

Private agricultural finance for Small and medium size enterprises (SME) in Turkey¹

In 2006 the Turkish lira was trading at 1.34 for 1\$. Previously for a SME, obtaining a loan was an arduous task: only Turkish state-owned T.C. Ziraat Bank was offering a very modest loan facility for SMEs with a focus on agriculture often not exceeding the TL 50,000 mark. Then, the merging of Koçbank with Yapı Kredi Bank underlined the investor and shareholders confidence in the Turkish economy and all of a sudden serious credit lines became available for SMEs interested in either restructuring finances or eager to hop onto the innovative bandwagon. The younger generation of entrepreneurs, many of them equipped with higher education, increased the demand for credit and the supply followed. However, this phenomenon did not extended to the agricultural sector significantly and surely not to the large number of small farmers.

Definition of small farmer

Small-scale farms are defined by IFAD as farms with a land area of 2 hectares or less. Subsistence and semi-subsistence farming is an important characteristic of Turkish agriculture. These farms are typically characterized by productivity of the factors of production being low and only a small fraction of production being marketed. These farms, however, are important for providing income security and livelihoods to the majority of the rural population in Turkey. According to Turkstat, in 2012 more than 33% of the total number of farms belonged to this class and they use 5% of the total agricultural land. However, in the last 15 years as the country has developed, with the increasing urbanization, the economy has experienced a marked change in structure and many rural families left the agricultural sector.

The income of small-scale farmers tends to fluctuate seasonally, which can easily tip them into poverty. By providing financial services, farmers' organizations can help to reduce the risks that individual farmers face. The Agricultural Bank of Turkey, Ziraat Bankasi, the country's largest commercial bank, is the main provider of agricultural credit and it also carries out various types of public support payments.

Credit is distributed to farmers through agricultural credit cooperatives. Farmers' organizations also help mobilize capital and contribute to the growth of the local economy. Agricultural producers' organizations in Turkey can be classified under three broad categories, namely: agricultural producers' unions, chambers of agriculture and cooperatives.

The role of these financial intermediaries is basically that of diminishing the asymmetries in information and incentives:

- the lender does not know as much as the borrower the production function relevant to the investment, and the market conditions for future products
- the borrower may be riskier than believed when the loan was given (*adverse selection problem*)
- the lender does not know whether the borrower, during the term of the loan, will take on greater risks than were originally anticipated (*moral hazard problem*)

Innovative microfinance products that combine flexibility features with financial discipline.

Financial capital includes debt, equity and leased capital (mostly land, but also equipment). Analytical work in agricultural finance focuses on the concept of farms' borrowing capacity in acquiring and managing debt capital. Outside equity capital was generally discouraged in the past

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by various factors as risk, information problems, small farm size, preferences and public policies. For example, the non -corporate structure of most farm businesses precludes the issuance, trading and risk pricing of equity capital shares in public markets.

These structural characteristics result in greater emphasis on reputation and informal information exchanges in the formation of lender – borrower relationship.

It is well known that the degree to which assets are specialized to various activities is an important determinant of a farm's financial structure: investments with low asset specificity are more suitable for debt financing because of their easier redeployment or re-marketability. In particular, re-marketability is a preferred attribute of assets pledged as collateral to secure a loan.

Small farmers need flexible products that allow transactions adapted to their cash-flow. Such products help them to smooth consumption, when income is irregular and unpredictable, to cope with emergencies and cover un-expected expenses. Financial products designed for small farmers should also include some sort of disciplining mechanisms. Disciplining mechanisms encourage clients to make payments duly on time, i.e., savings deposits, loan repayments and insurance premium payments. Disciplining mechanisms serve to mitigate asymmetric information problems, for example moral hazard, and to alleviate clients' behavioral inconsistencies, such as lack of self-control, intra -household disagreement, and inattention.

Financial characteristics of agriculture

Most farms are small in size and they have ownership, management and risk bearing concentrated in the hands of individual farmers and families. Real estate represent the largest part of the total assets of farms, meaning that capital intensity is generally high and the value of asset liquidity is low. This creates the demand for longer-term financing and careful matching of repayment obligations with projected cash-flows.

