



Alternatives to Tobacco cultivation—Towards an evidence based approach



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ARTICLE INFO

Article history:

Received 10 October 2014

Received in revised form 7 December 2014

Accepted 3 January 2015

Keywords:

Tobacco alternatives

Phasing-out of tobacco

Multicriteria mathematical programming model

Impact assessment

ABSTRACT

The discussion about alternatives for tobacco cultivation is a very conflicting issue as it strikes into the heart of the tobacco industry which is the tobacco leaf. The aim of the paper is to contribute to this discussion and support the policy makers. To this end, the paper provides an evidence based approach for modeling the phasing-out of tobacco which describes the possible effects on farm income, labor demand and environmental impacts. In the context of the EU Research Project DIVTOB a model was developed to study the impacts of tobacco phasing-out on a specific region approach. The methodological approach can support the policy makers to overcome constraints related with the future implementation of alternative livelihoods to tobacco cultivation on the basis of evidence. In the broader context of tobacco control, the paper presents a method for an effective implementation of articles 17 and 18 of the WHO Framework Convention of Tobacco Control (FCTC). The paper also shows a transparent approach to overcome in an effective way the uncertainties spread by the tobacco industry and their allies about phasing-out of tobacco especially in low-income and middle-income countries. The application of the proposed model to four case studies in Greece and Spain achieves, under different scenarios, important results useful for policy makers and policy implications.

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Introduction

One of the objectives of the international Framework Convention on Tobacco Control (FCTC), that has been in force since 2005, is laid down in article 17 which deals with the implementation of economically sustainable alternatives to tobacco growing in the concerned world regions (WHO FCTC, 2014a, 2014b; Geist et al., 2009). In the same framework article 18 deals with the environmental impacts of Tobacco production (Geist et al., 2009). Alternatives for tobacco cultivation are considered to improve the livelihood of the tobacco farmers especially in Developing Countries. It is well understood that the tobacco industry will never accept any alternative to tobacco cultivation. There exist a lot of hints that they actively hinder all activities on alternative livelihood in all levels they can reach and influence. Any alternative will strike into the heart of the tobacco industry which is the tobacco leaf. It is necessary to make the whole process for alternative livelihood more transparent and based on evidence. The implementation of alternatives to tobacco growing will reduce the tobacco growing

area in a certain region. The possible reduction will bring up uncertainties and probably changes on the social development of the concerned rural areas, e.g. impact on labor demand.

During our work on alternatives for tobacco cultivation in the context of the EU research project DIVTOB (Universität Hohenheim, 2008) an evidence-based model was developed to study the impact of phasing-out tobacco cultivation. These changes can be studied by using a multi-criteria model in order to evaluate the possible impacts of different tobacco diversification alternatives on income, employment and environment. The detailed economic model description can be found in Ref. Manos et al. (2009). The model can significantly help in implementing the decisions of the Sixth Session of the Conference of the Parties to the WHO Framework Convention on Tobacco Control (WHO FCTC, 2014a, 2014b) in connection with the adopted policy options and recommendations on economically sustainable alternatives to tobacco growing.

Actual status of alternatives for tobacco cultivation

Tobacco cultivation is mainly concentrated in certain well defined regions in the Tobacco producing countries. The main economic activity of the vast majority of the Tobacco farmers is the cultivation of crops. Animal husbandry as an additional main

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income is not wide-spread. Most of the tobacco farmers have very limited land property or have access to arable land only by renting. Therefore they need a crop with a high profitability. Most of the tobacco farmers lack also of funds for investments in their farms. Wide-spread implies the tobacco farmers receive loans for buying farm inputs, like fertilisers, pesticides etc. by concluding a supply contract for raw tobacco delivery. Such loans are high incentives for the farmer to cultivate Tobacco. It is understood that the vast majority of tobacco farmers in Developing Countries depend heavily on such loans and have not the economic capacity to cultivate tobacco without such loans.

The farmers rely on tobacco cultivation because of the following factors:

- A delivery contract established between tobacco farmers and tobacco processors gives security in tobacco sale.
- Loans and other incentive for the tobacco crop by tobacco industry.
- It is assumed that the Gross Income from the tobacco crop is higher than for any other crop.
- Uncertainties about alternative income opportunities.
- Uncertainties about market opportunities for alternative crops.
- In regions where no irrigation is available Tobacco is recognized because of its drought resistance. Under these agricultural conditions the net profit of Tobacco is more than for any other crop.
- Tobacco provides a high money cash once a year.

