprints which they used to apply for land loans. The others used vacant land as collateral to apply for consumer loans despite higher interest rates in order to make more profits through land speculation.

Later, CBC announced a new credit-tightening program in order to curb speculation loans. According to the CBC measures, loan ceilings for land could not exceed the Government Assessed Land Value plus an additional 40 percent. During a joint press meeting, land developers and construction firms around the island issued a joint statement to condemn the CBC’s measure, which they declared, would only benefit powerful investment groups. They asked CBC to leave them “room to survive.”


**Background**

The “14 Construction Projects” completed in 1992, and “Six year National Development Plan” commencing from 1991 and still in process, have had some impact on Taiwan’s economic circumstances. Because of the above conditions, the economic growth rate was roughly maintained at 7%, with exceptions during 1986 (12.6%) and 1987 (11.8%).
There was a gradual increase in the population of the “Urban Planning Area” from 14,791,400 in 1987 to 15,589,700 in 1990. This brought about an urbanized ratio increase of 75.2% to 76.6%, indicating that 3/4 of the national citizens resided in urban districts. The area of the urban planning regions expanded from 4,348.16 km$^2$ to 4,355.65 km$^2$. The number of households went up from 4,644,839 to 5,093,098, which added pressure to the demand for land and land prices.

To satisfy the diverse needs of the “Six-year National Development Plan,” 28,000 ha of agricultural land were scheduled for rezoning and conversion to new purposes during the plan period, of which 10,000 ha. would be acquired for housing construction. However, changes in the composition of economic activity, including the principal importance of the tertiary sector for employment, meant that land use zoning was not likely to be effective in meeting needs. It should be noted that since 1987, the planning areas for zoning had reached a saturated point which illustrated stability (Table 4). In reality, land use planning and control were resulting in serious unfairness.

<table>
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<tr>
<th>Year</th>
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<th>Subtotal Zone</th>
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<th>Commercial</th>
<th>Industrial</th>
<th>Agricultural</th>
<th>Protection</th>
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Problems and Policies Analysis

Recently, following increased economic growth, a rapid change in the land use pattern occurred. Therefore, Section 19 of Metropolitan Rapid Transit (MRT) Act empowers the MRT authority to compulsorily acquire new rights. The construction of public services, say, motorway can be on, over, or under land. If a motorway is to pass private land, the acquiring authority can always compulsorily purchase the land for full occupation by just compensation. If a motorway is to pass across land by a viaduct or a tunnel, it might be more suitable for the authority to acquire the rights for less than full occupation, that is, compulsory acquisition of a stratum of land below or over the surface for a motorway.

So long as the motorway authority has the power to carry out the work, the landowner can by such an arrangement retain his land to mutual advantage, since the authority has no wish to incur the expense of acquiring and maintaining land unnecessarily. Therefore, it was appropriate for the MRT Act to provide for compulsory acquisition over land by the creation of new rights. Furthermore, the practical question of acquiring the land not in full occupation is financial, namely that the landowner subject to the compulsion shall be entitled to receive proper compensation. How to assess the rights for less than full occupation will be a matter needing clarification.

1. Land Designated for Public Facilities

The problem of acquiring land reserved for public facilities becomes serious in this stage. In 1988, the Urban Planning Act provided that compensation on compulsory purchase of land in question should be based on the Government Assessed Current Price. If necessary, up to 40% of the GACP can be added as a premium. In addition, the 15 year limit for government to acquire the land in question was abolished simultaneously. The government then proposed to spend NT$4,460 billion to acquire 14,747 ha of the land in question.

The policy instrument adopted by the government in this stage was more practical and constructive. Nonetheless, the removal of a time limit for acquisition caused adverse effect on the prestige of government again. Moreover, the additional 40% of GACP for compensa-
tion on compulsory purchase of land reserved for public facilities led to a serious problem for government to acquire land for other public uses.

2. Compensation

The government enacted a compulsory purchase bill which provides that the compensation on compulsory purchase should be based on market value in order to unify the standard of compensation. Both public use and just compensation are two fundamental principles for the compulsory purchase by the government. Compensation assessed at market value will be more acceptable by the dispossessed owner. However, the definition of market value lies at the heart of the law of compulsory purchase of land. A clear definition should be provided by the law. Moreover, a professional value and arbitration systems should be established so that the disputed compensation would be settled down.

3. Betterment

According to the EOLR Act, both Urban Land Consolidation (ULC) and Requisition of Land by Districts (RLD) can be used to develop a new community. Generally, development of a new community always converts farmland to a higher value use, such as residential and commercial use. Nonetheless, the landowners who join the ULC program can get back 50–80% of the land, whereas taking part in RLD program, they can only obtain 40–50% their own land. Thus, there always exists a dispute.

Therefore, if the development of a new community involves the conversion of land use, RLD programs should be employed by the government; whereas for development without conversion, the government should encourage landowners themselves to implement a ULC program. This principle should be laid down in the EOLR Act for enforcement. In addition, it is difficult to apply RLD to the conversion of residential land to commercial use.
Conclusion

Urban land problems and urban land policy always alter with the changing of time. The great achievement of the Equalization of Land Rights program in Taiwan cannot be denied. However, to learn from the previous experiences is always encouraging and frequently beneficial despite the fact that there may be considerable differences in background. The objectives of this paper were to examine the urban land problems and policies in Taiwan on the basis of urbanization stages.

The main conclusions are that as far as the urban land problems are concerned, it seems that the same urban land problems repeatedly occur in each stage. This may be due to the lack of effective policy instruments by the government to eliminate the problems. In considering the policy instruments adopted by the government, the recognition lag or action lag always exists in the government authority. Second, a policy instrument that can effectively serve an objective at times, can cause adverse effects at other times. Urban land problems are always interrelated and interactive. Therefore, what is needed is integrated land policy.

This leads to the issue of managing land problems and achieving the objectives of policies. In Taiwan, the Department of Land Affairs within the Ministry of the Interior is responsible for land policy. It is not an independent authority in terms of finance and personnel. As a result, it always receives criticism for its inability to coordinate the formulation and implementation of land policies measures. Therefore, an effective and higher level administrative authority to deal with land problems should be established.
SOCIOECONOMIC DIMENSIONS OF RURAL LAND USE CHANGES IN TAIWAN

Hong-Chin Tsai

Introduction

The main goal of this study is to study major changes in the uses of rural land and related socio-economic and political problems in socio-economic development processes in Taiwan during the past decade. Specific study objectives are divided into the following aspects.

1. To delineate a framework for the analysis of changes in the use of various kinds of rural land and their related problems in the socio-economic development process;
2. To investigate changes in the use of cultivated land and related problems;
3. To investigate changes in the use of slope land and related problems;
4. To investigate changes in the use of coastal lands and related problems;
5. To propose policy implications from the findings of the above investigations; and
6. To discuss the current debate on land taxation policy, which is largely caused by changes in agricultural land uses.

Behind the changes in rural land use, there is a tremendous process of socio-economic change. This process is playing a key role in determining these land use changes. Socio-economic change in Taiwan has been rapid and complicated. The population migrates frequently although this was slightly less common in the 1980s than it had been in the 1970s. However, the average annual internal migration rates for
male and female during the 1980s were still high at 78.6% and 90.1% respectively. Most migration focused on urban areas, but part of the internal migration was directed at rural areas.

The average annual growth rate for the gross domestic product during the 1980s was 14.6%. This high growth rate resulted in a high annual level of growth in per capita during the period of 11.27%. The industrial growth rate during the 1980s was very high also, with an annual growth rate of 6%.

The high rates of internal migration and many aspects of economic growth reflect the rapid socio-economic changes in Taiwan during this period. These rapid demographic and socio-economic changes have played a significant role in affecting changes in land uses, both in urban and rural areas. The growing population, the expanding industries, and the increasing need for support facilities all translate into demand for more land. Therefore, limited land resources become more scarce. But this is not the only indicator of land use changes. In the case of land in rural areas, there are more important indicators, including changes in land use intensity on cultivated land, changes in the use of slope land, and changes in the use of coastal and riverine land. All these complicated changes in rural land use are interrelated to many other socio-economic and political problems.

Review of Related Literature

Many studies and publications related to land use have been done. This literature review will cover studies in English and in Chinese. I will review the former particularly in order to find related theoretical concepts for guiding the present research and will review the later in order to see what experimental studies in Taiwan related to the present study have already been done.

Related literature in English

Early in 1975, H.P.A. Vink, a Dutch agricultural scientist, published a book entitled Land Use in Advancing Agriculture. In this book he presents his conclusions through studying the use of different
types of land resources. He concludes that successful land use and land management have been well adopted to both land resources and ecological conditions. He also mentions that land improvement is one way of adopting land resources to human requirements. According to his study, agricultural land utilization can be characterized by the following categories of variables: i) social characteristics, ii) infrastructural characteristics, iii) products of the land use, iv) initial inputs for the land use, v) annual production inputs, vi) labor intensity, vii) sources, and viii) kind and intensity of farm power.