In the farm sector the debt to asset ratio is typically low compared to other sectors. This is true in many different countries at different stages of development and it reflects the use of current market values of farm real estate, that are increasing in real terms. This also contrasts with original cost adjusted book values for depreciable assets in other sectors. The relative lower values of the debt to asset ratio is also consistent with the reliance in agriculture on a non depreciable asset such as farmland in which much of its economic return occurs as capital gains or losses.

On the other side, under traditional loan repayment arrangements the debt carrying capacity of non depreciable assets is considerably lower than that of depreciable assets.

Thus, the analysis of financial statements of the farm sector typically indicates a reasonably solvent industry that experiences chronic liquidity problems and cash flows pressures resulting from relatively low and volatile current rates of return to farm assets. This makes the farm sector's debt servicing capacity and creditworthiness vulnerable to downward swings in farm income and land values.

In turn, farmland's low debt carrying capacity have fostered an extensive farmland leasing market in many developed economies. Farmers leasing land to operate can have higher debt to asset ratios and experience greater current rates of return to farm assets and to equity than those who rely more on ownership.

Risk and risk management

Agricultural firms face a complex risk environment: biological based production processes that are long and exposed to weather conditions and to potentially negative external factors; marketing activities at the domestic and international level; contractual relationships with third parties; the well known weak position due to the fact of being in a competitive market as buyers and in an

oligopoly as sellers; changes in asset values; credit availability; changes in interest rates and debt servicing requirements; government policies.

In such environments, the ability of agricultural enterprises and rural households to make long-term investments, take calculated risks, and create stable consumption streams will be shaped by the set of available financial instruments and strategies to transform one pattern of variable and uncertain resource inflows and outflows into another. The combined effects of these risks are relatively high compared to other sectors and this would place a high value on risk management.

There is a broad range of risk management practices but small farmers rarely employ them: some of them are directly influenced by public policies and these include crop insurances and public credit programs.

Concepts of modern finance applied to agriculture

The core of the theory on the provision of financial capital to the agricultural sector is strongly based on the relative information and incentive positions of the parties to a financial contract. We will briefly summarize them below.

Agency relationships, adverse selection and moral hazard

The relationship between a lender (the principal) and a borrower (the agent) is a financial example of the principal-agent problem. The lender entrusts the borrower with the use of loan funds in return for the borrower's promise of a safe and timely return of the funds plus interest. However, due to the agent's self interest, informational asymmetries and uncertain expectations, both the incentive alignments between the principal and the agent and the contract are incomplete.

In an agricultural credit relationship, three conditions attributable to asymmetries in incentives and information are basic concerns:

- the lender does not generally know as much as the borrower the production function relevant to the investment and the market conditions for the future products: his evaluation of future cash flows is difficult, and his risk assessment may be wrong
- the *adverse selection problem*, i.e. the borrower may be riskier than believed when the loan was given
- the *moral hazard problem*, i.e. whether the borrower, during the term of the loan, will take on greater risks than were originally anticipated

The borrower is motivated by profitability while the lender is restricted to the fixed return of the loan plus interest. In evaluating a borrower's creditworthiness, the lender emphasizes loan repayability and safety, while the borrower focuses on profitability. As leverage increases, the consequences of other borrower's actions that lead to default are borne by the lender and this increases the lender's likelihood of becoming an owner of the borrower's assets.

To resolve information and incentive problems both the principal and the agent may utilize various practices.

Differential loan pricing based on risk-adjusted interest rates is one lender response to the adverse selection problem. This practice, compared to credit rationing, is more efficient and it yields a more dispersed distribution of risky borrowers on average. However, it requires that sufficient information is available: information collection, processing and monitoring by lenders is a costly activity.

