市场交易条件与农户种植行为决策

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序　言

粮食安全始终是我国政府和人民大众共同关注的重大政治、经济和社会问题，也是学术界持续研究的重大理论课题。对粮食安全的研究可以划分为供给和需求两方面，而供应方面的变化最终取决于生产者的决策。自从实行市场经济制度导向的改革以来，学术界已经普遍接受市场经济的基本原理，即作为农业生产活动中最基本的决策单元，农户通过合理配置生产要素来追求家庭整体效用的最大化。在重新引进现代经济学的过程中，学术界也普遍接受了市场经济的一价原理，即完全竞争下的套利活动会导致所有互相关联的市场上价格趋同，不同时点的市场价格差距取决于交易费用。学者也普遍相信市场一价原理可以引导生产者优化资源配置，因而市场导向的改革有助于同时改善宏观和微观粮食安全。在应用实证模型检测某一特定商品的市场是否存在妨碍竞争的制度障碍时，或者推论是否存在优化资源配置的空间时，测度的标准往往是直接或间接考察一价原理是否得到实现。

作为抽象的经济学概念，一价原理显然是完全竞争的符合逻辑的必然结果，因而成为研究不同市场价格相互联系的必要假设。但是，抽象定理的成立与实证分析的结果存在一定差距。由于存在难以定量的交易费用，实证研究往往忽略了这一重要因素；因此，表面上违背一价原理的实证检测结果未必真的代表存在妨碍市场竞争的制度障碍，也未必真的表明存在优化资源配置的空间，更不能简单推论出需要重大政策改变的结论。对于绝对价值比较低的农产品来说，特别是对于粮食产品来说，交易费用在最终价格里占有相当大的比重，因而绝不是可以忽略不计的因素。

对于同时身为生产者和消费者的农户而言，农产品市场一价原理的实现形式应当明确加以修正：引导农户配置资源的不是市场价格，而是他们出售农产品实际获得的最终收入，以及他们为购买农产品所实际付出的全部费用。农户出售产品最终得到的实际收入等于市场价格减去交易费用（主要为流通费用，取决于基础设施等市场交易条件），而购买产品最终付出的实际支出等于市场价格加上交易费用，因此，简单运用市场价格（基于市场一价原理）分析生产者的资源配置是否存在优化空间可能不符合实际。另外，对于相对缺粮地区而言，如果当地粮食生产波动较大，出于规避风险的动机，生产者的粮食产量决策可能超出正常年景所呈现的最佳水平，

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即需要对市场一价原理作另一种修正：在平均价格和交易费用之上增加风险等价部分。对于理性的农户来说，这种表面上不符合一价原理的决策可能正是将风险包括在内的最优资源配置。

因此，如果要深入研究粮食安全目标（包括政府目标和私人目标）约束下农业生产者的决策，必须深入研究市场条件和生产风险对生产者目标函数的影响（即市场一价原理的具体实现形式）。只有在上述研究基础上才能比较科学地提出通过增加基础设施投资并改善其效率以降低市场交易费用、降低生产风险，最终实现改善资源配置提高宏观、微观粮食安全的目标。

本书从农户追求自身效用最大化的角度出发，基于描述生产者和消费者双重身份的农户模型，考察了市场条件较差地区的农户在面临交易费用相对较高（出售或者购买粮食等农产品时存在运销成本），同时粮食市场供应保障存在风险的情况下，农户效用最大化的含义及其对农户生产决策行为的影响，并从以上两个方面对市场一价定律的具体实现形式进行修正。本书综合实际价格与市场价格的差异（即运销成本），以及粮食可获性（即粮食供应风险）这两个主要因素，构建了分析农户生产决策的理论框架，对更全面地理解农户的决策行为以及进一步完善农户决策模型具有一定的参考价值。

刘帅选择这一问题作为博士学位论文的研究内容，

取得的初步成果形成了本书的基础。希望刘帅在这一方向继续深入研究，透彻理解基本理论及其应用边界，根据理论联系实际的原则完善对实证分析模型的数学表达和变量选择，在农业经济学领域的研究中不断前进。

