A new property regime in Kyrgyzstan; an investigation into the links between land reform, food security, and economic development

Dekker, H.A.L.

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CHAPTER 5. BUILDING A MODEL

5.1 LINKING LAND TENURE AND FOOD SECURITY

5.1.1 THE FOOD SECURITY PARADIGM

In this chapter a tool for rapid assessment of effectiveness of land reform projects will be developed. It aims to assist in assessing the effectiveness of a project; to detect early warning signs of undesired or non-sustainable project effects, and to draw attention to failing supportive measures to ensure sustainable future benefits of a project. Land reform can have to distinctive goals, alleviating food insecurity or improving of economic development. First we will investigate a model for the food security paradigm and in the following paragraph a model describing the link between land reform and economic development – the prosperity paradigm – will be developed.

Thus this first paragraph concentrates on a model linking land tenure with food security. A simple caricature in which land tenure appears as ‘access to land’ and food security in the form of ‘nutritional status’ is based on research by Maxwell and Wiebe [55] (p. 3) by replacing ‘resources’ with ‘access to land’:

Access to Land ➔ Production ➔ Income ➔ Consumption ➔ Nutritional Status

Access to land and land tenure, cover much of the same ground but they should not be confused with one another. As defined in 2.2.3 land tenure is the institutional arrangement of rules, principles, procedures, and practices, whereby a society defines control over, access to, management of, exploitation of, and use of means of existence, and production. The definition shows that access to land is one of the (albeit the most important) elements of land tenure.

Although simple, the above scheme already generates questions. Questions like; how do people gain access to land, how do farmers gain access to agricultural land? How do different forms of access to land affect access to food? Is there an inverse relationship as the one depicted in the figure, for example does a change in income effect production? Some dynamics can be implicitly introduced in the links; farmers can invest surplus income that is not consumed. Another dynamic is the fact that some choices by farmers are forced (and not free) choices. In times of famine or civil unrest causing food shortages, the choice can be between food consumption or asset depletion (endangering the future food security of the household), but an alternative can be to decrease food consumption and jeopardizing health and thus labor possibilities in the household. Maxwell and Wiebe note an additional dynamic link that comes from vulnerability. A resource-poor, food insecure household will make the choice for a trusted crop with possible low returns instead of a higher risk – but commercial - crop with higher returns, in fear of possible failure.

Improved food security can be achieved by improved access to own-grown food. Provision of household plots can be an important measure in combating food insecurity. While working in Moldova in 1997, I observed that all citizens were entitled to house plots encouraging at least partly subsistence horticulture and small-scale agriculture. It was a measure of the government to seek a higher level of food security.
Structural improvement of food security can be pursued by (state supported) enhancement of agricultural production providing more food for consumption and incentives for a positive change in nutritional status. Interesting policy questions are: will increased access to land or will increased land tenure security lead to increased access to food and increased food security? From a research perspective primarily concerned with land tenure, an increase in agricultural yields is often suggested to be a sufficient outcome to generate improved welfare, including, presumably, food security and nutrition. The most common paradigm is that improved agricultural production results in (positive) changes in income, consumption, and nutritional status. Since this paradigm focuses on achieving improved food security it will be referred to as the food security paradigm.

5.1.2 EXTENDING THE SCHEME
The scheme on the previous page must be slightly adapted and extended to visualize this paradigm. I started with ‘access to land’ linked to “production”. In a paradigm starting with institutional change, the improved production has to be triggered by the deliberate changes of the institutions to provide for improved access to land. Land reform is often chosen as the way to improve production assuming that change of existing land tenure patterns toward more private individual property are positive incentives for farmers to raise production. The change in land tenure is represented by institutional change as well as by change of access to land.

A simple scheme (in which the improved food security results from change in consumption and – a positive - change in nutritional status) for the paradigm is as follows:

\[
\text{Institutional change} \rightarrow \text{Change of access to land} \rightarrow \text{Improved agricultural production} \rightarrow \text{Change in consumption} \rightarrow \text{Change in Nutrition}
\]

This is the basic food security paradigm. An important assumption has been made in visualizing the food security paradigm. It was argued that looking back from food security, presumably institutional changes were needed to initialize a reaction that eventually would lead to food security in the form of a change in consumption and a positive change in nutrition. But the basic feature of the scheme as presented is a casual flow from left to right. It remains to be seen if research shows whether institutional changes and changes in opportunity sets (see paragraph 5.2.4) create possibilities to change consumption and change nutritional status, two elements closely connected with a change in food security. In areas where food security is a recurrent problem (recurring droughts, famine prone places and the like) this is an important notion.