Market signaling consists of the sharing of additional information about the borrower and the lender: effective financial accounting systems provide a distinguishing signal between high and low credit risks, and they allow for monitoring of business performances over time. But since audited accounts are scarcely used in agriculture, lenders must employ their own expertise. Borrowers may undertake management practices that distinguish them from their peers and that signal rare skills and better than average productivity levels: producing specialty crops, adopting new technologies, a better education and reputation in local communities.

Non price methods involve provisions in a loan contract with the goal of addressing potential adverse selection and moral hazard problems: they include collateral requirements, loan repayment upon demand provisions, reporting and insurance requirements, constraints on additional borrowing and default penalties. Again, these practices

- limited assistance to farmers,
- high default rates,
- high public costs,
- non-viable commercial lenders,
- regressive income effects,
- weak mobilization of savings and
- disincentives to commercial lenders who must comply with subsidy requirements. These increase

the total cost of the credit.

Markets for exchange of financial information are formed by different entities: credit rating companies and collateral control companies that validate and monitor the status of specific assets (stored grains, stocks of products) pledged to secure a loan agreement. Field service companies can monitor loan performances and are often willing to provide information about their customers in order to facilitate the functioning of their respective markets.

Notwithstanding these practices, information problems are often severe enough to require the development of public policies to enhance market performances: government sponsorship of financial institutions and loan programs like those set by the IPARD measures follow this rationale.

X Suggestions

It is clear that the preferences of the lenders, as expressed by the interest rate and non-interest rate terms of a loan contract influence the enterprise choices of borrowers, their risk management practices, resource allocations and even the rate of growth of their farms. The demand of liquidity by farmers and their choice of lenders are clearly influenced by the credit response of lenders. It is thus interesting to evaluate the type of supply of credit by estimating lenders' credit response. This can be done through a survey by choosing a sample of lenders and by sending them simulated borrowing requests, i.e. a case loan request for representative farms. The case loans involve a fully documented loan request based on an array of purposes and terms, set high enough to anticipate the lenders' rejection and designed for deletion of individual items until loan approval is obtained. The result is an estimate of the representative farm's potential credit capacity, bounded by the particular array of the loan request. This would be a reliable predictor of lender responses over a wide range of loan conditions.

Relationship in agricultural finance

Relationships among lenders and borrowers include at least two aspects: information and sympathy. The longer and better the banker knows the customer, the less significant are the risks of defaults due to the asymmetry of information. The apparent difference between the formal and informal financial system is relationship.

In developed economies, when financial markets were deregulated and the decision to lend (up to a defined threshold) was decentralized to local bank agencies, relationships, reputation of the borrower and the information about the local situation were understood by the agency director.

On the one hand this procedure helps to choose the best projects and improves the allocation of available resources, on the other hand it lends itself to being influenced by local pressures exerted by lobbies of various kinds.

Currently, the information necessary for the decision is cataloged and presented on the basis of predefined schemes and transmitted to centralized decision-making bodies, where it is analyzed by comparing it with national benchmarks. To the extent that the information collected is complete and truthful, the procedure minimizes the number of wrong decisions, even if the administrative

efficiency decreases. These *credit evaluation procedures* are based on the development of various credit-scoring models, that help in predicting financial stress and bankruptcy problems of farmers. Credit scoring and risk-rating models assess the borrowers' financial data in comprehensive ways and they are generally based on the following basic steps:

- identify key variables that best distinguish among borrowers' creditworthiness
- choose appropriate measures for these variables
- weight the variables according to their relative importance to the lender
- score each loan as a weighted average of the respective variables
- assign the credit scores to the appropriate class

The results of these models are consistent in their ability to replicate subjective loan classification. More recently, different models appeared that focus on the borrower's actual loan performance as the validation criterion.

We know the kind of information requested by application forms in Turkey and that the final scoring is made centrally and it produces a national ranking.

In less formalized situations the importance of relationships is still relevant. Relationships develop through interactions between parties over time and across multiple financial products and services. They involve the generation of reliable and accurate information about the parties, its use in evaluating creditworthiness, its impact on the reduction of agency costs and of adverse selection and moral hazard.