钟甫宁

2013年8月24日

摘　要

20世纪80年代，家庭联产承包责任制在我国农村广泛确立。农户作为农业生产中最基本的活动单元，逐渐拥有了独立决策的权力。农户通过合理配置生产要素，进行农业生产，参与市场活动来追求家庭整体的效用最大化。这一效用最大化主要体现在两个方面，一是满足家庭成员的消费需求；二是增加家庭的现金收入。随着市场化改革的深入以及种植业结构调整的推进，多数农户选择变更农作物品种、种植市场价格相对较高的农作物来提高家庭总收入，自身消费的食品和其他农产品产品则部分从市场上购买。因此，从农产品的生产和消费上看，大多数农户表现出半自给自足的特征，其生产结构和商品化水平似乎取决于市场统一价格和农户个别生产成本之间的差距。因此，现有的研究多半以市场价格作为农户调整生产结构的依据，并在此基础上构建农户生产决策模型。

本研究认为，把农户简单地理解为面临同一生产价格的生产者和消费者却存在一定的偏差。对于许多农产品特别是粮食而言，农户既是生产者又是消费者。这种双重身份决定了农户在同一个市场上出售自身产品获得的实际收入不同于购买相同产品时付出的实际支出。可以合理地推论，农户在生产和消费决策中实际依据的是自己获得的实际单位收入或付出的实际单位支出，而不是一个统一的市场价格。当然，决定实际单位收入或支出的基础仍然是市场价格，但必须根据该产品的销售费

用加以调整。价格因素的影响首先指市场价格的高低；其次指的是农户所面临的实际价格与市场价格之间的差距。而以往的实证研究往往忽略了市场价格与实际价格之间的差异。农户在进行粮食等农产品的买卖过程中需要承担一定的交易成本（如农户和市场所在地之间的运输和人工费用等）。将交易成本与市场价格综合考量后得出的实际价格必然不同于单一的市场价格：出售农产品获得的实际价格等于市场价格减去交易成本，而购买农产品付出的实际价格则等于市场价格加上交易成本。显然，农户进行生产决策时所依据的价格应当是实际价格而非市场价格，如果按照市场价格来考察农户的行为很容易产生偏差。

如果由于自然条件或其他限制农户只能种植粮食、出售部分粮食以获得现金收入用于其他消费，或者只能种植经济作物并且出售以后再用现金购买粮食，他们就没有什么选择。如果农户同时或者可以同时种植粮食作物和经济作物，在市场一价原理的指引下，他们似乎可以根据市场价格和自己的比较优势确定粮食作物和经济作物的适当比例，通过市场交换获得最大收入。但是，如果粮食作物和经济作物的市场价格不等于他们出售产品或购买商品的实际收入或实际支出，显然，他们将根据实际收入和实际支出决定种植比例。

此外，自给自足或者半自给自足小农户，特别是以粮食生产为主的小农户，其生产决策是一种在粮食安全约束条件下的收入最大化选择。农户所面临的粮食安全的约束主要来自两个方面，一是价格因素；另一个是粮食的可获性，也就是当地市场的粮食供应保障程度。粮食可获性也会对农户决策行为产生影响，这种影响过程主要体现在农民通常有规避粮食安全风险的倾向。如果市场上粮食供应的保障程度较低，农户通常倾向

于通过自给自足来满足家庭对粮食的需求，极可能将粮食播种面积扩大到超出与收益极大化相应的水平。鉴于上述两方面因素，本研究的主要目标是基于描述生产者和消费者双重身份的农户模型，考虑实际价格与市场价格的差异，以及粮食可获性这两个主要因素，构建分析农户生产决策的理论框架，探讨其如何影响农户调整生产结构的决策并进行实证分析和检验。

对于市场价格与农户所获得的实际价格之间的差异，主要体现在农户在进行农产品买卖过程中所发生的交通运输费用以及同时需要承担的人工费用。显然，农户与交易市场之间的距离越远，所需要承担的交通费用和人工费用就会越高。换言之，农户所面临的市场条件的优劣直接影响到市场价格与农户所获得的实际价格之间的差异。另一方面，市场条件也会对农户的粮食可获性产生影响。当由于气候等自然因素所造成的粮食产量下降时，某一地区内的粮食供应可能都会受到影响。那么远离交易市场的农户的粮食可获性要远远低于靠近交易市场的农户。