1. Permanence versus change: There are strongly divided opinions on the desirability of permanence versus change, but people in general tend to favor permanence in land use, particularly in times of change and uncertainty.

2. Decision making: Decisions on land use are primarily made through the collective judgment of concerned people, and this is especially true in a political democracy.

3. Land classifications: Land is generally classified according to what can be consistently and meaningfully identified. There are a number of different kinds of land classification that are applied for different purposes. Classification could be based on (a) land only, (b) land use, (c) dominant-use concepts, etc.

4. Land use control: Ways of land use control can be derived from the nature of land use and its ownership. Important principles of control include (a) one land use affects another, (b) land location controls, (c) a distressed and declining region seldom can restore itself, (d) a major part of a small land section was consolidated into larger and more economically manageable units.

5. Compatible and combined uses: Some uses of land are essentially for permanence, and others permit change. There is need to achieve desirable balance in people-land relationship. The combination of uses may be a continuing flow of goods and services which can be obtained without impairing the productivity of land.
6. Planning and plans: There are varied needs and problems concerning land use planning. Principles of planning and plans are grouped under four topics: design, information needs, planning processes and plans, and plan revision and continuity.

7. Controversy in land use: Controversy is inevitable in land use. Major issues of the controversy in land use include i) predisposing factors, ii) actionable issues, iii) triggers or particular causes, iv) leadership, v) information needs and viewpoints, vi) topics and motives, and vii) responsibility and accountability.

8. Environmental quality in land use: To achieve a sustainable level of environmental quality in land, important problems, concepts and other matters of principle include: i) the question of what is natural, and ii) the aesthetic quality of land use can be substantially increased on a larger scale and at reasonable cost through careful design in planning. The Nature park concept is a popular design to build environment quality.

In Davis’s book more detailed principles of land use are illustrated under the above eight subjects. All these principles provide us with good guidelines to think of changes in rural land use and related problems as well as their policy implications in Taiwan.

Herman L. Boschken’s book entitled *Land Use Conflicts* is another good reference for studying rural land uses in Taiwan or elsewhere. The central theme of this book is to verify the theoretical argument that public organizations are part of the allocation process and that they influence markets and productions of goods and services such as land use. Within a comparative analytical framework, Boschken deals with three significant and well known land use conflicts: the Mineral King Valley in Sequoia National Forest, the San Onofre Nuclear Reactor near San Diego, and the Nettleton Lakes Recreation Project near Puget Sound. He analyzes the issues, physical circumstances, actors, actions, value systems, and government structures involved in all these cases, and uses organization theory to illuminate the conflicts in a way that suggests more efficient and equitable public policy systems. Boschken’s book certainly convinces us to believe that it is important to study conflicts and policy making processes on land uses in Taiwan or in other places.
The book entitled *Rural Land Uses and Planning: A Comparative Study of the Netherlands and the United States*, written by R. Burnell Held and Dirk W. Visser and published in 1984, contributes another important reference for studying rural land use in Taiwan. This book provides a description of rural land uses and the types of planning efforts at the national level, and examines these in the United States as well as the Netherlands. This study would help us understand what are the important subjects related to changes in rural land uses in Taiwan. These may include the following subjects: the development of land use, changing patterns of land uses, factors influencing changes in rural land uses, changing patterns of land ownership, needs for planning, approaches taken for planning, problems of accommodating multiple uses of land, and the difference of changes in rural land uses.

A. S. Mather's book, *Land Use* presents land use as a result of human decisions, and considers how these decisions are reached by those controlling land resources. Mather examined environmental effects, land management, and philosophy as well as practices of land conservation. Finally the author also discusses planning issues. This book offers another foundation for analyzing rural land uses and changes in Taiwan or in other countries.

In 1988, Patsy Healey, Paul McNamara, Martin Elson, and Andrew Doak published *Land Use Planning and the Mediation of Urban Change*. This book provides an analysis of the systems which have been used in political processes, and through which land policies came to be defined and implemented. Using British planning as its model, the book argues that land use planning always has to adopt to economic and political changes. Political demands on land use are caused by complicated and conflicting economic interests and socio-cultural values.

**Related literature in Chinese**

In reviewing Chinese literature related to land uses, particular attention is given to these studies which focus on characteristics, changes, and problems or policies of agricultural land. Ti-Hsieng Kuo's paper entitled *The Demand Structure Elasticity on Agricultural Resource Uses in Taiwan* argues that changes in the structure of agricultural
land and other agricultural resource inputs, including labor and capital inputs, occur in order to adjust to changes in the production structure and economic environment. Major changes in agricultural land use in Taiwan which are discussed include the decrease in land area for growing crops, the decrease in the multiple crop index, the decrease in areas planted to sweet potato, peanut, bean, jute and the increase in areas planted to vegetable, fruit, and corn (Kuo, 1991: 117-160).

Tsang-yi Chang's study on Planning Objectives of Land Resource Uses in Taiwan argues that L.O. Stamp's three laws on land resource use are good principles for guiding land use planning in Taiwan. These three land laws or principles are (i) the best adjustment to the environment, (ii) integrate uses, and (iii) efficient uses. Based on these principles, the author proposes two major planning objectives for land resource use. The first is to establish a national institute for conducting land resources use surveys to guide planning and management. The second is to plan land uses in each of Taiwan's five geographic regions (Chang, 1990: 43-62).1

Ying-yen Lin's paper, Land Price and Land Tax Problems and the Implementing Policies, summarizes the proposed improvement measures on land price appraising and declaring procedures and the land tax systems which were made by participants in the national land conference held in 1990. Among many policies suggested, one is directly related to agricultural land tax: agricultural land should be taxed (Lin, 1990: 23-42).

In a paper entitled To Implement the Agricultural Land Trade Permission System and The Study on Agricultural Land Management System, Shih-Hwa Cheng proposed that to implement the agricultural land transaction permission system would be a good policy to protect agricultural land resources for agricultural use. This policy proposal is derived from Japan's experience. Accordingly, agricultural cooperatives should get permission before they are allowed to buy agricultural land. In order to get the permission, they should submit all kinds of required data (Cheng, 1990: 35-56).

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1. These five geographic regions include i) the high mountain forest region, ii) the low slope region, iii) the coast region, iv) the isolated small islands, and v) the plains region.
Chang Lai’s article, *Agricultural Land Resource Uses and Conservation in Taiwan*, analyzes the current problems of agricultural land use and conservation in Taiwan. The agricultural land use situations and problems have been analyzed by presenting changes in the area of agricultural land and cultivated land as well as changes in the multiple cropping index, the cultivated land utilization rate, farm size, agricultural mechanization, etc. Agricultural land conservation problems are identified as related to inappropriate cultivation and management procedures and pollution on agricultural land. In the final section of the paper the author makes seven suggestions concerning land resources use and conservation. These suggestions include: i) to conduct an overall land survey for controlling land use planning, ii) to make an integrated land use plan, iii) to promote the secondary stage of land reform, iv) to enforce the land conservation program, v) to control changes of land use, vi) to encourage recultivation of land, and vii) to exploit marginal land (Lai, 1986: 1-30).

Ti-Hsien Kuo’s study on *Land Reform in Taiwan and the Direction of Agricultural Land Reform*, points out three current major agricultural land problems: i) small operational scale, ii) improper use of land resources, and iii) extensive land use patterns. The author proposes several reforms which include: i) agricultural land should be owned and used by farmers, ii) agricultural land should only be used for agricultural production purposes, and iii) farm operating size should be enlarged. In order to enlarge farm operating size effectively the author suggests: i) provide loans for those who want to enlarge farm size, ii) promote joint-operation and cooperative operation farming systems, and iii) implement the custom-farm operation system (Kuo, 1989:131-152).

**Changes in the Use of Cultivated Land and Related Problems**

The cultivated land which is defined as the land used for crop production includes paddy field and upland. It occupies the major portion of plains land. Most cultivated lands are located in rural areas. The use of cultivated land changed rapidly during the last decade.
Several significant changes include: i) Part of cultivated lands changed from agricultural or direct production purposes to use for industrial parks, urban houses, road construction, etc. ii) Changes in labor input on the land, iii) Re-separation between land users and land owners, and iv) Changes in production structure of the land. More detailed information for these four aspects of changes are presented below.

**Changes from Agriculture to Non-Agriculture Uses**

The cultivated land refers to the land under temporary and permanent crops, and it can be classified as paddy field or upland field. The total cultivated land area in Taiwan was 907,353 hectares in 1980. It decreased to 890,090 hectares in 1990. In fact, the decreased area of paddy field was more than the total decreased amount. It decreased by 32,229 hectares, which comprise 6.35% of the total area of paddy field in 1980. A large portion of these decreasing cultivated lands was used for industrial, urban and other development purposes. During the same period, industrial lands located in rural areas increased from 10,663 hectares to 16,332 hectares. During the same period, urban land grew by 83,507 hectares or 62.44%. Although not all the increases in industrial and urban lands came from the cultivated land, certainly parts of it did.