As mentioned earlier, change in institutional structures governing land tenure is commonly captured with the term "land reform".

In summarizing the general impacts of land reform, Thiesenhusen [86] notes six goals although sometimes difficult to assess. Most goals also potentially affect food security. According to him (p. 199), possible land reform aims are: reductions in social polarity, increased investment, more transparent production incentives, poverty reduction, increased employment, and greater equity. With regard to food security, the presumption is that greater equity, productivity, and other outcomes resulting from changes in tenure will have beneficial impacts. (Accomplishment of these goals depends also on other measures).

The concept of Thiesenhusen in a visualized form looks like:
Originally the focus was only on individual or household land. With new interest for environment, common lands and state property is included also. As seen before there is evidence that livelihood strategies are not limited to individually held lands, important seasonal effects on food security can be compensated for from common or state lands and forests. Examples can be found in Albania where peasants increased the number of livestock grazing on common land dramatically, while at the same time intensifying agricultural production on their newly acquired plots of land. Findings and conclusions of Thiesenhusen confirm the possibility of approaching food security from the left-hand side of the figure. An important confirmation of the food security paradigm is the notion that not only change in land tenure brings about an improvement (or a change) in agricultural production, but that this improvement is also the result of a change in resource use. A change in land tenure arrangements may provide farmers with the possibility to lease land (change in land use) or to buy land with credit obtained by using the land as collateral. By introduction of mechanization labor input will change (diminish) and farmers may be able to free time to acquire knowledge of new agricultural methods and applications of biotechnology.

5.1.3 THE FOOD SECURITY PARADIGM VISUALIZED
Before visualizing the food security paradigm, I want to introduce ‘initial situation’ as a first element in the paradigm to stress that the nature of the proposed measurements aim at introduction of a new property regime. It should also be noted that the flow has been changed from left to right into top to bottom.

The model for the food security paradigm is based on the findings and considerations as presented in this paragraph. The scheme is an oversimplification of reality. By the nature of it – showing one way relations (top - down) only - it will also be clear that the scheme does not provide answers for a variety of questions that do not follow the one way pattern. Nevertheless it does raise a number of important issues for countries in transition. Do individuals gain access to land? Do individuals use the newly acquired opportunities? Does the element “change in consumption” automatically result in change in nutritional status or do individuals make the choice to consume resources by obtaining capital goods instead of food (a situation I encountered in a project in Poland)? These questions should be asked apart from the model and the analysis of the links between land tenure and food security.
The food security paradigm with these extensions has been visualized on the next page:

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<table>
<thead>
<tr>
<th>Initial situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources + Institutional provisions</td>
</tr>
<tr>
<td>Institutional change</td>
</tr>
<tr>
<td>Change in access to land</td>
</tr>
<tr>
<td>Change in resource use</td>
</tr>
</tbody>
</table>
  - Land & natural resources
  - Labor
  - Finances & credit
  - Education & knowledge |
| Change in agricultural production |
| Change in Income |
| Change in Consumption |
| Change in Nutritional Status |
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In most of the former communist countries in transition (recurrent) famines are extremely rare. A common concern in countries in transition is to maintain a (minimum) level of agricultural production during the period of transition in which state owned land is transferred to individual farmers. The change from a centrally planned system of agricultural production to a free market economy causes concern and political controversy at the national level among politicians. Will the government be able to continuously guarantee sufficient food for the population? Will not every new farm switch to cash crops ignoring a healthy, more reliable and balanced mix of agricultural production? Will not a minority end up with possession of the majority of land leaving most of the population without sufficient resource for subsistence?

The model developed in this research will assist in an assessment of the effectiveness of land tenure changes introduced by deliberate actions of a government whether or not supported by international donors. Although this is a limitation for a general application of the model, it enables a simplification in so far that tenure evolution via change in population, technology, and markets, can be ignored. Generally the population in most post-communist countries has to digest so many changes in a short time that measuring the evolution of land tenure under such circumstances will be highly biased by all the other impressions and changes in society.
5.2 INSTITUTIONAL CHANGE, INDIVIDUAL BEHAVIOR, AND ECONOMIC DEVELOPMENT

5.2.1 FAMILY FARMING AND ECONOMIC DEVELOPMENT

Now we will turn to the prosperity paradigm in which land reform is specifically aimed at economic development. This paradigm will be visualized in a similar way as the food security paradigm.

