EFFECTS OF THE PUBLIC POLICIES ON THE NATURAL RUB-BER PRODUCTION IN SÃO PAULO AND MATO GROSSO STATES

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ABSTRACT:

The objective of this study was to evaluate the ef-fects of the government intervention on the expansion of the natural rubber production in São Paulo and Mato Grosso states. The method used was the policy analysis matrix, de-veloped by MONKE and PEARSON (1989). The results showed that the production of natural rubber in those states has conditions to face the liberalization changes that have been taking place in the international market. The gov-ern-ment's role in that process is relevant in order to promote the development of that activity and to reduce the distortions, since these impede that the market signals guide the pro-ducer decisions in an integrated economy into the world market. Some policy measures can be car-ried out to improve the competitiveness of the natural rubber in São Paulo and Mato Grosso states, which are related with reductions of the tax aliquots on the production; with interest rate in the financ-ings; and with labor legal requirements that increase the pro-duction costs. It is, also, important to underline the positive effects of technological changes. It is necessary to the gov-ernment to be conscious with the effects of its policies. For that, it is important that the adoption of those policies pro-vides to the production of rubber natural larger competitive-ness. In that perspective, the government intervention could generate larger social benefits, if the di-vergences between the social and the private valuations were reduced. In the medium term, the policy reorientation benefits both the pro-ducers and the consumers, taking to a larger incentive to the local production of this product.

Key words: Competitiveness, liberalization of markets, natural rubber, public policies.

INTRODUCTION

Natural rubber represents one of the most important commodities for Brazilian agrobusi-ness, being essential for manufacturing of an extensive range of products, being, for that, con-sidered as one of the bases which sustain manhood progress, besides iron and oil.

Thus, one considers that studies that can elucidate the question of the competitiveness of this sector, analyzing its productivity chain in relation to the production aspects, are relevant to natural rubbers producers, aiming to signal possi-ble points of strangling in the costs' structure of the produc-tive sector of this chain. Besides, these studies must explain probable impacts of government policy in the sector, what would subsidize the political reforms, contributing to the deci-sions making in the resources' allocation and to the planning of trade policy.

Thus, the present study had as a general objective of evaluating the effects of government intervention on the ex-pansion of the production of natural rubber in São Paulo and Mato

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Grosso states. Specifically, one intended to determine the competitiveness of natural rubber production concerning differences in production' technologies; to identify and quan-tify the effects of measures of economic politics on the ex-pansion of the production.

METHODOLOGY

The used method is the political analysis matrix (PAM), developed by MONKE and PEAR-SON (1989). This method allows to measure the gains or the efficiency losses and the effects of the political intervention on the producer income, as well as the transfer identification among groups of pro-ducers and consumers, besides the modifications in the em-ployment level, in each production system. In PAM analysis, the social benefit represents the desirable efficiency, or the comparative advantage that identifies the efficiency or ineffi-ciency effects of a politics and which purposes justify or not the occurrence of efficiency losses, by means of distorting policies. The private profitableness identifies the competi-tiveness of the agricultural system by means of the current technologies, the values of the production, the costs of the input and transfers.

PAM measures the profitableness as the difference be-tween total revenue and production cost. The divergences ef-fects so politics as of market failures are obtained through the differ-ence between the private evaluations and the social ones, that is, the ones that would exist if the divergences were removed (Table 1).

Table 1. Political analysis matrix

Discrimination	Revenues	Tradable Inputs	Domestic Factors	Profits
Private Prices	A	B	C	D
Social Prices	E	F	G	H
Divergence effects and political efficiency	I	J	K	L

Source: MONKE e PEARSON (1989).

Private Profits (D) = A - B – C.
Social Profits (H) = E - F – G.
Revenue Transference (I) = A – E.
Inputs Transference (J) = B – F.
Factors Transference (K) = C – G.
Liquid Transference (L) = D - H or I - J – K´

The Private profitableness calculations exhibit the competitiveness of the agricultural sys-tem, concerning actual technologies, production values, inputs costs and policy transfers. If the private profits are negative (D<0), the opera-tors will be wining a subnormal return rate; thus, one can wait that they quit the activity unless something changes to in-crease the profits at a normal level (D=0). Alternatively, posi-tive private profits (D>0) indicate that there are super-normal returns and that future expansion of the production system could occur.