**Changes in Labor Input on the Land**

In the industrialization and urbanization process, laborers moved out rapidly from rural areas to industrial and urban sectors. This change ultimately resulted in more extensive use of cultivated lands. The multiple cropping index thus decreased steadily from 154.4 in 1980 to 129.8 in 1990, although both per capita and per agricultural employment per unit of area of cultivated land increased slightly during the same period. The continual out-migration of rural and agricultural laborers to urban and industrial sectors resulted in the decrease of agricultural employment. The trend toward extensive land use patterns reflects the fact that income earned from cultivation could not compete with income
earned from industrial, commercial and service sources. As a result, many rural laborers continually move out and take full or part time jobs in factories, small businesses, or service jobs. During this process, some farmers invested more labor and capital on their farms, but they would be a minority compared to those who cultivated land more extensively.

Re-separation Between Land Users and Owners

Another significant change in the use of cultivated land during the 1980s is the re-separation between land users and land owners. Both industrialization and urbanization resulted in rural land owners who become land owner-cultivators after the land reform program in 1950s and left their homes. These out-migrating rural land holders commonly ask their relatives or neighbors to cultivate their lands under the custom-operation system, the custom-cultivation system, the joint-cultivation system, or the cooperative farming system. The development of the custom-operation system reflects the fact that land owned by rural out-migrants now living in cities is used by farmers who stay in rural areas.

Government data indicate that the total area of custom-cultivation rice land in 1987-1990 was 7,396 hectares, covering 8,965 farmers or 1.05% of total family farms in 1990. The custom-cultivation, joint-cultivation, and cooperative farm systems do not necessarily mean a full separation between land owners and land users, but they do indicate inconsistencies developing between land ownership rights and land-use rights.

Change in Production Structure of Cultivated Land

In the processes of industrialization and urbanization, agricultural labor supply and market demand for food and other agricultural products all have been changing. The production structure of farm land also has been changing. The production structure of farm land became less labor-intensive on the one hand, and more profit-oriented on the other. These two different types of changes in agricultural production occurred separately on different types of family farms and in
different locations. Family farms having more abundant labor resources and/or living near cities adopted profitable but labor consuming operation strategies. Otherwise, they change the production pattern to which permit saving labor inputs. An example of the former are those who switch to planting valuable vegetables, flowers and fruits. These crops are more profitable but are also more labor-consuming. An example of the latter are those who switch to sugarcane, corn, or other kinds of feed grains. These crops are suitable for mechanization, although the profit levels are relatively low. Table 2 shows that water melon, fruits and cut flowers which are profitable but labor intensive crops increased in planted areas during the last decade.

**Related Problems**

Changes of cultivated land to industrial and urban uses reflects Taiwan's shift to a more modernized phase. But the expansion of industrial parks in rural areas spreads industrial pollution over agricultural regions. These changes in land use also result in more serious land speculation, income inequality, and social injustice problems. The growth of extensive farming, the separation of land ownership and use rights, the conversion of agricultural land to urban industry, and the changes in production structure indicated above all involve two more serious socio-economic problems: i) the inefficient use of agricultural land resources and ii) the income crisis of the farming economy. Both of these problems are not only economic but also social. The problem of inefficient use of land resources due to extensive use reflects the increasing incidence of speculative attitudes and value towards land by farmers. They expect to become rich through selling the land for a good price instead of earning production income through cultivating land. At the same time, the farmer's economic status can not be easily improved, especially with the growth of less profitable extensive use of farming land. These socio-economic problems have resulted in farmers becoming unsatisfied with the government and society. It may also cause continual rural out-migration, rural community repression, and other rural social problems.
Changes in the Use of Slope Lands and Related Problems

Slope land, which is also named hilly regions, refers to mounds with an altitude to 1000 meters, or to slope land with up to a 50% degree of slope and altitude below 100 meters. Change in the use of slope land has been much greater than the changes in the use of cultivated land in plain areas. This is mainly due to the fact that changes in the use of slope land are less restricted by land laws and regulations than are cultivated lands, although the regulations for transfer of ownership are still very restrictive. Slope land is conceived to be less productive, so government has been more inclined to allow changes in its use.

During the 1980's, the total area of slope land did not change much. There were 968,838 hectares in 1982, and 977,017 hectares in 1990. Slope land was mainly used for agricultural pasture, or it was covered by forestry and grass, but it has also been used for constructing houses, roads, cemeteries, military facilities, and others in recent years. Many golf courses were also built on slope land. The following discussion focuses on the principal dimensions of change in the use of slope land.

The Increase of Fruit Land

Fruit became a valuable agricultural product compared to many other kinds of traditional agronomic crops in the process of social-economic development in Taiwan. Thus, the land area for growing fruits was enlarged in both plain and slope areas. The total fruit land in slope areas increased 38,640 hectares or 33% from 1974-1977 to 1983-1986. Important fruits growing in slope areas include Litchi, Longan, Mango, Pears, Banana, etc.

The Increase of Wood and Bamboo Lands

Growing wood and bamboo on slope lands also increased. There are two major reasons for this change. First, growing wood and bamboo is more labor extensive as compared to growing cash crops, such as rice, sweet potato, etc. Second, government policy encourages tree
planting, in order to contribute to landscape recovery and to conserve water and soil resources.

**The Increase of Houses, Roads, Cemeteries, and Golf Courses**

Houses, roads, cemeteries and golf courses have been built on slope land recently. Increased housing construction appears as both isolated houses and new communities. New roads passing through slope land include both the relatively narrow production-roads and the wider tourist roads. Slope cemetery land near cities also increased remarkably in recent years. This reflects the high price of urban land.

By January 1992, there were ninety-nine golf courses either completed or under development. Among these, 77 were operating. The total of 99 golf courses occupies 6817.04 hectares of land and almost all of these golf courses land are located on slope lands or hill regions. Why were golf courses developed on slope land, but not in the plain areas? The answer is not only the lower price of slope land, but also the policy of protecting cultivated lands in the plains.

**Related Problems of the Exploitation of Slope Land**

Much slope land was originally covered by forest and grass. It has been exploited for agricultural, transportation, and recreation uses. Slope land exploitation has resulted in several problems, including soil erosion and water pollution. Agricultural cultivation, house construction, and cemetery and golf course development can cause soil erosion. Fruit tree planting and golf course maintenance can also pollute water resources due to the use of pesticides. The serious pollution caused by golf courses in particular has caused much concern by people and government. Consequently, getting permission for developing new courses will become more difficult. Slope land near the city has often illegally been used by people to construct houses and to dump garbage. This illegal use of slope land has resulted in not only serious environment pollution, but has also revealed administrative conflict (most notably between the Council of Agriculture and the Taipei Municipal Government) and inconsistencies between different government authorities.
Changes in the Use of Coastal Lands and Related Problems

Land use patterns on coastal and riverine land in Taiwan have changed remarkably in the last decade. 12,300 hectares of coastal land have been developed since 1960. Among them, 5,300 hectares or 43% are used for agricultural and fishery production, while others were developed for non-agricultural uses. The newly developed non-agricultural uses of coastal area include: i) industrial parks, ii) major engineering construction project areas, such as power plants, harbors, etc., iii) recreational project areas, and iv) new communities. As noted below, this too has changed.

The Development of Industrial Parks in Coastal Areas

Due to the limitations on developing industrial parks in plain areas and the concerns about pollution associated with such parks, several large-scale industrial parks were developed or are planned to be developed on the western coast area of Taiwan. These include Hsingchu, Tongshiao, Mailiao, Haifong, Hsingshing, Taishi, and Shihhu. The total land area of these coastal industrial parks is 7,827 hectares.

The Development of Major Engineering Construction Projects

Several major public engineering construction projects have also been developed in coastal areas. These projects include the Taichung Fuel-Power Plant Development Project, the Kaoshung Yungan Liquid Nitrogen Gas Receiving Station Project, the Kongliao fourth nuclear power plant, the Taichung Harbor, and many small fishing wharves. Although some of these projects were planned before the 1980s, most of them were completed or improved during the 1980s.

The development of Recreational Facilities

The growing leisure and tourist demands in the past decade encouraged government and private corporations to invest in the develop-
ment of recreational and tourism projects in beautiful coastal areas. The Taiwan Tourist Bureau selected the North-East and South-West coastal areas of Taiwan for these purposes. Coastal roads in these two tourism areas have been broadened in the past few years. Many rest areas and scenery points along the roads have also been developed. The Council of Agriculture also has participated in selecting several farms for developing tourist farms.\(^2\) The Taiwan Provincial Housing and Urban Plan Bureau also plans to develop three new coastal tourism areas at Fuhsing, Hanberg, and Shenkang.

**The Development of Agricultural and Fishery Lands**

Although much coastal land has been planned for non-agricultural land development, coastal fishery lands could be developed. Due to change in the food habits of Taiwan's people and also the better profitability of fish production compared to crop production, much farm land and sandy land in coastal areas of Taiwan have been dug or constructed as fish ponds for cultivating fish, shrimp, crab, clam, and other sea foods in the last decade.