In Property, Power and Public Choice, Allan Schmid (1978) [71] (p. 6 and 7) indicates that the rights of individuals are defined by institutions establishing relationships among the individuals. He remarks that the course of actions by any individual are guided by these rights and make the individual's opportunity set (the latter is defined as an individual's physical and emotional capacities plus legal or customary understandings of potential options that are conditioned by actual choices of others – see paragraph 5.2.4). They are conditioned because individuals follow tradition and perceptions under constraints and perhaps even peer pressure of others. These conditions, plus laws, customs, regulations and materialized institutional arrangements lead the decision-making processes of individuals, which over time can be measured by economic indicators. The aggregate behavior of individuals results in (land) market activity. The institutional structure of GosRegister (the new land registration organization in Kyrgyzstan) determines the available choices of potential or active participants in the agricultural land market. Partly on the analogy of Nabli and Nugent 1989 [61] (chapter 2, p. 1334), we can define that institutions as the established rules and customary relationships in a social organization form a set of constraints governing behavioral relations among individuals or groups. Institutional changes can facilitate economic development by increasing market efficiency, and market failures can also signal the need for institutional reform.

One reason for the "Glasnosjht" (Translation: Publicity, Openness) was the disappointing economic result of the practiced communist doctrine. Theoretical implications have had a major impact on land policy. In post communist countries the assumption is that increased individual private ownership of rights to land recognized and protected by an institutional structure will lead to increased productivity, access to credit, reduced conflicts over land, permitting efficient farmers to outbid less efficient ones in the land market. The latter process will presumably lead to more efficient production, higher rural incomes and higher land values, resulting in rural economic development. The spin off will stimulate economic development as a whole. International donor organizations propagate land (re-) distribution among private individuals as a means to achieve increased economic development. A measure propagated by the communist rulers was to establish a number of family farms with some land from state farms. In the Baltic Republics this experiment started around 1987 (and it caused some bitter disputes at the time of privatization). The expectation was that farms when being made a one farming family responsibility would produce more efficiently thus raising yields and agricultural production. This in turn should improve economic development. In several other parts of the world research on land tenure shows evidence that individual access to sufficient land is one of the most important factors to economic development. The link between access to land, resource use and income generation resulting in economic development is almost automatically assumed. In this paradigm improved resource use triggers income generation and economic development.
and prosperity. The paradigm can be put in a simple scheme (in which most of the subsequent steps are assumed to automatically result from the previous ones):

Institutional Changes → Improved access to Land → Improved resource use → Income generation → Economic development

This paradigm describes economic development and improved prosperity as a result of institutional changes: The prosperity paradigm. It can be reformulated in substituting "Institutional Changes" by change in access to land as a result of new institutional provisions. These new institutional provisions together with available resources aim at improved access to land. In addition to adjudication of land, farmers can buy or lease land if they have the resources to do so and this together will determine their new changed access to land:

Resources → Access to Land → Production → Income → Economic development

However, this is not sufficient. A dynamic model of links should also incorporate the cyclic links (to keep the scheme readable only selected cyclic links are added in dotted lines):

Resources → Access to Land → Production → Income → Economic development

In most research, links are generally examined only one way to limit the complexity. In other words, most of the cyclic effects are ignored. Attention will primarily be paid to the change in production due to the change in access to land and not whether the change of production initiates changes in access to land. This research will focus primarily on providing a simple and quick assessment of projects in which land tenure change is the aim. The model to be developed should be simple and applicable for a general assessment and not primarily for long term research. It is a ‘field guide’ for a rapid and ad hoc evaluation of a situation.

The "one-way" model of links can alternatively be visualized in a different manner (using a sequence from the top downward). The start of the links is institutional change – inter alia providing a change in tenure security – and this triggers changes in resource use, the result of which is change in access to land, in production, and in income, resulting in economic development.

As stated before this is the "one-way" approach in which cyclic links are ignored because of the fact that the model will serve primarily as ad hoc evaluation of a situation and not an assessment of events over a long period of time.