An example of how reputation and experience offer a solution to the asymmetry of information and incentives in the real world is given by leasing arrangements: the information conveyed by relationship are generally sufficient to transform a short term contract into a longer-term financial agreement.

Also, trade financing of farmers is a long standing practice based on relationships. The local merchant, selling inputs or buying farm products, served as a credit source long before the presence of financial institutions. The trade firm's customer relationship yields extensive information about farmer's management ability, business practices and financial performances: this information contributes importantly to the evaluation of creditworthiness.

The concept of **social capital** represents a different approach to the principal-agent analysis.

It is defined as the sympathy (antipathy) one person has toward another person. The sympathetic (antipathetic) person is said to supply social capital, while the other person is said to possess social capital. It represents a resource of individuals that arises from their social ties. It is the carrying out of mutually beneficial activities that promote a sense of the common good. It is the ability to have collective expectations that affect the economic goals of every member. In brief, it is a description of the average level of trust among members of a community.

During the activities of this project, the consultant became convinced that the average level of trust in rural communities is relatively low compared to that of other European countries.

One application of this concept is that of the relationship between a principal and her agent: if the landlord has social capital with her tenant, the tenant might act in the interest of the landlord without the need for a contract to alter her incentives. One may expect to find a preference for landlords to lease to close friends and family: indeed, in some studies it was found that the large majority of the participants in share lease and cash lease were close friends or family.

Social capital is not likely to change the probability of a very good loan or a very bad loan being approved or disapproved: however, for those loans in between, it increases significantly the probability of approval.

Transactions and monitoring costs are reduced because social capital reduces the incentive for exploitive behavior that produces negative externalities and it increases the incentive to meet contractual obligations.

In economies with high transaction costs associated with limited information and enforcement ability, financial transactions between the social capital endowed are more prevalent. Successful

agricultural credit programs in developing countries are rare: most of them failed because of loan recovery problems and excessive transaction costs. On the other side, informal finance systems in these countries mobilize and allocate large amounts of voluntary savings while banks have trouble attracting deposits.

The financial measures of the European agricultural policy apply to very different economic and social situations: and yet there are many indicators showing that they are prone to adverse selection and produce non efficient outcomes.

One of the factors that can determine this type of situation is the fact that the public administrators of the available funds are judged on the quantity of resources they distribute rather than the sum of the results of the individual beneficiary farmers in terms of lower costs or higher production value. The applications for subsidies are accompanied by a detailed request for technical information that appears complete but fails to provide the information that a professional banker would need to evaluate the performances of a loan. This problem clearly occurs more often in all cases in which the requested aid takes the form of a grant. The result is that in many cases the purchase of equipment and machinery is financed without a reasonable certainty that these will produce a long term improvement in the production processes of companies.

Risk and financial structure

The expectations of lenders (investors) have clearly a major role in agricultural financing, they determine the aggregate supply of credit and thus are important for farmers, the potential borrowers. Model portfolios are a diversified group of assets designed to achieve an expected return with a corresponding risk. Investors use them to blend asset classes and to achieve diversification: some of these assets can be equity or debt of farms. More advanced agricultural policy measures that are designed to provide or to facilitate agricultural finance use portfolio theory to find the desired combination of assets that define risk efficient set.

The investor's objective function is generally expressed as the maximization of her expected utility. Under conditions of risk the objective function is modified to account for the source and the magnitude of risk and for the investor's attitude toward risk. In this way it becomes clear how the investor's attitude influences the preferred relationship between debt and equity, that is the optimal financial structure. This model can also be useful to the borrower as it helps him to understand the optimal combination for the lender and therefore to adjust his requests. Farmers' reliance on credit as a source of liquidity introduces risks in terms of lenders' response to changing conditions in agriculture and in financial markets that influence their lending decisions and resulting credit availability. These uncertain responses make credit a random variable and credit risk becomes another element of farmers' portfolio risk, that increases with financial leverage and influences farmers' debt use.