The social evaluations measure the efficiency of the agricultural system of production. The social benefits (H) are a measure of the efficiency, because the revenues (E) and the tradable inputs and domestic factors (F+G) are appraised at prices that reflect values of shortage or cost of social op-portunity. For products and inputs that are internationally marketed, the appropri-ate evaluations are given by the bor-der prices CIF (for goods or imported services) or FOB

(for exported goods). The social evaluation of the service of each factor is determined by the estimate of the net revenue that each factor would obtain in its best alternative use.

For comparisons of systems that produce differentiated products, the comparison is made by the construction of indi-cators as private cost (CP), domestic resource cost (DRC), that are coefficients that indicate the competitiveness and ef-ficiency among the sections, respectively. To indicate the ex-tension of the politics transfers between two or more sys-tems, one has the nominal protection coefficient (NPC); the effective protection coefficient (EPC); the profitable-ness coef-ficient (PC); and the Subsidy to the Producer Rate (SPR); for additional details, see ROSADO (1997).

Data Source

Data utilized were obtained from EMBRAPA SO-LOS/RJ, EPAMIG/Viçosa-MG, COMÉR-CIO EXTERIOR DO BRASIL (2003), CONJUTURA ECONÔMICA (2004) AND AGRIAN-UAL (2003). The budgets for the production systems of natural rubber were elaborated based on the technical co-efficients and on the prices of the year 2002.

RESULTS AND DISCUSSION

Transfers associated to the prices of the product, inputs market and domestic factors

PAM results, estimated for the production systems of natural rubber, show that the private prices, so in São Paulo as in Mato Grosso markets, are lower than the world ones, what evi-dences a negative transfer of R$ 469,06 and R$ 364,24 for these production systems, that is, there is transfer from the producers to society. Thus, one can stand out that so São Paulo as well as Mato Grosso producers were af-flicted by the distorting policies existing in Brazil, in 2002, since these activities received less than they would receive in case these policies would not have been implemented. Nev-ertheless government interference, these systems remain yet profitable (Table 2).

Table 2. Matrix of political analysis to the natural rubber, São Paulo and Mato Grosso, 2002.

	Revenues	Costs		Profits
		Tradable Inputs	Domestic Factors	
São Paulo				
Private prices	2269,53	838,13	1294,01	137,39
Social prices	2731,59	572,29	1008,19	1151,11
Divergences effect	-469,06	265,84	285,82	-1013,72
Mato Grosso				
Private prices	2160,32	933,05	1155,27	72
Social prices	2524,56	624,01	908,71	991,84
Divergences effect	-364,24	309,04	246,56	-919,84

Source: Data's research

The higher negative transfer in São Paulo, from pro-ducers to society, is owing to the fact that the production sys-tem of this state presents higher level of technology since it produces higher quantity of natural rubber destined to the domestic market.

As the natural rubber is one of the main import prod-ucts, Brazilian exchange policy may have limited the in-crease of its imports in 2002, resulting in earnings for the producing sector. In the mean term consumers also are win-ners, since policies that stimulate production cause lower prices for the domestic consumers.

Concerning the tradable input, the effects of the diver-gences among the private and social evaluations are attrib-uted to the distorting policies and not to the market failures. These poli-cies cause the market prices of the tradable inputs differ from the world prices.

If the government desires to protect the domestic prices of tradable inputs it can restrict im-ports (if the input is im-ported) and subsidy exports (if the country is a net exporter of the input); on the other hand, to reduce inputs costs, the government can subsidy imports, restrict exports applying taxes or export quotes, or subsidy all the domestic consump-tion of these inputs.

In this study it is observed that exist differences be-tween the private and the social costs (represented by the foreign quotations) in the markets of natural rubber. In the production sys-tems of natural rubber of São Paulo and Mato Grosso states, domestic prices situate over for-eign ones at 46,5 and 49,5%, respectively. So, one perceives that trans-fers have occurred from the producers to consumers, associ-ated with the prices of the tradable inputs (TPCTI) (Table 2). Under these circumstances, case the government did not have taxed the prices of these trad-able inputs, the costs in the production systems of natural rubber would have been lower, thus stimulating the expansion of these explorations.