**Related Problems of the Change in the Use of Coastal Lands**

Due to multiple changes in the use of coastal land, problems related to these changes are also complicated. Two major related problems are discussed below.

1. Social movement against development projects. The development of industrial parks, nuclear power plants and other major engineering construction projects in coastal areas may result in environmental pollution. This has often caused social movements against the development projects. Evidence includes Lukang's people against DuPont's factory construction program in the Changping Coastal

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\(^2\) Tourist farms are farms that usually grow vegetables and fruits. Tourists can visit these farms to observe how they function and they can purchase products directly from the farm, often in a process that includes “picking” the vegetables and fruit themselves. Another version provides small plots (six square meters is common) which an urban resident can rent and then use to grow whatever they like.
Industrial Park, the Kongliao people against the Fourth Nuclear Power Plant Development Project in YenLiao Village, and the Yungan people against the Liquid Natural Gas Project.

2. Ground subsidence problems caused by the development of fish ponds. The development of fish ponds in coastal areas such as Linpiang in Pingtang County and Tungshih in Chiayi county located respectively in the southern and southwestern parts of Taiwan has caused ground subsidence problems.

Policy Implications of Changes in the Use of Rural Land

Based on the complex changes of rural land uses and related problems analyzed above, the policy implications of these changes are complicated. This last section of the paper will discuss several implications of the more severe problems.

Changes in the Uses of Cultivated Land

The decrease of cultivated lands and the increase of industrial and urban lands reflect the fact that land in Taiwan is demanded more for industrial and urban uses than for agricultural uses. Thus the government has considered allowing part of cultivated land to be transferred to non-agricultural uses to meet the land needs for industrialization and urbanization. For example, the Central Government has recently decided to develop three new towns—Tanghai, Taipau, and Yenchou. These three new towns will all be located on what are currently cultivated plain lands. This seems to mean that the government will not strictly protect the good cultivated land anymore.

However, policy needs to determine the proper amount of land to be converted, how that land should be distributed, the appropriate transaction prices, and the pertinent tax rates. The optimum policy relevant to these aspects of changes in the use of cultivated land needs to be studied more intensively before it can be implemented.
Changes in Labor Input and Agricultural Structure on the Cultivated Land

As noted earlier, labor inputs on cultivated land have generally decreased. The proportion of land planted to traditional labor intensive crops also decreased. These changes may imply that the government needs to adopt and implement effective policies to relieve the economic crisis facing agriculture and farmers. Although the central government has implemented a series of policies and strategies to improve farmers' income and living conditions, the effect has not been very good. Farmers whose lands are located in big plain areas, far away from urban areas, seem to face more difficulties in improving their agricultural and living conditions as compared to farmers living in slope land and coastal areas. One reason is that farmers in the plain area commonly keep their better quality land for producing low-profit crops (such as rice). Therefore, adjustment policies may be needed which encourage them to use their land more flexibly, such as to dig fish ponds. Otherwise the government needs to raise grain or sugarcane prices, so that farmers can cover their increasing operational costs.

Changes in the Use of Slope Land

Much slope land had been converted to more profitable agricultural or non-agricultural uses. These changes have resulted in serious soil erosion and water pollution problems. Policy implications for these changes and problems include more systematic attention to resource maintenance and protection, as well as to effective legal control. Maintenance and protection functions can not be easily achieved if the owner and the user of land do not care. Education, investigation, and enforcement are all necessary means to encourage landowners and users to pay sufficient attention to appropriate slope land use.

Changes in the Use of Coastal Lands

In general, the coastal land in Taiwan has been changed for more valuable uses, so the development of coastal land can generally be
encouraged. But illegal exploitation and pollution problems should be controlled. The more serious ground subsidence problem also needs to be controlled through limiting fish pond and ground water development. The government has taken action to inspect all illegal fish ponds and all these ponds are required to be reconverted to farming uses, otherwise the owners of the land will be punished. The water pollution problem in coastal industrial park areas should be effectively addressed by implementing more restrictive requirements.

The Current Debate on Land Taxation Policy

The conversion of agricultural land to non-agricultural uses, as the major dimension of changes in rural land use, has important implications for many socio-economic problems and policies. One major implication is the increment price tax on land. When agricultural land is converted to non-agricultural uses, the price of the land will increase greatly. It is generally accepted that landowners have to pay taxes when they make profits on land sales. The question is what tax base should be adopted to compute the sales profit.

According to the current taxation system, increment price taxes on land are calculated on the basis of the difference between the purchase price and the current declared value. An alternative proposal is to collect land increment taxes based on the difference between the purchase price and the actual sale price. The major reasons in support of the current tax system include: i) the official declared price is close to the actual sales price, ii) the declared price is more definite and more reliable as a base for computing the land increment price, and iii) the declared price is flexible and adjustable. When the sale price increases, the declared price can also be adjusted upward.

On the other hand, there are two reasons in support of the new proposal: i) the actual sales price is the true transaction price, and usually is much higher than the declared price, and ii) to compute the increment price on the basis of the difference between the purchase price and the sales price covers a large portion of the increment value and price of the land.
Other than the reasons mentioned above, there are some emotional reasons on both sides of the debate. For example; the former has been criticized as a strategy to protect landowners from paying higher levels of land price increment taxes. On the other hand, the latter has been criticized as a means by which the government would take away reasonable profits from landowners or farmers.

The intensity of the debate was illustrated by the fierce exchanges between two ministers—the interior minister and the financial minister—and resulted in the resignation of the financial minister who argued that the new system is fairer and more reasonable. However, the new proposal on land taxation conflicts with the interests of the majority of citizens who more or less own some land. They are afraid of paying much higher taxes on land sales. This is especially true for those agricultural landowners whose land could be converted to non-agricultural uses and who could expect to gain huge profits on land sales.
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POLICY OPTIONS FOR AGRICULTURAL LAND USE IN TAIWAN

Kuo-Ching Lin

Introduction

Agricultural policy makers in Taiwan have some difficult decisions to make. On the one hand, Taiwan's farm income is still very much below nonfarm income. Farmers are asking for more direct income support and demanding continuous government protection from foreign competition. On the other hand, Taiwan is under international pressure to liberalize its agricultural trade, pressure which is heightened by Taiwan's membership in APEC and interest in becoming a GATT member. Thus, the government is going to have to find solutions to the adverse impacts on the farming sector of impending agricultural trade liberalization while maintaining farmer incomes at satisfactory levels (Lin, 1993). In order to modernize the farming sector and maintain farmers' income at a politically acceptable level, some kinds of government assistance are unavoidable. However, expanding subsidies and increasing government spending has historically failed to raise farm income to a satisfactory level. Hence, these strategies may not be answers to farm income problems. Ideally, a better solution is to formulate policies which not only can effectively improve the competitiveness of the farming sector but also can maintain a viable rural community.

Since the 1970's, in order to increase farmers' income, agricultural labor productivity, and farming efficiency, government has implemented many measures to enlarge farm size. These measures include:

1. Farm income was only 64% of nonfarm income in 1990.
amending regulations to liberalize the land rental market, promoting custom and cooperative farming, and subsidizing agricultural land mortgages. The effects of these measures have not been very impressive, however, and average farm size still remains very small. In spite of all the efforts made by the government to improve farming efficiency, cultivated land per farm declined from 1.14 hectares in 1965 to around one hectare in 1990.

One of the often mentioned reasons for the reduction in farm size is that land owners are reluctant to sell or lease out their land, even when they find it not profitable for themselves to farm it. The realization of high expectations for capital gains in the past has nurtured a self-sustained prophecy of ever-increasing farmland prices (Lin and Chao, 1992). Moreover, a lack of coherent land use policy and political will to effectively enforce non-urban land use zoning has certainly contributed to speculative activities which have resulted in an abnormal market situation (Lin, 1991a). In the southern main agricultural area, for example, standard farmland values have increased from NT$3,000,000 per hectare in 1990 to current levels exceeding NT $8,000,000 per hectare.² Farmland prices have reached such levels that full-time farmers find it very difficult to increase farm size through farmland purchase. Therefore, to search for policy options to improve farming structure and to create a better farming environment are difficult and important tasks.