One of the strongest arguments brought up against a phasing-out of tobacco cultivation is the social aspect of rural farm workers. As tobacco cultivation is labor intensive it is supposed that a reduction of tobacco cultivation will reduce in the concerned regions the economic opportunities for farm workers and will result in a drastic job loss – so far the arguments.

This concern is true where tobacco is cultivated in a fully mechanized farm crop environment as it is the case in the USA, EU and other countries with a strong farm work mechanization. When a farmer will phase-out tobacco, the alternative crops may be full mechanized and the labor demand shrinks strongly compared to tobacco cultivation, e.g. instead of tobacco cultivating wheat. If the farmer opts instead of cultivating tobacco e.g. set-up fruit trees then the labor demand will not be reduced so much.

In most countries however, hand labor demand for tobacco is competing with hand labor demand for other crops. Under low mechanized farm conditions the hand labor demand remains high even the farmer phases-out tobacco and switches to another crop. Therefore the job loss is only relative and not absolute – if any real job loss occurs.

Table 2
Working hours demand for several food crops within different agro-climatic zones.

| A. Only manual labor (working hours/acre) | | | | | |
|--|------------------|--------|------------------|------------|---------|
| Crop | Land preparation | Sowing | Crop maintenance | Harvesting | Total |
| Cassava | 125–250 | 25–50 | 125–340 | 50–300 | 325–940 |
| Maize | 75–175 | 25–80 | 75–275 | 20–225 | 195–755 |
| Rice | 175–300 | 25–175 | 50–200 | 120–300 | 370–975 |
| Yam | 250–300 | 20–40 | 150–250 | 25–75 | 470–665 |
| B. Mixed manual and very low mechanized labor (working hours/acre) | | | | | |
| Crop | Land preparation | Sowing | Crop Maintenance | Harvesting | Total |
| Cassava | 75–150 | 15–50 | 120–160 | 75–275 | 285–635 |
| Maize | 10–125 | 25–100 | 50–150 | 75–225 | 160–600 |
| Rice | 10–220 | 5 | 50–175 | 100–150 | 165–550 |
| Yam | 75 | 40 | 150 | 50 | 315 |

Table 1
Labor demand for different working concepts in tobacco cultivation.

| Working concept | Male work | Female work | Total | Remarks |
|-------------------------|-----------|-------------|-------|---------------|
| Land preparation | | | | No data given |
| Plantlet preparation | 45 | 40 | 85 | |
| Planting | | | | No data given |
| Weeding | 60 | 40 | 100 | |
| Topping | 60 | 40 | 100 | |
| Hand hoeing | 80 | 40 | 120 | |
| Harvesting and Drying | 200 | 500 | 700 | |
| Field cleaning | 40 | | 40 | |
| Preparation and Packing | 100 | 150 | 250 | |
| Total | 585 | 810 | 1395 | |

Data for Africa estimated the required work hours per hectare of tobacco on 1395 h per year (Viebig, 1981) with the following concepts (all data working hours/hectare) are shown in Table 1:

No data have been provided for the concepts of land preparation and planting. The working concepts of fertilizing and pesticide application were not included in the above mentioned reference. Adding around 200 working hours per hectare for the missing working concepts we will assume the total labor demand for tobacco cultivation to about 1600 working hours per hectare. In a study done for the European Parliament (Kienle et al., 2009) the labor demand was evaluated for different European tobacco growing regions. In Northern Greece the cultivation of Oriental Tobacco required a labor demand of 1500 working hours per hectare with only a low mechanization used for land preparation.

The labor demand for food crops have been evaluated in Ghana for several agro-climatic zones typical for West Africa (Negeleza et al., 2011). Table 2 provides an overview of the lower and upper level of necessary working hours per acre for the food crops Cassava, Maize, Rice and Yam reflecting only a hand labor scenario without any mechanization and another scenario with very low mechanization. Compared to tobacco cultivation the working hour demand for the food crops are not so different or even higher on the same cultivation area basis. Usually non-family workers are employed for some of the working concepts. This means that shifting from one crop to another crop will probably not reduce too much the labor demand. In Ghana e.g. the demand for non-family hired workers is higher than the supply. Sometimes land preparation and harvesting for food crops is delayed due the lack of labor supply.

In a case study from Kenya (Ochola and Kosura, 2007), a total of 227 working days per acre were estimated to be required for tobacco production (a requirement of 561 working days per hectare). In the Kenya study, 73.6% of the working days were performed by family members and only 60 working days by hired workers. This shows that the demand of the hired labor for tobacco cultivation is very often over estimated.

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