The transfers associated to the domestic factors of the productive sector of São Paulo and Mato Grosso were of R$ 285,82 and R$ 246,56, respectively. These positive values represent private costs higher than social ones of domestic factors. These results represent negative trans-fer to the pro-ductive sector of natural rubber, since they contribute to a reduction in the private profits. Concerning society, it is ob-served that there is a positive transfer from the producers, in reason of the social values of the domestic factors are lower than the private ones. This differ-ence between the privates and social values of the domestic factors charged, in aver-age, 27,7% of the costs of this sector. The private values, in São Paulo and Mato Grosso, were, in average, R$ 266,19/ha higher than the social ones.

Net transfers

This transfer is obtained from the sum of all diver-gences which cause private profits to de-fer from social bene-fits. The net negative transfer for all production systems of natural rubber in São Paulo and Mato Grosso was of the or-der of R$1013,72 and R$ 919,84/yr, respectively. In aggre-gated terms, only the transfers associated with production were negative. The two other categories of transfers associ-ated with the use of domestic factors and tradable inputs were positive. These values indicate that the producers of natural rubber of these two states had their potential profits reduced, in spite of being systems that operate profitably, from the financial point of view.

Based on the private profitableness and on the social benefits, one can assure that the pro-duction systems of natu-ral rubber in the studied states are competitive, in face of the existing policies, and present comparative advantage before other markets. However, in São Paulo, the private profits and the social benefits are higher given that the productive sys-tems of that state are more efficient and competitive.

It is worth to stand out, however, that, in the evaluation of these production systems, in the calculus of the social costs, the exchange rate of R$2,925 was utilized, which influ-enced the products offer, since the tradable inputs costs di-minished. As these inputs represent 44,7 and 39,3% of the production costs of natural rubber in São Paulo and Mato Grosso, respectively,

a substantial change is feasible in the costs structure as one considers the effect of a exchange devaluation2

In analyzing the costs in the matrix of productive sector of natural rubber it is verified that this sector depends more on domestic factors than on tradable inputs. The domestic factors correspond to 58%, in average, of the total costs in the two states, what indicates that, to there be any reduction of negative effects of policies from the private point of view, one must have as a priority one of the domestic factors.

It is worth to stand out yet that the labor weight in the cost formation is what raises the price of the agricultural pro-duction of natural rubber in the analyzed states, compara-tively with the production in the Asiatic Southwest countries, the highest world producers, in which the labor is extremely cheap.

Comparing the net transfers for the productive sector of natural rubber one can affirm that the technological innova-tion contributed for the reduction of the impact of policies ef-fects on this sector. Such result shows that one do not must give priority just to policies that contribute to the reduction of the negative effects on the analyzed states, but, also to an increase in the technological level of the sector.

It is also emphasized that the expansion of the natural rubber cultures, which utilize more modern technologies, can leads to expressive earnings in productivity and, conse-quently, in efficiency. This would contribute to compensate the distortions originated mainly from markets of tradable in-puts and domestic factors.

So, the use of more suitable techniques of cultivation favors the increase of productivity, possibly reducing the pro-duction costs, to lower import of natural rubber. This would benefit the consumers and the local processor industries, chiefly the pneumatics ones.

The continuity of the economic viability for the natural rubber production in São Paulo and Mato Grosso will depend on the policies measures which make possible earnings in efficiency, increase in productivity and, consequently, com-petitiveness in the national market. In case these policies are not made feasible, the entrance of natural rubber from other countries will can negatively affect these states future pro-duction.

Private and social indicators

Results presented for the private cost (PC) indicate that the production systems of São Paulo present more elevated return rate to domestic factors than the ones of Mato Grosso. As these values are lower than unity in both systems, these ones are profitable, from the economic point of view, and are receiving above the normal return. So only 90% of the added value (difference between revenue and the costs of the trad-able inputs), in private values, are required to pay for the domestic factor and produce one kilogram more of natural rubber per hectare for domestic consumption. Thus, São Paulo productive sector can maintain the domestic factors in it employed inclusive being able of prospering and expanding (Table 3).

The indicators of the domestic resources costs (DRC) were inferior to unity, what indicates that the social values of the employed domestic resources in the productive sector of natural rubber are inferior to the added social values, that is, what one utilizes on domestic resources to economize a monetary unity in foreign currency, by means of import, is lower than unity. The sector that presents higher comparative advantage is of São Paulo, whose DRC is of 0,47, although the one of Mato Grosso is near (0,48). That means that only R$ 0,47 in domestic resources are sufficient to economize R4 1,00 of foreign currency by means of import. The expan-sion of this activity represents net earnings for the country, regarding the allocation of resources in terms of economic ef-ficiency.