In a context of very small land size and high population density, continuous rapid economic growth is one of the main factors which has nurtured the farmland price hike (Table 1). With the stagnation of farmland rentals and high expectations for capital gains, incentives for holding land for productive purposes have decreased over time,³ while the incentives to hold land as an important means for both preserving existing wealth as well as for purposes of speculation have increased immensely. Due to an efficient transport network and job opportuni-

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² Based on a previous study (Lin, 1991b) and current survey results. One US$ is currently equivalent to NT$25.90.
³ The current production rate of return on farmland is around one percent, while the expected capital gains rate of return is about six to eight percent, all in real terms (Chao, 1992).
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<tr>
<td>1966</td>
<td>1.26</td>
<td>207,908</td>
<td>165,006</td>
</tr>
<tr>
<td>1967</td>
<td>1.28</td>
<td>231,500</td>
<td>180,859</td>
</tr>
<tr>
<td>1968</td>
<td>1.36</td>
<td>312,278</td>
<td>229,616</td>
</tr>
<tr>
<td>1969</td>
<td>1.25</td>
<td>336,712</td>
<td>260,370</td>
</tr>
<tr>
<td>1970</td>
<td>1.21</td>
<td>288,038</td>
<td>238,048</td>
</tr>
<tr>
<td>1971</td>
<td>1.32</td>
<td>320,569</td>
<td>242,855</td>
</tr>
<tr>
<td>1973</td>
<td>1.27</td>
<td>466,194</td>
<td>367,082</td>
</tr>
<tr>
<td>1974</td>
<td>1.25</td>
<td>597,862</td>
<td>478,290</td>
</tr>
<tr>
<td>1975</td>
<td>1.20</td>
<td>663,526</td>
<td>552,939</td>
</tr>
<tr>
<td>1976</td>
<td>1.19</td>
<td>1,046,132</td>
<td>879,102</td>
</tr>
<tr>
<td>1977</td>
<td>1.18</td>
<td>1,108,780</td>
<td>939,644</td>
</tr>
<tr>
<td>1978</td>
<td>1.13</td>
<td>1,096,967</td>
<td>970,767</td>
</tr>
<tr>
<td>1979</td>
<td>1.11</td>
<td>1,431,338</td>
<td>1,289,494</td>
</tr>
<tr>
<td>1980</td>
<td>1.08</td>
<td>1,781,091</td>
<td>1,649,159</td>
</tr>
<tr>
<td>1981</td>
<td>1.08</td>
<td>2,331,021</td>
<td>2,158,353</td>
</tr>
<tr>
<td>1982</td>
<td>1.01</td>
<td>2,537,848</td>
<td>2,512,721</td>
</tr>
<tr>
<td>1983</td>
<td>1.46</td>
<td>3,237,055</td>
<td>2,271,161</td>
</tr>
<tr>
<td>1984</td>
<td>1.48</td>
<td>3,779,305</td>
<td>2,553,585</td>
</tr>
<tr>
<td>1985</td>
<td>1.44</td>
<td>3,605,815</td>
<td>2,504,038</td>
</tr>
<tr>
<td>1986</td>
<td>1.40</td>
<td>3,379,281</td>
<td>2,413,772</td>
</tr>
<tr>
<td>1987</td>
<td>1.24</td>
<td>3,440,875</td>
<td>2,774,899</td>
</tr>
</tbody>
</table>

Source: Hui-Ping Chao, 1992. *A Study of Farmland Prices in Taiwan*. Masters Thesis. Department of Agricultural Economics, National Taiwan University, July.
ties in the rural areas, those farmland owners who decide to stay in the rural areas can find nonfarm employment nearby and still remain as part-time farmers. The number of part-time farmers has increased very rapidly, while full-time farmers are finding it more difficult to enlarge their farm size (Table 2).

Although the government reformed the previous tenancy system in the early 1950s, the unpleasant reminiscence of the previous system still lingers on. Current landowners are concerned about the possible reenactment of the previous act which might seriously impinge upon their property rights if they lease out their land. The previous act pro-

### Table 2. Number of Farm Households by Full-Time and Part-Time

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Households</td>
<td>%</td>
<td>No. of Households</td>
<td>%</td>
</tr>
<tr>
<td>Cultivating</td>
<td>776,002</td>
<td>100.0</td>
<td>879,398</td>
<td>100.0</td>
</tr>
<tr>
<td>Farm HH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-Time Farm HH</td>
<td>382,578</td>
<td>49.3</td>
<td>274,281</td>
<td>31.2</td>
</tr>
<tr>
<td>Part-Time Farm HH</td>
<td>393,424</td>
<td>50.7</td>
<td>605,117</td>
<td>68.8</td>
</tr>
<tr>
<td>-with ag. as main occupation</td>
<td>239,981</td>
<td>30.9</td>
<td>369,570</td>
<td>42.0</td>
</tr>
<tr>
<td>-with other occupation</td>
<td>153,443</td>
<td>19.8</td>
<td>235,547</td>
<td>26.8</td>
</tr>
<tr>
<td>Non-Cultivating</td>
<td>31,5980</td>
<td>100.0</td>
<td>36,568</td>
<td>100.0</td>
</tr>
<tr>
<td>Farm HH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-Time</td>
<td>1,923</td>
<td>6.1</td>
<td>2,678</td>
<td>7.3</td>
</tr>
<tr>
<td>Farm HH</td>
<td>29,675</td>
<td>93.9</td>
<td>33,890</td>
<td>92.7</td>
</tr>
<tr>
<td>Part-Time Farm HH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-with ag. as main occupation</td>
<td>1,079</td>
<td>3.4</td>
<td>1,864</td>
<td>5.1</td>
</tr>
<tr>
<td>-with other occupation</td>
<td>28,596</td>
<td>90.5</td>
<td>32,026</td>
<td>87.6</td>
</tr>
</tbody>
</table>

mulgates that land owners should pay tenants one third of the publicly proclaimed land values as compensation if landowners decide to terminate the lease term. Once considered as fair compensation when land values were low and also properly reflected agricultural productivity, the currently high levels of land values and relatively low rental rates have made such compensation terms unreasonable and unacceptable to landowners. Most of the current landowners have benefited from the old system which helped them upgrade from tenant to landowner status. They are also those who understand how a leasehold may seriously impinge upon their property rights and threaten their land values. Naturally, when these people turn old and are unable to farm their land effectively, most of them are unwilling to lease out their land, lest they may not be able to get it back at full value. This kind of concern has seriously damaged the effectiveness of the tenancy system reform efforts.

Another factor adversely affecting farming efficiency is that not only average farm size is small, but that farms are divided into many plots. Most of these plots are scattered in different places, so even where farmers have decided to enlarge their farm size operations, the amount of rent they can afford to pay would be low due to high transaction costs and low economies of scale. Moreover, with the efficient rice marketing and price-support system, standardized and highly mechanized rice farming operations, and requirements for only seasonal labor, part-time farmers have found rice growing a flexible, profitable, and relatively low risk operation. They can engage in full-time nonfarm jobs while still staying in the rice growing business. The continuous improvements in farmers’ health conditions and farming mechanization have enabled old farmers to prolong their farming careers. As a consequence, the numbers of farmers and farms can only be decreased very slowly. As a matter of fact, due to the recently implemented medical insurance program for farmers, many people

4. Based on the previous Act, it was almost impossible for landowners to terminate a lease term even when the term had expired.
5. In the 1950s, the production rate of returns of farmland was quite high.
6. Average lot size is 0.2 hectare. Since average farm size is one hectare, the average number of lots in a farm is five.
joined the farming industry, mainly for the sake of taking advantage of the new program. This accounts for the surge in the number of farmers and farms in 1991.7

The government is now implementing a new six-year agricultural plan, the Comprehensive Agricultural Adjustment Scheme. Under this scheme several measures are being adopted to improve farm structure. Among the most important measures are an agricultural land utilization act to activate the agricultural land rental market, setting up a retirement scheme for old farmers, encouraging part time farmers to lease out their land, giving incentives to full time farmers to enlarge their farm size, setting up an agricultural land transfer and conversion system to preserve prime farm land. As to the problem of scattered plots, no effective measures are being proposed to tackle this issue. In foreseeable future, however, the effectiveness of the farm structure improvement scheme is going to be continuously undermined unless the general attitude towards land holdings and the willingness of part-time and retiree farmers to sell or lease out their land can be fundamentally changed.

There are also continuous calls from the nonfarm sector for review of current agricultural and land use policies to allow more agricultural land to be converted into nonfarm uses. Domestically, housing values have increased almost five-fold since 1987, turning what was once an economic issue into a social and political one, and even causing some social unrest. The escalation of land costs has often been cited as one of the main reasons contributing to production cost increases and the deterioration of competitive edges of the nonfarm sector in the international market.

Although a consensus has been reached that more agricultural land should be converted to nonfarm uses, no ready solution is yet on sight as to where and how much land should be converted.8 In the mean-

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7. This is very similar to the Japanese experience. For the Japanese experience, see Hayami, 1988.
8. Due to serious speculative activities in the land and housing markets, and the high vacancy rate of housing (13.9% in the most recent survey conducted in 1992), some would still question the effectiveness of increasing the supply of land for nonfarm uses. They are also concerned that the expected conversions may spark another round of speculative activities.
time, the competition for land among different uses is going to be more and more intense, and the agricultural sector is increasingly under pressure to design efficient and equitable conversion formulas which are politically acceptable both by the farm and nonfarm sectors.

Although the expected nonagricultural rent of some farmland is already much higher than its current agricultural rent, government policy restricts conversion of this land in order to safeguard self-sufficiency of main food items. This type of zoning restriction creates resentment among landowners, especially when the expected gains from conversion are enormous. Unless the process of government’s decision to allow some land to be legally converted is transparent and coherent, and no huge amount of windfall gains or losses are involved in conversion decisions, resentment will linger.