Consider a risk-averse farmer who must choose a level of debt D with which to leverage equity E in financing risky production with total assets A . Risk is treated in probabilistic terms with variance used to measure likelihoods of events occurring that produce results less than expected. With standard assumptions about farmer's utility function depending on the level of profit π , in the case of a deterministic interest rate, and the cost of debt i , the optimal debt D° can be computed from the first order condition for an expected utility maximizing debt level. It depends on the equity capital E and on the expected return $\bar{r}_A$ of the risky asset:

$$D^\circ = \frac{\bar{r}_A - i - 2\lambda\sigma_r^2 E}{2\lambda\sigma_r^2}$$

where σ_r^2 is the variance of the risky asset and λ is the borrower's level of risk aversion. Differentiating with respect to the various variables show the comparative static properties. For example:

$$dD^o/dr_A = \frac{1}{(2\lambda\sigma_r^2)} > 0 ,$$

that is, optimum debt is positively related to changes in expected returns and

$$dD^o/d\sigma_r^2 = \frac{(-\bar{r}+i)}{(2\lambda\sigma_r^4)} < 0$$

it is inversely related to the variance of returns. When the credit risk is introduced by making the cost of credit i a random variable, a similar reasoning indicates that it will mostly imply a lower use of debt, confirming the intuitive idea that farmers, other things being equal, prefer fixed rate loans.

Looking at these results from both the point of view of the borrowers and the lenders, it is clear that greater business risk is associated with higher borrowing costs, thus favoring lower leverage. The same result is given by a relatively high variability in the availability of credit, whether it comes from rural banks or from agricultural policy measures.

In advanced economies the median value of the D/E ratio is around 0,65 for all industries, while it is around 0,45 for the agricultural sector, where there is less financial leverage: this indicates that farms are not taking advantage of the increased profits that financial leverage may bring. However, this can also be a result of a sector where there is not a stable and significant cash flow generation that can sustain a safe repayment of loans.

Data from the Turkish FADN show that the median value of D/E is relatively low.

Investment appraisal

From the point of view of the farmer and of the lender, the appraisal of an investment is important: both would like to know if the cost of the loan will be compatible with future cash flows. An investment may be limited to just one of the enterprises of a farm but in many cases it will affect the efficiency of different process in many enterprises. In this last case the appraisal requires more data and the estimation of more factors, but the basic principle remain the same: the net present value of the sum of the yearly cash flows minus the asset's initial investment requirement should be positive.

$$NPV = \sum_{t=1}^{t=T} \frac{CF_t}{(1+i)^t} + V_T - V_0 > 0 \quad \text{where} \quad \frac{1}{(1+i)^t} \quad \text{is the discount coefficient based on } i, \text{ the}$$

interest rate, and V_T , V_0 are respectively the asset's terminal and initial value.

The discount coefficient is used for two main reasons: to account for the temporal preference or the time value of money and to adjust for the risk of an investment opportunity. The first reason is necessary because money is more valuable the sooner it is received: notice that for any $i, t > 0$ the coefficient is less than the unity and it diminishes the value of the cash flow. The second reason reflects the fact that investments have different risks: the probability of receiving a cash flow from a government bond is higher than the probability of receiving a cash flow from a young Internet startup.

However, the i used to compute the NPV by debt is often the cost of the debt itself, in such a way that that the resulting NPV is meaningful for the lender. The alternative way is to consider the cost of debt among the yearly costs, thus diminishing the net cash flows before discounting them: in this case the model is adapted to an entrepreneur that is trying to understand her own profitability.

Given a positive NPV, by increasing the interest rate it is possible to make a sensibility analysis of the investment under the variable cost of finance. Moreover, when the NPV equals zero, then we call the associated value of i the **internal rate of return**: profitability is based on a comparison of the IRR to the average cost of capital.

The entire methodology of NPV is based on comparisons: on one side the cost of the investment and on the other side some form of estimated benefits, discounted and summed over the life span of the project.