Table 4.   Comparisons between the production systems of natural rubber between São Paulo and Mato Grosso, 2002

	São Paulo	Mato Grosso
Private Cost (PC)	0,90	0,94
Domestic resource cost (DRC)	0,47	0,48
Nominal Protection Coefficient (CNPp)	0,83	0,86
Nominal Protection Coefficient (CNPi)	1,46	1,5
Effective Protection Coefficient (CPE)	0,66	0,65
Profitability Coefficient (PC)	0,12	0,07
Subside rate to Producers (SP)	-0,37	-0,36

Source: Data's research

Nominal protection coefficients (NPCp) of the produc-tion systems of São Paulo and of Mato Grosso were 0,83 and 0,86, respectively (Table 5). These results demonstrate that the analyzed production systems suffer implicit taxations resulting from the policy measures, given that their prices situate down foreign ones. So the productive sector of these states can be per-ceived as undergoing penalizations, what leads the producers to receive, on average, 15,5% less than the quotations in the world market.

Nominal protection coefficient on tradable inputs (NPCi), in the cases of São Paulo and Mato Grosso produc-tion systems, indicates that there was positive transfer of 46% and 50% from producers to society, since the costs of the tradable inputs are magnified by policy inter-vention. Be-sides one could observe that Mato Grosso producers re-ceived more elevated taxa-tion, due to these policy measures (Table 3).

NPCs for the production systems of natural rubber, in São Paulo and Mato Grosso states, are 0,66 and 0,65, that is, values lower than unity. Such results show that the net ef-fect of poli-cies that influence tradable inputs and products markets in São Paulo and Mato Grosso, pres-ent added val-ues, at private prices, of 34 and 35%, respectively, lower than the added values, without interference of the policies.

In the natural rubber production systems, the calculated PCs are 0,27 and 0,07, for São Pau-lo and Mato Grosso, re-spectively. Thus one verifies that the policy measures have reduced the private profits, promoting the transfer from the producers to society and showing higher effec-tiveness of the government policy in permitting that private profits exceed the social benefits.

The subsidy to the producer (SP) is used to express the net transfers from a rate of subsidy or tax falling upon the producing systems, so synthesizing the effects of all policies causing divergences. The lower the SP, the less distorted the system is. In the cases of São Paulo and Mato Grosso pro-ducing systems, the subsidy values to producer indicate that these production systems were taxed at 37 and 36 %, re-spectively.

Final Considerations

The analysis of the productive sector of natural rubber revealed several relevant aspects such as competitiveness, economic efficiency and effects of public policies, as well as it permit-ted to arrive at other conclusions.

From the obtained results, one concludes that natural rubber production in São Paulo and

Mato Grosso has condi-tions of facing the liberalizing changes that have been im-plemented in the foreign market. Government role in this process is important to promote the development of this ac-tivity and reduce the distortions that impede the market sig-nals of orienting the produc-ers decisions in an integrated with the world market economy.

Some policies measures can be implemented to better natural rubber competitiveness in São Paulo and Mato Grosso, which are related with reductions in aliquots of the taxes that fall upon the production, exchange rates in the fi-nancing, and labor charges that burden production costs. The positive effects of technological changes are stressed as well.

It is necessary that the government be attentive about the effects of its policies. For that it is important that these policies measures adoption proportionate higher competi-tiveness to natural rubber production. In this perspective government intervention could generate higher social bene-fits in case the divergences between the social and private valuations were reduced. In the mean term, the reorientation in the policy measures would favor so producers as well as consumers, resulting in higher incentive to local production of these products.

In methodological terms, one can affirm that the contri-butions can be stressed as the analy-ses results are being perfected and the variables calculus and conversion factors as well. The analyses can be perfected as the matrix model of the political analysis becomes less static, varying with time. The variables costs and prices must be taken with more representativeness of the studied universe and the conver-sion factors must be calculated with more local specific-ity. These aspects perfected, the results of Policy Analysis Matrix can be utilized in the private decisions making and in the public policies with more credibility.

New studies which utilize this methodology are sug-gested, mainly those ones that have in view to analyze the productive chain and not only a segment of it.

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