The expected windfall gains involved in rezoning will certainly invite rent seeking and speculative activities. This issue will continue to be of serious concern to the general public and land use policy makers. This problem is especially acute in the suburban area where agricultural zoning is in serious conflict with the welfare of urbanites and urban development. Some would argue that unreasonable agricultural zoning in suburban areas of big cities is the main culprit causing high land and housing prices, providing fertile ground for speculative and rent seeking activities, enticing illegal conversions, and stifling industrial development by making industrial sites much more expensive. Hence, the formulation of agricultural land use policy must go beyond the scope of agriculture. It should also take into account the nonagricultural interests. The main issue is how to formulate a policy which harmonizes with the needs of national economic development and promotes the efficient utilization of national land resources.

In general, the objectives of land use policies can be expressed as follows:

1. An appropriate supply of land for agricultural and industrial productive activities, for commercial activities, for dwellings, for community and recreational activities, for transport and infrastructural constructions;
2. Harmonious spatial patterns that minimize the use of resources relative to economic and social benefits;
3. Greater equity in wealth and income, including access by low income families to adequate shelter; and
4. A spatial distribution of population and activities at regional and national levels consistent with general national priorities (Dunkerley and Whitehead, 1983).

The objective of this paper is to identify and analyze the main issues of agricultural land use problems in Taiwan and search for new solutions for these problems. The main issues discussed include the following subjects: trade liberalization and the role of agriculture, land price appreciation and speculation, rigidity of the land market, small farm size and farming efficiency, land conversion and equity, supply of nonagricultural land, food security, agricultural zoning and agricultural land preservation, and agricultural land taxation. Due to the diverse nature of land use problems, several important issues related to the institutional and administrative issues are deliberately left out. These issues include how to restructure the rural planning and farmland control system, how to enhance administrative and enforcement efficiency in land use control systems, and issues related to how to deal with agricultural pollution and illegal land conversions.

Analysis of Agricultural Land Policies

Analysis of Policies of Restricting Farmland Transactions

The fundamental farmland policy in Taiwan is built on two pillars: farmland to the tillers and farmland for agricultural use. In order to carry out the policy of farmland to the tillers, policy measures are taken to regulate farmland transactions. With minor exceptions, the current policy only permits farmers to buy farmland. If a person wants to purchase farmland, he must provide required documents to prove his farmer’s status and some additional materials to show his ability to cultivate that piece of land. Under some restrictive conditions, young agricultural graduates are allowed to purchase farmland. According to the proposed Agricultural Utilization Act, some high-technology capital-intensive cooperative farms will be allowed to purchase farmland.
Originally, the farmland to the tillers program was built on the belief that leasehold is not conducive for increasing agricultural productivity in particular, and improving the welfare of rural society in general. Hence, only those who really want to cultivate land are allowed to buy it. The objectives of the policy are to enhance agricultural development by stabilizing the agricultural land market. It is believed that if non-farmers were allowed to purchase farmland, there would be more speculative activities in the agricultural land market; not only would land prices be much higher—pricing the real farmers out of the market—but also, agricultural land would be underutilized.

In view of the high agricultural land values and the rigidity of farm structure, the government has changed the policy and now emphasizes the importance of a rental market in increasing farm size operation. However, the real nature of restrictions on non-farmers from farmland purchase is kept intact. This restrictive policy has been criticized as being ineffective in achieving its original goals as a barrier for nonfarm capital to enter the farming sector. Moreover, while most current farmland owners are part-time farmers with less than 0.5 hectare (Table 3), the policy of allowing these farmers to purchase farmland while disallowing non-farmers to do so is losing its sound logic. Ironically, many of these people are de jure, not de facto farmers. These de jure farmers derive their income mostly from nonfarm sources. They may find farming unattractive and unprofitable, but they are reluctant to sell or lease out their land, less they might lose the privilege to purchase farmland in the future.

Politically, most farmers are not in favor of this policy, because they believe this measure has lowered their land values. In recent years, the voices opposing this policy have been gaining momentum, although not enough to demolish the measure. However, the reasoning in support of the policy has significantly changed. Realizing that land to the tillers has completed its historical mission and no longer can be upheld as a policy objective, the land to the tillers policy is now proclaimed to be a means to an end—maintaining farmland for agricultural uses. It is stated that although farmland need not be owned by farmers, to allow non-farmers to buy farmland will certainly make the policy of farmland for agricultural uses more difficult to enforce.
Table 3. Number of Farm Households and Cultivated Land Area By Size of Farm

<table>
<thead>
<tr>
<th>Size of Farm</th>
<th>No. of Households 1955</th>
<th>% 1955</th>
<th>No. of Households 1965</th>
<th>% 1965</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>743,928</td>
<td>100.0</td>
<td>873,000</td>
<td>100.0</td>
</tr>
<tr>
<td>Cultivating Farm</td>
<td>738,640</td>
<td></td>
<td>840,280</td>
<td></td>
</tr>
<tr>
<td>Household</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 0.5 ha.</td>
<td>254,038</td>
<td>34.4</td>
<td>318,260</td>
<td>37.9</td>
</tr>
<tr>
<td>0.5-1.0 ha.</td>
<td>209,987</td>
<td>28.4</td>
<td>241,800</td>
<td>28.8</td>
</tr>
<tr>
<td>1.0-1.5 ha.</td>
<td>121,427</td>
<td>16.4</td>
<td>125,860</td>
<td>15.0</td>
</tr>
<tr>
<td>1.5-2.0 ha.</td>
<td>61,177</td>
<td>8.1</td>
<td>68,180</td>
<td>8.1</td>
</tr>
<tr>
<td>2.0-3.0 ha.</td>
<td>57,219</td>
<td>7.2</td>
<td>55,520</td>
<td>6.6</td>
</tr>
<tr>
<td>3.0-5.0 ha.</td>
<td>23,249</td>
<td>0.7</td>
<td>25,160</td>
<td>3.0</td>
</tr>
<tr>
<td>5.0-10.0 ha.</td>
<td>5,266</td>
<td>0.7</td>
<td>5,040</td>
<td>0.6</td>
</tr>
<tr>
<td>10 ha. and over</td>
<td>277</td>
<td></td>
<td>460</td>
<td>0.0</td>
</tr>
<tr>
<td>Non-cultivating</td>
<td>5,288</td>
<td></td>
<td>32,720</td>
<td></td>
</tr>
<tr>
<td>Farm household</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of Farm</td>
<td>Average Area (ha)</td>
<td>Average %</td>
<td>Average Area (ha)</td>
<td>Average %</td>
</tr>
<tr>
<td>Total</td>
<td>835,960</td>
<td>100.0</td>
<td>805,317</td>
<td>100.0</td>
</tr>
<tr>
<td>Cultivating Farm</td>
<td>835,960</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household</td>
<td>105,100</td>
<td>8.8</td>
<td>87,035</td>
<td>0.28</td>
</tr>
<tr>
<td>Under 05 ha.</td>
<td>73,862</td>
<td>0.29</td>
<td>87,035</td>
<td>0.28</td>
</tr>
<tr>
<td>0.5-1.0 ha.</td>
<td>168,898</td>
<td>0.80</td>
<td>177,529</td>
<td>0.73</td>
</tr>
<tr>
<td>1.0-1.5 ha.</td>
<td>165,255</td>
<td>1.36</td>
<td>155,530</td>
<td>1.24</td>
</tr>
<tr>
<td>1.5-2.0 ha.</td>
<td>130,254</td>
<td>1.94</td>
<td>118,064</td>
<td>1.73</td>
</tr>
<tr>
<td>2.0-3.0 ha.</td>
<td>133,750</td>
<td>2.41</td>
<td>118,064</td>
<td>1.73</td>
</tr>
<tr>
<td>3.0-5.0 ha.</td>
<td>92,305</td>
<td>3.67</td>
<td>40,204</td>
<td>7.98</td>
</tr>
<tr>
<td>5.0-10.0 ha.</td>
<td>297,691</td>
<td>35.6</td>
<td>40,204</td>
<td>7.98</td>
</tr>
<tr>
<td>10 ha. and over</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-cultivating</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analysis of Agricultural Zoning

Based on the policy of farmland for agricultural uses, those lands classified as farmland under regional planning acts and non-urban land utilization control regulations, are not allowed to be converted to nonagricultural uses. The conversion is possible or not illegal when, after due process, farmland is reclassified into nonagricultural uses.

The Regional Planning Act was enacted in 1974. Based on this act, government started classifying non-urban land and putting it under land use control. Non-urban land is classified into nine different zones: special agricultural zone, general agricultural zone, rural developed zone, industrial zone, forestry zone, slope land preservation zone, scenery zone, national park zone and specifically designated zone for particular purposes. In each zone, non-urban land is further classified into sixteen different kinds of uses, and by law land users have to follow the specified use restrictions on which the land is classified. The non-urban land zoning was implemented first in Pin Tong county in 1975, and the last county implemented it in 1986.