The choice of terms of comparison, in particular the kind of estimated benefits, adapts the concepts of NPV and IRR to different situations and goals:

cost of investment	estimated discounted benefits	situation – goal
Equity + Debt	gross receipts= receipts – operating costs (taxes and interest cost are not subtracted from receipts)	This type of IRR is computed without regard of different types of financing. It tells us that the project can afford a certain amount of interest costs This is also useful to rank alternative projects that compete for the same capital
Equity	cash-flows: total resources – total uses; profit after interest, costs and taxes are positive component of cash flows	This is called the Financial rate of return, FRR: it is focused on the entrepreneur that gives equity to the project
Equity + Debt	discounted sum of domestic value added	Domestic Economic rate of return
Equity + Debt	discounted sum of national value added	National Economic rate of return

Eventually, the i is composed of different rates:

- a base level i_s that reflects the temporal preference, also called the *social time preference rate* or *social discount rate*, mainly used in intra-generational projects.
- i_E and i_D , respectively interest on equity and debt that reflect the risk of the project and the level of risk aversion of the entrepreneur and of the lenders, generating the appropriate level of capital remuneration.

Public financing of agricultural projects

Farms are typically capital intensive, geographically dispersed, limited in scale and scope and characterized by lengthy production processes. In developing economies the rapid increase of agricultural productivity lead to a decrease of farm prices relative to prices of other sectors of the economy. Farms are subject to significant business risks and to cyclical swings in economic conditions, often resulting in liquidity problems at specialized lending institutions serving agriculture. Imbalances in needs for and availability of local market funds require reliable access to non local sources of funds. However, non local funding is challenged because relationships between agricultural borrowers and their lenders typically are based on strong reliance on reputations, personal familiarity and social closeness. Skills in farmers' financial management and the quality of their financial information also are more limited in agricultural lending.

In light of these characteristics, the availability of competitively priced, dependable credit for agricultural borrowers has long been an important policy issue. Hence, public credit programs often play significant roles in enhancing market development and ensuring credit availability.

Public loans and private credit

Small, part-time or limited -resource farms remain large in numbers, but relatively small in terms of economic contribution. In developed countries, small farms often rely heavily on non-farm employment as a source of income. In less developed countries small farmers often operate at subsistence levels. In developed countries the financing needs of small farms are increasingly treated as consumer-type loans by commercial lenders, with credit scoring and higher interest rates used to offset the high servicing costs of small loans.

Public credit programs are intended to either correct a market imperfection, fill a gap in the workings of credit markets, or achieve a public purpose through the re-allocation of resources or redistribution of income in the economy.

On one hand, there is a clear goal for government actions: a financial market's primary function is to facilitate financial inter-mediation by adjusting the liquidity and risk positions of savers and investors. Extensive government regulation contributes to market effectiveness by fostering confidence, trust, and discipline among market participants.

Private credit and financial services (identification and monitoring of the most promising farms and prospective investments) are clearly beneficial to farmers. However, the benefits do not generally cause a larger demand by farmers.

In fact, the available quantity of financial services and the supply of credit follow the demand of credit, that increases when the sector is developing. In this sense, financial markets are endogenous to economic growth and development, they respond to underlying economic incentives.

Studies in Europe and in the US showed a higher proportion of government sponsored lending to agriculture as the growth rate of total agricultural credit declines: the government sponsored credit fills the gap when private sector rationing increases. This last phenomenon may happen in two cases:

- when a developed agricultural sector does not promises significant rate of growth
- and when a developing agricultural sector has an excess of farmers and farms that are not efficient.

The last case constitutes the rationale for government interventions in the agricultural credit like the measures of the CAP and IPARD: IRR's are often quite low but the available credit helps managing the survival of some of the less efficient farms and the development of the better farms. It is important to notice that, as many other forms of agricultural subsidies, government sponsored credit are essentially a redistribution measure based on tax payers' money.

Also, by ensuring comparatively low interest rates on debt borrowed from banks, giving to the banks the difference between the normal rate and the "agricultural" rate, these policies leverage on the financial skills of professional lenders and keep them in the market when the demand for credit is not sufficient to require an adequate offer.