因此，为了验证前述两个因素，即运销成本与粮食供应风险对农户生产决策的影响，需要找到合适的研究对象进行验证。首先，农户可以对种植作物的品种进行选择，即可以选择种植粮食作物，也可以选择种植经济作物，或者同时种植两类作物；其次，农户所在地区的市场条件较差。衡量市场条件优劣的一个最简单的指标是农户到交易市场的距离。所以，综合考虑各个因素，本研究选择了山西、云南、贵州和安徽四个省份的6个县11个乡（镇）进行了实地调研。运用调研所获得的农户数据，通过构建多元回归模型分析了运销成本和粮食供应风险两个因素对农户生产决策（粮食作物的生产决策）的影响。实证分析的结果显示，两个主要决策变量的回归系数的符

号均为正值并在统计上显著，即农户所承担的交易费用越高（指的是农户在销售农产品过程中所承担的运销费用和人工成本），他们越倾向于种植较大面积的粮食作物以满足家庭的自给性需要；同时，预期粮食作物的减产幅度越高，农户也更倾向于种植较大面积的粮食作物以保证家庭成员的基本需求。在上述两种情况下，他们都没有单纯通过调整种植结构以获取较高的收入并且通过市场来获取粮食。这就是说，农户所面临的实际价格及其生活区域内的粮食可获性，对其农业生产决策，尤其是种植业决策存在较强的影响。因此，在关于结构调整研究中应当充分考虑农户得到或者付出的实际价格，以及当地市场的粮食可获性（也就是粮食供应的风险）。

本研究还提出了进一步的研究方向：相对于市场交易条件较差地区的农户而言，市场交易条件较好地区的农户，其生产决策行为在多大程度上受到运销成本和粮食供应风险的影响？其所表现出来的生产决策行为与传统经济学理论中的农户效用最大化行为是否存在差异？交通条件等市场基础设施建设不仅从宏观角度影响大范围的农业生产结构调整，而且也从微观层面上影响农户的生产决策；而千百万农户的共同决策则构成了农业结构调整和资源优化配置的真实微观基础。通过改善交通条件等市场基础设施，不仅可以优化宏观资源配置，而且可以减少以至消除农户优化资源配置面临的约束条件，便利农户在提高宏观资源配置效率的同时更有效地实现自身纯收入极大化的目标。大范围市场条件的改善通常既降低农户的交易成本也改善农户粮食的市场可获性；“最后一公里”市场条件的改善直接降低了农户水平上的交易费用；而生产条件的改善则可能提高农户粮食可获性的保障程度。所有这些因素的改善都可能帮助农户提高宏观和微观资源配置效率，增加农民收入。

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以往对农户行为决策的实证分析中多半都忽略了价格差异和粮食可获性两个因素的影响，特别是忽略了农户双重身份导致的价格歧异对生产决策的影响。因此，本研究不仅对改善现实的对策的政策研究具有一定的指导意义，而且有助于更全面地认识农户的行为，对进一步完善农户决策模型具有一定的参考价值。

关键词：运销成本；粮食供应风险；农户生产决策；市场条件；市场一价定律

Abstract

The household contract responsibility system was established in our country during 80s last century. As a basic activity unit in the agriculture production, the household has the authority of independent decision gradually. Household seeks for the whole family's utility maximization, by rational allocation production factors, proceeding agriculture production and participating in market activity. The utility maximization is mainly embodied in two sides. One is to satisfy family members' consume demand, and the second is to increase the family's income. Along with the thoroughly marketization reform and advanced crop cultivation structural adjustment, most households tend to change the crop strains, plant crop that has higher market price, in order to increase family general income. In addition, they buy the food and other consumption goods from the market. Therefore, from agriculture products' production and consumption, most of the households are semi-self-sufficient. Moreover, their productive structure and level of commercialization depend on market national-uniform price and gap of cost of production. So, most of recent studies are on the basis of market price to study peasant household's regulation of productive structure to structure household

peasant household decision making model.