The main reason for agricultural zoning is to preserve farmland for food security purposes. Almost all prime farmland, especially paddy fields, without due consideration of its locational competitive advantage, was included in the special agricultural zone and legally put under tight control. Once land was classified into the special agricultural zone, it became almost impossible for private land owners to get permission to rezone and legally convert the use of land. However, through the comprehensive review of city planning, rezoning is possible. This has become a serious loophole for insiders to gain huge windfall gains and for outsiders to engage in speculative activities.

Since the original zoning was carried out on short notice, no comprehensive planning was conducted before zoning. The most convenient and least controversial way to conduct zoning without planning is to zone according to existing land uses. This has created serious land use control problems in the past. These problems include high pressure for illegal conversions which lead to large areas of illegal conversions (Table 4), inefficient land uses, and high land prices. A comprehensive review of the existing zoning system is needed before an overall solution can be found. Piecemeal remedies can only lead
Options for Agricultural Land Use

to more speculative activities. The future review and readjustment of agricultural zoning should consider locational factors of farmland, equitable treatment of different land owners, and encourage citizen involvement in harmonizing different interests. Zoning for the people is important for the successful enforcement of land use control (Fischel, 1985, 1990). Zoning without the support of administrators and citizens would certainly pave the way for failure, not very much away from the current situation (Goetz and Wofford, 1979; Nelson, 1980; Lin, 1992a, 1992b, 1992c).

Analysis of Comprehensive Planning of Agricultural Land Use

The main objective of comprehensive planning of agricultural land use is to increase the efficiency of farmland utilization. A system is created to assist farmers to increase their farmland productivity by helping them decide which crops to plant, and offering them farm management advice and some technical assistance. The size of each planning unit is about 200 hectares. Within a planning area, farmers are grouped together voluntarily to decide farming strategies, to seek financial support to construct agricultural infrastructure, to cooperate among team members to take advantage of scale economy, and to coordinate cropping patterns. Based on traditional planning philosophies, the guiding principle of current comprehensive planning still emphasizes enhancing the physical nature of farmland productivity. The planning authority gives guidance to farmers to use their land in a most suitable way, advising for example, that if the nature of the farmland in the area is most suitable to plant rice, then farmers in the area are advised to do so. Unless government can guarantee profits, however, this kind of advice may fall on by deaf ears.

Agricultural Land Taxation

In order to reduce farmer’s tax burden, to increase farmer’s income, and also to increase farm size, farmland is exempted from the land property tax, land transaction levy, and the value increment tax. In the past few decades, however, speculative activities on farmland have been gaining momentum and generating widespread concern.
Table 4. Illegal Conversion of Non-Urban Land Under Review in Taiwan in 1986. Before/After Land-Use Classification

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Before Classification</th>
<th>Converted</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Lots</td>
<td>Area</td>
<td>Area per Lot</td>
<td>No. of Lots</td>
</tr>
<tr>
<td>Total</td>
<td>102,013</td>
<td>14,574</td>
<td>0.413</td>
<td>43,494</td>
</tr>
<tr>
<td>Ilan Hsien</td>
<td>5,803</td>
<td>915</td>
<td>0.158</td>
<td>4,185</td>
</tr>
<tr>
<td>Taipei Hsien</td>
<td>878</td>
<td>171</td>
<td>0.195</td>
<td>165</td>
</tr>
<tr>
<td>Taoyuan Hsien</td>
<td>3,778</td>
<td>266</td>
<td>0.071</td>
<td>477</td>
</tr>
<tr>
<td>Hsinchu Hsien</td>
<td>474</td>
<td>93</td>
<td>0.196</td>
<td>99</td>
</tr>
<tr>
<td>Miaoli Hsien</td>
<td>1,252</td>
<td>90</td>
<td>0.072</td>
<td>292</td>
</tr>
<tr>
<td>Taichung Hsien</td>
<td>3,842</td>
<td>264</td>
<td>0.069</td>
<td>1,887</td>
</tr>
<tr>
<td>Nantou Hsien</td>
<td>3,483</td>
<td>134</td>
<td>0.039</td>
<td>2,741</td>
</tr>
<tr>
<td>Chunghua Hsien</td>
<td>11,821</td>
<td>1,174</td>
<td>0.099</td>
<td>1,824</td>
</tr>
<tr>
<td>Yuntin Hsien</td>
<td>16,787</td>
<td>2,703</td>
<td>0.161</td>
<td>10,384</td>
</tr>
<tr>
<td>Chiayi Hsien</td>
<td>9,065</td>
<td>1,484</td>
<td>0.164</td>
<td>9,065</td>
</tr>
<tr>
<td>Tainan Hsien</td>
<td>18,659</td>
<td>3,461</td>
<td>0.195</td>
<td>1,349</td>
</tr>
<tr>
<td>Kaohsiung Hsien</td>
<td>4,652</td>
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The call for repealing the tax exemption status for farmland is slowly gaining adherents in the government. However, since so much vested interests have been involved with the tax exempt policy, it will be very difficult to reform.
Analysis of Farmland Prices and Efficiency of the Farmland Market

With the ever-increasing agricultural land values, it is difficult to increase farm size by farmland purchase. High land values brought about the rigidity of agricultural structure. Analysis of the changes of farmland prices and the efficiency of the farmland market will help find solutions to agricultural structure problems.

Based on the recent study conducted by Lin and Chao (1992), the agricultural land market is weakly efficient, but the rapid increases of farmland values in Taiwan can not be properly explained by the residual returns to land. The historical total rate of returns to agricultural land are competitive with the other investment alternatives, such as non-urban land, stocks, and interest rates, but the composition of the rate of returns is quite different. The production rate of returns of farmland in Taiwan has reached a very low level in recent years, about 1 to 2 percent, and the total rate of returns mainly consists of the capital gains rate of returns, 6 to 8 percent. The empirical results also showed that the decrease of the real interest rate of bank secured loans and the perception of farmland to be a less risky investment over time have both contributed to the increase in farmland values.

The empirical results showed also that urban and agricultural land prices are highly correlated with each other and their long run growth rates are quite similar. It is therefore concluded that in order to solve the rigidity problems of the agricultural structure, overall land use policy should be re-examined, and a new policy should be developed to lower the long term expected growth rate of urban land prices. The government should reconsider the farmland conversion policy and increase the supply of nonagricultural land. An appropriate increase in the supply of agricultural land for nonagricultural uses may help lower the real growth rate of nonagricultural rent. Moreover, the introduction of a land conversion levy may reduce the incentives for pursuing windfall gains by farmland owners, and hence enhance the role of agricultural land as a production factor, thereby inducing the adjustment of agricultural structure.
Main Issues Behind Agricultural Land Policies and Agricultural Land Problems

The Role of Agriculture

To maintain a certain level of food security, to preserve natural resources, and to provide amenity and beautiful scenery are now considered important objectives of agricultural policy. The nature of these policy objectives does, however, extend much beyond the scope of agriculture and is more related to general public interests. Of course, it would be very desirable if while the agricultural sector is successfully pursuing its own goal of raising farmer’s income, it also accomplishes the above mentioned objectives for the sake of broader national interests. However, if farmers are not able to attain an adequate living standard, then naturally they would not be especially interested in meeting those broader objectives.

It is argued here that for the sake of safeguarding its own interest, the nonagricultural sector should be more assertive in searching for new options to utilize land and agricultural resources more efficiently. The key to the issue is that both the agricultural and nonagricultural sectors should work together to preserve natural resources, and they should do this in a manner in which benefits and costs are shared efficiently and equitably. Proper reward for good resource stewardship is certainly a good place to start. The transfer of resources from the nonagricultural sector to the agricultural sector is therefore inevitable and warranted. Although there are continuous debates on how much of a transfer the agricultural sector should get, the other question is how the transfer should be used to reach the common goal of preserving resources.

Food Security and Agricultural Land Preservation

In order to attain food security, the government is engaged in agricultural zoning to restrict agricultural land from conversion, thereby preserving agricultural land. To some extent, however, restrictive agricultural zoning adversely affects farmers’ interests. Consequently, some landowners are asking government to relax those regulations. In
a period when the living conditions in urban areas are deteriorating because of increasing housing and land costs, more and more people in the nonagricultural sector are also finding it more difficult to follow the logic of agricultural land preservation, and believe the argument that agricultural land conversions would carry high social costs.

Based on the belief that agricultural zoning should not be isolated from other national goals, the welfare of farmers and city dwellers should not be indiscriminately sacrificed just to fulfill the psychological and political needs of food security. The security issue should be enunciated more clearly in terms of the opportunity costs it entails. It would be a mistake to believe that food security, however defined, could be achieved without incurring costs or should be considered as a supreme goal and attained at any cost.

There are common interests between agricultural and nonagricultural sectors as far as the issue of rationalizing agricultural zoning and zoning adjustment is concerned. In order to consolidate these common interests, both sides should try to articulate the food security issue more clearly and try to reach a consensus on the degree of agricultural land preservation it actually requires. This consensus will not be easy to reach. It will be a bit easier if the costs of land preservation and the benefits of agricultural land development could be more fairly distributed.