In line with expectations that improved access to land will trigger economic development, programs to improve individual tenure security were among those proposed to boost the economic development even further. One of such programs is land registration and titling. This results in the model shown on the next page.
5.2.2 LAND TITLING AND ECONOMIC DEVELOPMENT

A strong advocate of the positive impact of land registration and land titling on economic development often cited by scholars is Gershon Feder (The Economic Implications of Land Documents in rural Thailand) [31]. He presented a paper under the title "Economic aspects of land registration and land titling", in Warsaw (Cadastral Congress November 1998) [32]. In his paper he provided a conceptual framework (as visualized on the next page) for analyzing the economic aspects of land registration and land titling. It also reviews evidence from around the world showing that land registration has led to better access to formal credit, higher investments in land, and higher output/income. It is interesting to notice that in more recent publications Feder shows an increasing restraint in advocating a straightforward positive correlation between land registration, land titling and economic development. In the presentation in Warsaw he argues that there are several prerequisites for land registration to be economically viable, and there are circumstances where the investment will not be economically viable. Similar restraints are shown by Place et al. [67] when they state that there are several reasons why the effect of the traditional assumptions may not come about. Dubois questions the usefulness of land titling in: "Does title really matter?" [27] (1997). There is no indication that a growing awareness of private ownership by land titling will result in economic development and in conservation of resources. International development players assume that gradually more individualism will lead to more formalization of land rights, giving more security, access to credit, higher prices
for land, social peace, economic stability and better management of natural resources, but systematic data to support this rationale is lacking.

Feder notes that demand for land registration and titling has emerged in various societies as population growth, advances in land use technology, and increased trade made it necessary for property rights on land to be better documented, and to be reliably enforced. He distinguishes two types of effect of registration:

- Improved resource use by enhanced land tenure security (necessary to invest in land, clear it of stones, drain it, cut trees, make access, etc.) because the cost is borne up-front.
- Better position to obtain credit because a credit transaction carries the risk for the lender, hence the emergence of collateral arrangements with immovable property to be used as guarantee for repayment.

Both effects lead to higher productivity, increase of land values etc. In addition to these effects, greater clarity of land ownership, through registration and titling, facilitates a smoother and more efficient operation of the land market. This increases overall productivity of the economy, as land transactions transfer land from less efficient to more efficient producers.

A similar approach as developed in the above (the prosperity paradigm) to conceptualize links, can be found in Place et al. [67]. They note (p. 15): “There is widespread belief that for
Economic development tenure security is an important condition. Compared with weak or insufficient property rights, secure rights based on economic theory are believed to:
- increase credit use by greater incentives for investment in land
- increase land transfers by increasing the certainty of contracts
- reduce land disputes
- raise productivity through increased agricultural investment

Although tenure security in their approach is seen as a condition for economic development, in the model economic development has been replaced with specific agricultural effects like the use of land improvements and higher yields. Obviously there was reason for them to concentrate on farmer’s behavior, but it should be mentioned here that economic development is not limited to only the agricultural sector of the society in which institutional arrangements aiming at an improvement of land tenure security take place.

Place et al. present the following conceptual model linking title and tenure security with agricultural performance (narrowing economic development to only the agricultural effects).

In the model the demand side represents the incentives to farmers and the supply-side the incentives to lenders. Increase in demand is derived from two sources. First, greater tenure security increases the likelihood that the operator will receive the returns on the investment. Second, increased tenure security will most likely diminish the occurrence of disputes freeing the resources otherwise used for litigation. Demand for complementary inputs (farm chemicals, labor) will enhance as well, assuming the existence of viable technologies, extension services, access to input, and the availability of financial resources. Subsequently enhanced tenure security will lead to higher investment and yields.
Because of supply side effects, higher yields are possible even if households lack sufficient financial resources. The collateral value of land will be higher with title thereby raising lenders' expected returns. Increased tenure security is also assumed to have a positive effect on land markets. Security of title makes transfers easier and land leases more secure. Efficiency gains would arise if more productive farmers can outbid less efficient users of land. Increased tenure security will also positively affect land values as long as the expected yield response to investment is positive and the output price in the aggregate is sufficiently elastic.

According to Place et al. there are several reasons why the effects as described above do not come about: Farmer's investment demand may be weak for reasons other than security of tenure. Farmers may perceive returns less risky, may avoid technologies unknown or farmers may be unfamiliar with technological options and investments may be unprofitable. Poorly developed input distribution may fail to supply enough complementary input or may result in unaffordable input prices.

Even if demand for investment is enhanced, financial constraints may prevent farmers from exercising demand. Usury laws may prevent lenders from raising interest rates to mobilize capital. Poorly developed institutional systems may result in exorbitant administrative charges.