In agricultural development lending, the adverse effects of government intervention may be: limited assistance to farmers,

- high default rates,
- high public costs,
- non-viable commercial lenders,
- regressive income effects,
- weak mobilization of savings and
- disincentives to commercial lenders who must comply with subsidy requirements.

Interest rate subsidies are especially problematic, creating excess demand for loans and unintended structural consequences.

Credit subsidies also create adverse incentives for borrowers who view loans as a gift or grant, and for lenders who become lax in screening loan applicants and monitoring loan performance.

There is consensus in the literature about government intervention in the agricultural credit market:

- agricultural and rural borrowers need reasonable access to financial services from viable lenders, rather than subsidized credit, and public policy should be directed to this end
- Financial sustainability for both borrowers and lenders is the plausible policy goal. Such a goal will contribute to overall economic growth, to the benefit of both borrowers and lenders.

Nonetheless, subsidized credit programs remain widespread and play important roles in international lending programs.

From direct loans to collateral

Because of the difficulties seen above, in developed countries, among the forms of public credit, the emphasis has clearly shifted away from direct public loans toward publicly guaranteed loans by commercial lenders. Loan guarantees provide lower subsidies than direct loans, especially since direct loans are seldom priced to cover the government's full cost of funding, administering, and risk-bearing. Pricing for risk through fees and premiums is more explicit with a loan guarantee. Loan guarantees also displace fewer financial market resources, offer greater liquidity for loan sales by institutions, and provide greater use of private lender's knowledge and experience for loan origination, servicing, and management. Coupled with guarantees, time limitations on borrowers' use of guarantee programs also help to reduce moral hazard behavior and encourage timely graduation of borrowers to commercial sources of credit.

Direct public loans

Notwithstanding these problems, most countries have agricultural policies that comprise measures to directly finance development projects in agriculture. Hence, the need for selecting the best projects arises. At an aggregate level, the NPV and the IRR are a methodology that allows the government to compare different projects. The resources available are limited and the selection of projects allows them to be allocated in the most efficient way. In general, the measures of rural development programs identify specific areas of intervention, within which it is necessary to select the best projects. In most European countries, the available funds are distributed at a regional level and the selection is made among applications for aid received by regional administrations. National development plans ensure the necessary coherence of choices. Obviously this decentralized solution has higher administrative costs but it allows both the growth of the management capacity of the regional public personnel and a better control capacity due to the geographical proximity with the entrepreneurs who make the investments. When the selection takes place at a national rather than a regional level, it is likely that the evaluation of individual projects may not sufficiently take into account their added value with regard to the local economy and society.

The existence of a publicly shared criterion for the selection of projects to be financed is a fundamental condition for transparency in the use of public aid. Without a clear identification of the criteria, and the publication of the selection documents, the choices of the projects to be financed appear arbitrary and may be the result of favoritism and conflict of interest. Credit programs are vulnerable to political incentives.

Unfortunately, it is often difficult for administrations to ensure transparency conditions due to the objective complexity to evaluate a large number of projects.

This complexity can be simplified in several ways.

One of them is to provide applicants with standard prices to use in the calculation of the NPV. In this way it is at least clear that a larger IRR is not due to overestimating future prices of products: quantities of products and the efficiency of the applied technology remain responsible for its value. The error and the uncertainty associated to an estimation are reduced and comparisons among different projects are easier to make.

Often the availability of public resources is significantly lower than those required by the submitted aid applications. For this reason, sometimes the extremely simplified practice of first-past-the-post is used: an exact date is set and it is announced that the aid applications submitted from that date will be financed until the funds are exhausted.

Normally, aid applications are selected from farmers who undertake to implement the measures, under the constraint of the resources available for those measures in a certain area. Some US administrations use a different policy. They ask farmers to submit offers for the implementation of measures, for example, works to contain soil erosion, and choose to finance the best offers. This system has the advantage of revealing the cost at which farmers can implement the measures, and of making public spending more efficient.