**Land Conversions and Supply of Nonagricultural Land**

One of the often heard reasons for opposing agricultural land conversion is that the current supply of nonagricultural land is more than the demand for it. It is normally argued that the availability of vacant and underdeveloped land is a sign of excess supply of land in the city area. Therefore, to allow more agricultural land to convert may not help solving the ever-increasing land cost in the city area.

There are several counterpoints to this argument. First, it is true that the ever-increasing land costs are a sign of excess demand for land, real or speculative. Second, however, the availability of vacant and underdeveloped land within city areas is not necessarily a sign of under-utilization of land resources. If the expected rate of land price increases is higher than the expected rate of return of any other invest-
ment alternative, keeping vacant land idle would be the best policy not only to the individual owner, but also to the society as a whole. Therefore, by increasing the supply of nonagricultural land through proper readjustment of agricultural zoning, the expected rate of land price increases within city areas should decrease.

This, in turn, will decrease the speculative demand for landholding and increase the supply of land available for development. Of course, it would be unwise to suggest that simply allowing more agricultural land to convert would itself solve high land cost problem. As mentioned previously, some mechanism of making the costs and benefits of agricultural land preservation and conversion more fairly distributed would certainly make the policy of increasing nonagricultural land supply more effective.

**Agricultural Trade Liberalization**

In the long run, a gradual and orderly agricultural trade liberalization should be beneficial to both agricultural and nonagricultural sectors. In the short run, however, without the assistance and resource transfers from the nonagricultural sector, structural adjustment in the agricultural sector is going to be painful and disruptive. This may itself create social unrest and cause the deterioration of agricultural resources, eroding the potential benefits of trade liberalization. Hence, it would not be a surprise to find that the agricultural sector is not enthusiastic about the trade liberalization issue. Again, this suggests that in order to protect its own interest, the nonagricultural sector should be more generous and more assuring in offering adjustment relief to the agricultural sector.

In the process of trade liberalization, the demand for agricultural land is going to decrease, and agricultural land use patterns will certainly be affected. The issue of food security will be raised again. How the agricultural land is going to be affected would very much depend on from where and how much agricultural land the government decides to preserve for food security and conservation purposes. If food security is important, it should be interpreted as preserving the food production capacity instead of insisting upon self-production, using all the agricultural resources to produce food even if at much higher costs. Even if
the food security issue is important, as far as promoting more efficient uses of resources is concerned, preserving farmland should not be equated to producing farm produce without paying due consideration to the international market. The conclusion is that land can be preserved, but to use it wisely, economic sense should dictate. Rice may be an exception for cultural and political reasons (Lin, 1993).

### Agricultural Land Speculation

The anticipated value increments from conversion is one of the important reasons causing agricultural land speculation in Taiwan. The following points are the principal causes of these huge value increments (Lin, 1991):

1. Agricultural zoning is too restrictive and the area covered is too large, creating a great discrepancy between agricultural and nonagricultural rent;
2. Erratic and inconsistent adjustments of agricultural zoning areas;
3. Uncoordinated and inefficient supply of rural infrastructure;
4. Improper taxing system;
5. Insufficient information and insider trading; and lastly
6. Official corruption.

### Possible Reforms of Future Government Policies Related to Agricultural Land Uses

The newly formulated policies which might significantly affect future agricultural land uses in Taiwan include the following three schemes: i) Encouraging farmers using farmland to plant trees, ii) Enacting an Agricultural Land Utilization Act, and iii) Implementing a land-based direct payment program to substitute for an inefficient price-support program.

### Encourage Farmers Using Farmland to Plant Trees

According to the previous policy, trees cannot be planted on farmland. With the deterioration of the natural environment and growing
concerns over natural resources preservation, the importance of trees in preventing top-soil erosion, preserving water resources, providing beautiful scenery, and moderating weather conditions, is gaining more recognition by the public in general and policy decision makers in particular. Other than the positive externalities provided by trees, the conversion of part of farmland to plant trees can also reduce the pressures of having an excess supply of agricultural produce. Hopefully, all this would lead to less farm subsidies. In the next six-year planning period, the government intends to permit planting of trees on one hundred thousand hectares of farmland, or more than ten percent of the current total farmland area.

**Agricultural Land Utilization Act**

In order to enhance the efficient use of agricultural land, the Council of Agriculture has drawn up a proposed Agricultural Land Utilization Act. The main features of the bill are summarized below.

1. Enhance the structure of the agricultural land administrative organization.
2. Enhance agricultural land use controls to preserve prime farmland.
3. Establish a farmland transfer permission system.
4. Relax restrictions on farmland transfer, allowing agricultural production cooperatives, cooperative farms, and permitting entry farmers to purchase farmland.
5. Specify conditions under which agricultural production cooperatives and cooperative farms can purchase farmland. The act also stipulates that under no circumstances can farmland purchased by production cooperatives and cooperative farms be allowed to convert the land to nonagricultural uses. If the law is violated, not only will a severe penalty be imposed, but also the government will be given the legal right to buy back that land.
6. Establish a rational farmland rental system. Under this system, landlords and tenants can freely negotiate their rental contracts on an evenhanded basis.
7. For those farmlands purchased by the government through market transaction or forced sale, government would give priority to
Options for Agricultural Land Use

sell or lease the land to neighboring farmers. Government can also sell or lease such lands to young or full-time farmers.

8. Impose heavy penalties on illegal uses of farmland. For serious land use violations, the government is empowered to purchase that land through forced sale.

Land-Based Direct Payment System

In order to adjust the agricultural structure, to develop a sustainable agriculture, to reduce the distortion of resource uses, and to make necessary preparations for compensating the farming sector due to impending steps towards agricultural trade liberalization, the Council of Agriculture is in the process of contemplating a land-based direct payment system. Although the original idea is derived from the concept of decoupling agricultural support from commodity support, the system has been under various stages of revisions. The concerns and distrusts over the decoupling scheme among various interested parties have made the policy design a very difficult task. Its original purpose of agricultural restructuring has lost its priority, with the emphasis now more on designing a compensation scheme in response to possible liberalization regimes which would require the decrease of domestic price-support levels and tariff reductions.

The objectives of the policy are to implement a direct payment system to gradually substitute for the price-support system, to accelerate structural adjustment of farm production by reducing the degree of government intervention in the farm market, and to preserve the sustainable productive capacity of agriculture by rationalizing agricultural land uses. The direct payment system would cover three categories of farmland. First, the program will cover those lands currently used for producing price-support products. When the price supports are phased out, these lands would be covered by the direct payment system. Second, among those lands currently used to produce trade-protected products, the direct payment system will be invoked to compensate those who are adversely affected by trade liberalization. Third, the direct payment system will cover those lands which need to be preserved in the long run for agricultural uses so as to maintain a sustainable agricultural production capacity. Although the general
principles are agreed upon, a more detailed program is yet to be designed. Politically and technically, this is a real challenge.

Policy Recommendations

Rationalize Agricultural Zoning and Zoning Adjustment Scheme

It is recommended that the current agricultural zone should be adjusted. The agricultural zone can be further divided into a developing zone and a long term agricultural zone. Those farmlands which have high potential for nonagricultural uses and are expected to be converted to nonagricultural uses in the near future should be considered for inclusion in the developing zone. The farmlands within this developing zone will no longer be allowed to enjoy the favorable treatments extended to the farm sector. This means that these lands should no longer be tax exempt, and landowners should pay land property taxes and land value increment taxes when the land is transacted.

Improve Agricultural Land Use Planning

The guiding principle of agricultural land use planning uses should be reexamined. The main emphasis in land use planning on the physical productivity of farmland should be adjusted. Planning also has to take into account locational factors. Moreover, planning can not be used to substitute for the market mechanism. The main purposes of planning should be to provide incentives for profitable agricultural production, to stimulate farmers’ enterprising spirits, to sufficiently utilize regional economies of scale in agricultural production, and to efficiently utilize the market mechanism.

Establish Nonprofit Organization to Improve Farm Structure

It is recommended that the government should help set up a system similar to the one implemented in France—SAFER. SAFER is a non-
profit organization which is vested with some legal authority to pre-empt some farmland transactions and to be involved in buying and selling farmland to improve the farm structure. This system is especially effective in consolidating fragmented plots.

**Other Policy Recommendations**

There are five additional points I would like to make.

1. Government should reexamine the policy of allowing farmers to build houses on their farmland.
2. Government should design a more efficient and equitable infrastructure construction system in rural areas.
3. Government should reexamine its current agricultural and farmland subsidy programs. The central government should concentrate their efforts in those areas which are of a national nature. The preservation of farmland in suburban areas surrounding big cities should be the responsibility of regional or city governments, since these farmlands mainly provide regional or local externalities.
4. Government should design a better system to safeguard the property rights of landowners in order to more efficiently utilize land resources.
5. Government should pay special attention to farmlands in suburban areas and to the important role these lands can play in enhancing the quality of urban life. Government should also try to balance the interests among different interest groups in order to fully utilize the suburban farmland.
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