Also more land improvements will not always increase yields. Instead of more labor, farmers may pursue more leisure; it may be used to variance in yield rather than enhancing yield.

On page 18 [67] Place et al make the remark: "Instead of undermining the importance of tenure security, the foregoing reasons simply suggest that secure tenure is necessary but not sufficient for agricultural development, and that the expected benefits would be strongest in situations of dynamic technology and well functioning markets. Whether registration would stimulate output response under these conditions would depend on whether tenure security is significantly higher than under the indigenous system and on whether credit use is enhanced".

In a recent study in Indonesia, Herman Slaats [76] (p. 106) concludes that registration of land did not protect the population. He states (p. 102) that the shift from communal rights to individual rights removed the control of the community and replaced it by the legal, economic, and political system of the State, in none of which villagers have much participation. "Under the system of individual ownership, the land becomes more sensitive to market forces. Whereas previously buying and selling of land was carried on within the community, now outsiders can buy village land....These factors contribute to increased land prices and stimulate villagers to sell land rather than improve its productivity".

Outsiders approach a purchase of village land primarily as long term investment and not to increase agricultural production. Yet another example where the assumption that land titling automatically improves yields does not hold while the momentary and not sustained change of income has unpredictable effects on economic development of the rural region.

5.2.3 COMPARING PROSPERITY PARADIGMS
What is the result of the model as presented by Place et al. for the prosperity paradigm as developed in paragraph 5.2.1? First of all it should be noted that the two models do not address the same questions. The model of Place et al. (further referred to as Place) focuses on the links between use of resources, production, and income, it focuses on demand side
and supply side factors that in the prosperity paradigm (for the time being) are ignored. The prosperity paradigm covers resource use, production, and income plus economic development – in which rural development has an important part.

We have to examine what similarities with or potential additions to the prosperity paradigm can be found in the Place model. To assist in finding the similarities in both schemes I have added numbers at each of the elements. The institutional changes and the changing access to land (1) in the prosperity paradigm, are represented in the Place model by the provision of (new) land rights and land title(s) (1).

It is assumed that a land title is the written proof of a land right and that there are no land rights without land titles. With this assumption land rights and land titles can be seen as components of new possibilities opened up by institutional changes providing new possibilities of access to land. The institutional changes result in changes in resource use (2) in changes in production (3) and changes in income (4) in the prosperity paradigm, represented in the Place model by (changes in) tenure security (2) \(\rightarrow\) (3 & 4). The effect of economic development (5) in the prosperity paradigm is much more specified in the Place model by all the elements of change indicated by (5). All elements marked (5) in one way or another will contribute to measurable effects.

Prosperity paradigm:

- Initial situation
- Institutional change
- Changing access to land
- Change in resource Use
- Change in production
- Change in income
- Economic development & Rural development

Place et al. Model

- Mode of acquisition
  - Land rights
  - Land title
  - Tenure Security
  - Demand for land Improvements
  - Use of land Improvements
  - Demand for complementary inputs
  - Use of complementary inputs
  - Higher yields
The Place model gives reason to make some additions in the prosperity paradigm. A complication in the "streamlining" of both models is the fact that in the prosperity paradigm "economic development" (5) is – inter alia – the result of higher income, which in rural areas will generally be generated by higher yields. The choice can be made to incorporate "higher yields" as a byproduct of change of production. Because of the dependability of the price of agricultural products, I make a different choice. The higher (agricultural) yields used by Place et al, will be incorporated in my model as an indicator of economic development, on the quite safe presumption that statistical data on agricultural yields are available. To make the comparison complete, the Feder model is put next to the Place et al model in annex C and the similarities are as expected when realizing that Place was once a co-worker of Feder. The Feder model explicitly covers also the land market development by adding the element "higher land price". In my paradigm the land market has not been explicitly mentioned, it is included in the broader context of economic development.