This paper considers there is deviation that peasant households are interpreted as producers and consumers who face one same production price simply. To most of agricultural production, especially grain, peasant households are both producer and consumer. The dual-role decides that the real income cannot equal to the actual expenditure when households sell their own production and then buy the same one at the same market. To reasonably deduction, peasant households make the production and consumption decision according to real income per unit they gain or actual expenditure per unit they pay, rather than a same market price. Certainly, market price decides real income per unit and actual expenditure. Nevertheless, the market price should be adjusted according to the selling expenses. Firstly, effect of price factor means the price is high or low. Secondly, it means difference between actual price and market price. However, departed empirical studies ignored the difference. Peasant households bear the transaction cost, such as transportation cost and labor charger, when they buy or sell the agricultural productions. Actual price cannot be equal to market price considering the transaction: actual price equals to market price add transaction cost while peasant households sell agricultural product and equals to market price minus transaction cost while peasant households buy agricultural product. Obviously, the price that peasant households according to is the actual price, rather than the market price. It will make deviation to investigate peasant

household's action in the light of market price.

Peasant household has no other choices if the natural conditions or other restrictions lead to plant grain crops only, and then sell grain to gain income to buy other consumption goods or to plant economic crops only, then sell them to gain cash. If peasant household can plant grain crop and economic crop at the same time, they will decide proper proportion of grain crop and economic crop in order to income maximization, on the basis of market price and their comparative advantage. However, if grain crop and economic crop's market price is not the same with peasant household's actual income or expenditure, they decide the plant proportion according to actual income and expenditure.

Furthermore, self-sufficiency or semi-self sufficiency peasant household, especially who takes grain production as the principal thing, their production decision is an income maximization choice under the construction condition of food security. The construction condition comes from two sides, price factor and grain availability namely local grain supply grantee. Grain availability has impact on farmer's production decision for farmer intends to avoid risk of food security. If provisionment is lower, farmers tend to satisfy their grain demand by self-sufficiency. They may expand the grain-cultivated area more than the area that lead to income maximization. Considering above two sides, main objective of this paper is to take the difference between actual and market price, and grain availability into account, trying to construct a

farm household decision making framework based on their dual-role in the market, and to further discuss and empirical study the implication on their decisions on structural adjustment.

Difference between actual and market price mainly reflected in the transportation cost and labor cost during the agricultural business. Obviously, distance between farmer and market is farther, the cost is higher. In other words, market conditions effect on the difference between actual and market price directly. On the other hand, market condition also has affect on grain availability. If grain output declines caused by natural factor, such as climate, grain's supply is affected in the certain area. Farmer's availability, who is far from market, is lower than the farmer who is near to the market.

So, in order to test and verify the effect of transaction cost and grain supply risk on farm household decision making, appropriate object of study should be selected. Firstly, farm household can choice different crops to plant, economic plant, grain plant or both. Secondly, market condition of farm household's location is worse. Distance from farm household location to market is a simply index to measure the market condition is better or worse. Therefore, we surveyed 11 countries from 6 towns in Shanxi, Yunnan, Guizhou and Anhui Province. This article analyzed the effect of transaction cost and grain supply risk to farm household production decision by constructing multiple regression models using surveyed data. Result of empirical analysis shows that regression coefficient of two main decision variables are positive value and statistically

significant. In another word, transaction cost is higher, farm household intend to plant grain crops more to satisfy their family members demand of grain. At the same time, if the range of crop failure is higher, farm household intend to plant grain crops more to satisfy their grain demand else. Under the above two circumstances, farm household does not gain grain from market by changing plant structure to gain higher income. That is to say, actual price and local grain availability have strength effect on the produce decision, especially crop cultivated decision. Therefore, actual price and local grain availability should be taking into account when we study structural adjustment.

This research also promote further question. Is the production condition of farm household who faces better market condition influenced by the transaction cost and grain supply risk and how much the degree is. Is there difference between farm household's decision-making action and utility maximization action of classic economics? Market infrastructure construction, such as transportation condition, does not only effect agricultural produce structural adjustment on macro, but also effect farm household's decision-making on micro. Million upon million of farm household decision-making consist of real microcosmic foundation of agricultural structural adjustment and optimum distribution of resources. Changing the market infrastructure construction cannot only optimize macro resource allocation, but also reduce even eliminate the restrict conditions of farm household to optimize resource allocation, for the

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