5.2.4 OPPORTUNITY SETS AND ECONOMIC DEVELOPMENT
In this research land tenure security and food security are core issues. They determine the success of land reform projects. People interact in social life within their opportunity sets. An individual’s opportunity set is composed of physical and emotional capacities plus legal or customary understandings of potential options that are conditioned by the actual choice of others. The opportunity sets of individuals interact and condition the outcome of human transactions. Although the following text mainly focuses on rural real property, it is similarly applicable to urban real property. On the analogy of Allan Schmid [71] we can argue that the opportunity sets of potential land registrants are determined in part by the rules established by the institutions as well as the expectations by the registrant of the behavior of other land owners, other registrants, and the bureaucrats in the land registration offices. The behavior of these individuals influences economic outcomes and conditions the land market. This concept of opportunity sets can be visualized in the following way:

The starting point is the initial land tenure structure, peasant income, land distribution, agricultural production and peasant nutrition. Any existing institutional structure will provide for a certain type of land tenure, which in turn will determine the perceived land tenure security. The (new) institutional structure will change that existing perception of land tenure security and thus influences behavior of individuals (changing their opportunity set), which
results in changes in access to land, peasant income, land distribution and agricultural production. Those changes are measurable in the changing land market and economic indicators that show economic development. Following this line of thinking, an addition can be introduced in the prosperity paradigm. It should be called changes in “the opportunity sets” of individuals. These sets are determined by the institutions and it will be clear that a change in institutions could spur changes in opportunity sets of individuals. The complexity of inter-human relations can result in changes both as a personal reaction on the institutional changes or as an indirect reaction because of actions by other individuals as a result of the change in their opportunity sets. Allan Schmid [71] (p. 205) also states: “It is not argued that a change in opportunity set and advantage automatically leads to changed behavior. The persons involved may not perceive the change or may forbear. They may not take advantage of the change because of benevolence,...”. In Kyrgyzstan however, it was easily observed that many peasants used their opportunity sets and took advantage in the form of a change in access to land. Moreover, with proper institutional arrangements in place some farmers will try to lease land to expand production, some farmers will lease their surplus land to others, farmers will use their land as collateral to obtain credit for improvement of land or fertilizers and quality seed, or livestock purchases. This relatively easy to monitor change in access to land has partly to do with a change in land tenure security, but land tenure security is a state of mind rather than a directly measurable element. A new model for the prosperity paradigm can be visualized as follows:

<table>
<thead>
<tr>
<th>Initial situation</th>
<th>Resources + Institutional provisions</th>
<th>(0)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Institutional change</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td>Change in opportunity sets</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>Change in access to land</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Change in resource use</td>
<td>(4)</td>
</tr>
<tr>
<td></td>
<td>Land &amp; natural resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Labor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finances &amp; credit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Education &amp; knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Change in production</td>
<td>(5)</td>
</tr>
<tr>
<td></td>
<td>Change in Income</td>
<td>(6)</td>
</tr>
<tr>
<td></td>
<td>Economic Development (&amp; Rural development)</td>
<td>(7)</td>
</tr>
<tr>
<td></td>
<td>Higher (agricultural) yields</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Higher land values</td>
<td></td>
</tr>
</tbody>
</table>
The change in access to land gives way to a changing use of resources and the element "change in access" to land should thus be situated between change in opportunity sets and change in resource use. Another addition should also be made in the prosperity paradigm. In the last box of the prosperity paradigm the two indicators for economic development should be mentioned; the higher yields and the higher land value (I prefer the use of the term value to price) as used by Feder.

The growing complexity of the scheme gives way to more possibilities than can be visualized in the simple caricature that such a scheme is. One of the deliberate choices I make is to see the change in resource use as a result of several other changes (access to land, change in tenure and change in credit access). But I would like to indicate that a change in the opportunity set will also create a possible direct change in resource use (labor, knowledge, education etc.) and not as a result of the other changes mentioned.

The model of Place et al. is based on improved land tenure security. In the model for the prosperity paradigm, change in land tenure security is an implicit element in the institutional changes. It does change farmers' behavior in both models, which is made explicit by adding (2) the changes in opportunity sets. Changed access to land (3) will lead to a different approach to land leases and land transfers eventually stimulated by more access to credit and resulting in changes in resource use (4). Higher yields are reflected in change in income (6). Effects on land markets will be measurable by statistical data on economic development if all the conditions are met. But it has to be borne in mind that Place et al also notes that there can be several reasons why the effects as described above do not come about. In an assignment in Poland (in the Lomza voivodship) I could observe that farmers initially were not inclined to give priority to increasing yields after their income increased. Instead of investing the surplus income in agricultural improvement as was expected by the foreign and national experts, the first impulse was to use most of it for the purchase of luxury (household) items like color TV's, video players, new "western style" cars and other items to make life on the sometimes rather isolated farms more pleasant. It must be added that the Lomza voivodship is located in the north east of Poland an area of swamps and peat land. Many farms do not have running water and it has been difficult for many of the people to squeeze a meager living out of farming.

5.2.5 ECONOMIC DEVELOPMENT AND FOOD SECURITY
In "The Economics of Global Food Security" Tweeten [94] (p. 4) states: "Because it is the poor who lack access to food, alleviating food insecurity means alleviating poverty. Most of the world's poor, the 1.3 billion people with income of less than $1 per day, will have to escape poverty and food insecurity through economic development. Economic development largely was responsible for a 158 million reduction in numbers of undernourished people in East, South, and Southeast Asia from 1979 - 1992". A paradigm of economic progress beginning with the underlying natural resource, institutional, and cultural dimensions is given by Tweeten and Brinkman (in "The Economics of Global Food Security" 1997) [92] (p. 6) & [94]. Natural endowments influence the possibility of rapid or slow growth. This is the first ingredient for progress. In the model "Geography" has been shown between brackets. It does play a role as a natural resource in so far that it relatively influences income growth. Average incomes in land locked countries tend to grow slower than those in other countries do. A similar lower growth rate was found for tropical countries (Jeffrey Sachs in "The limits of Convergence" 1997) [70].
In scheme it looks like:

The second ingredient of progress is institutions. They formulate, prescribe and impose “the rules of the game” underlying the allocation of resources to meet the wants of the people. A well instituted educational system influences growth, as does a well functioning banking system, but also legally enforceable property rights. A problem with institutionalizing is that it introduces for example transaction costs of land. They are unavoidable, but sometimes procedures surrounding land registration are expensive, slow, and bureaucratic leading to higher transaction costs and loosing their bearing on potential users of the system. They will stay away from the system and use informal ways, negatively influencing the development of markets and the economic development.

The third dimension is the most dynamic. It can be argued that as a result of change in the second ingredient, culture could change. But for the model culture must also be seen as a separate ingredient. Work ethic, morality, thrift, acquisitiveness, entrepreneurship and national community are important factors for the rate of progress.

What are the consequences of the principles laid down in the paradigm of Tweeten and Brinkman for the food security model as developed for the food security paradigm?

The paradigm of Tweeten and Brinkman is based on economic progress beginning with the underlying natural resource, institutional, and cultural dimensions. Via savings, investment and improved efficiency it is presumed that capital accumulation will be achieved resulting in economic development and improved well being (and implicitly improved food security).

In the food security model natural resources are the start and via change of institutional arrangements, resulting in changing opportunity sets and changes in access to land there is a change in resource use. It is certainly true that opportunity sets as used in the food security model are affected by cultural and social dimensions. Allan Schmid argues that the opportunity sets of potential land registrants are determined in part by the rules established by the institutions as well as the expectations by the registrant of the behavior of other land owners, other registrants, and the bureaucrats in the land registration offices. Cultural and
social circumstances or “rules” will undoubtedly influence the expectations someone might have.

Designed for a relationship between land tenure and food security, the food security model does not pay much attention to the way capital will be accumulated. But it implicitly presumes that improved agricultural production will be the result of a change in resource use of which accumulated capital is one of the causes. In this respect the food security model does not contradict the findings of Tweeten and Brinkman. Neither does it contradict the conclusion drawn in the Tweeten/Brinkman paradigm that economic progress results in improved well being, although this is “translated” in the food security model as change in income -> change in consumption -> change in nutritional status.

The conclusion is that the food security model aims more at food security than at well being, but that it is not in conflict with the Tweeten/Brinkman paradigm. Nevertheless it is important to note that in the food security model as based on the food security paradigm, progress in food security is supposedly accomplished emphasizing agricultural production growth resulting in increasing income. The Tweeten/Brinkman paradigm chooses a wider approach with the assumption that the increase in income comes from a general economic progress in which growth in agricultural production is incorporated. In so far as that paradigm is also reflected in the prosperity paradigm and the model derived therefrom.

5.3 COMBINING THE PROSPERITY AND THE FOOD SECURITY PARADIGMS

5.3.1 ONE MODEL

Maxwell and Wiebe [55] look at food security while focussing on income generation and nutritional status. Looking at food security they promote access to sufficient productive land as one of the most important factors to determine food security. According to their view, conventional land tenure literature links access to land with resource use and income generation. While starting from land tenure the conclusion is that improved land tenure results in better access to land and income generation. Improved access to land appears in both views whether one starts at food security and looks back at a search for the conditions under which food security can be achieved, or whether one starts at income generation and looks back to where this comes from. This is the key to compare the prosperity paradigm and the food security paradigm. The challenge is to combine both paradigms in possibly one model in which the differences in final aim are covered and a linkage is provided between the two domains. The first part of the two models to visualize the paradigms is similar.

The combined model is given on the next page. With some “translation” - note that element (5) is now ‘change in (agricultural) production’ - it is thus possible to combine the two models and paradigms. One simply has to substitute ‘economic development’ in the prosperity paradigm with ‘improved food security’ (change in consumption and change in nutritional status) to change it into the food security model. The significance of this “translation” must not be underestimated. Why otherwise would Solon Barraclough [2] warn food security researchers and policy makers so unambiguously in the following way (p. 237): “The different approaches to alleviating mass poverty and world hunger tend to cluster around several rather contradictory poles. The dominant one in the 1980s has been simply to stimulate economic growth through greater reliance on free markets and exports. The benefits of growth are expected to trickle down to the poor. A rising tide lifts all boats. This
was also the dominant theme before the 1980s, but in earlier decades there was less emphasis on market forces alone and more on the positive role of state interventions to promote rapid growth. The problem with the trickle down approach is the overwhelming evidence that a rising tide of growth may sink more human boats than it lifts in many situations." And elsewhere (p. 72) in "An end to hunger?": "Economic growth is not a sufficient condition to eliminate or even significantly reduce hunger...... Without growth based on capital accumulation and technological change, sustained improvement in food security is out of the question. This is true even with land reform. Countries where revolutionary agrarian reforms have taken place, such as China, Vietnam and Cuba, have to be as much concerned with sustained economic development in order to improve food security as do those where wealth remains very unequally distributed. ..... No matter how essential institutional and social issues may be for success of a development strategy, and their importance has often been overlooked, technical innovation and capital accumulation remain crucial components. The kind of investment the state makes or stimulates tells much about its real priorities. If food security is a major priority, then state investment policies must emphasize agriculture, food processing and marketing. Of course, it must not be assumed that greater food production will reduce hunger, or necessarily be sustainable."

![Diagram]

**Initial situation**

- Resources + Institutional provisions

**Institutional change**

**Change in opportunity sets**

**Change in access to land**

**Change in resource use**

- Land & natural resources
- Labor
- Finances & credit
- Education & knowledge

**Change in (agricultural) production**

**Change in income**

**Economic development**

- (& Rural development)
- Higher (agricultural) yields
- Higher land values

**Change in consumption**

**Change in nutritional status**
5.3.2 IMPLICATIONS OF THE COMBINED MODEL

The combined food security/prosperity model shows that economic development must not be seen as the final stage when the ultimate goal is food security improvement and rural poverty alleviation. But it also points out an important danger. Putting too much emphasis on the economic function of property (optimal productive use of resources) by focussing on individual ownership and the free market as dominant goals of projects can damage the social function of property. Neglecting that in countries in transition property should serve a common good or be justly distributed among society’s members. Economic development is a tool to battle the danger of food insecurity but that battle can not be won by reliance on economic growth as an automatism to reduce food insecurity alone.

Governmental guidance and vigilance is needed here in two ways. Firstly focusing on agricultural production with sufficient resources to apply new technology and introduce more efficient farming. Secondly putting emphasis on the social function of property, to secure long term effects of the land reform by ensuring a continuing (re-)distribution of resources in such a way that a minimum safety net can be guaranteed for all citizens. There are many ways to do this, of which I will only briefly mention a few. From the start of the land reform program the government should be aware of the vulnerability of land as cultural and national heritage. Programs to re-distribute the effect of newly distributed rights to land must be prepared, should it become clear that an economic development leads to undesired inequities. This can be done for example by income- or real property taxes. The long-term sustainability of natural resources must be protected by legal measures to curb individual exploitation beyond the long-term carrying capacity of the resources. By new legislation generally the gainers of the land reform are protected, similarly much attention should be given to protect the losers of the effects of the new land tenure system like women, elderly, sick, and landless people. Attention must be paid to effects of re-emerging customary habits excluding groups in society of the benefits of the new land tenure system. But most of all governments must be made aware that it is often not a matter of an economic paradigm or a food security paradigm. Putting political emphasis on both paradigms can result in an economic development model while simultaneously attention is paid to (or ensuring that the benefits of economic development result with priority in) improved agricultural production.