Impact analysis of the government policies on the production of cotton, sorghum and groundnut in New Halfa Agricultural Production Corporation, Kasala State, Sudan (2006-2010)

Elsayed E.M. Alnagarabi[1],Neimat O.I. Babiker[2] and Imad A. Mahguob[3]

[1]Department of Agricultural Economics, Faculty of Agricultural Sciences, University of Gezira, Wad Medani, Sudan.
[2]Ministry of Agriculture, Animal Wealth and Irrigation, Gezira State, Wad Medani, Sudan.
[3]Agricultural Research Corporation, Wad Medani , Sudan.

ABSTRACT

The main objective of this paper was to analyze the impact of government policies on production of cotton, sorghum and groundnut in New Halfa Agricultural Production Corporation during the period from 2006 to 2010 in terms of efficiency, competitiveness and comparative advantages. The study depended on secondary data and information collected from relevant sources and references. The policy analysis matrix (PAM) was adopted as an analytical model to achieve the study objective. Nominal protection coefficient of inputs, nominal protection coefficient of outputs, effective protection coefficient, profitability coefficient, domestic resources coefficient and international value added were calculated for the seasons under consideration. The study results indicated that cotton, sorghum and groundnut inputs were subjected to taxes, where on the other hand, the government policies provided incentives and favored the production of cotton, sorghum and groundnut in New Halfa Agricultural Production Corporation. Consequently, it could be concluded that, although the overall impact was negative, but the study results indicated that there were still comparative advantages of these crops in New Halfa Agricultural Production Corporation. The study recommended that the cultivated areas of cotton, sorghum and groundnut should be expanded in New Halfa Agricultural Production Corporation and input taxes should be reduced.

INTRODUCTION

The productivity of crops in irrigated agricultural sub-sector is low and fluctuating due to low producer prices, lack of foreign currency and import regulations, which have limited the availability of vital production inputs and spare parts (IFAD, 1992). The spatial variations have been an important dimension of the spectacular growth of agriculture in Sudan caused by differences in agro-climatic situations, levels of infrastructural facilities and inherent socio-economic characteristics of different regions of the country (Mahir,2004).The instability of economic phenomena is generally understood as the departure from what may be considered to be a passage through time (FAO, 1998). Its measurement has been developed in order to quantify the risk of insecurity resulting from fluctuating levels of economic phenomena such as production, trade, income and prices. Instability measurement with respect to agricultural production is of interest to food issues or to issues arising from the influence of fluctuations in output on agricultural prices and returns to the producers (FAO, 1998).

In recent years, the area of the crops grown in New Halfa Agricultural Production Corporation has decreased due to the sedimentation that led to the reduction of the water available for irrigation (NHAPC, 2010). The corporation has, therefore, adopted a new plan to increase production vertically by introduction of new agricultural technologies. Sudan Government has adopted the structural adjustment programs in 1992, New Halfa Agricultural Production Corporation was not an exception, according *to* Alnagarabi (1997), the main elements of which were:

1. Reduction of export taxes for agricultural exports to 5% for all crops, except cotton and gum Arabic, for which export taxes were reduced by 10%.
2. Removing subsidies on inputs, most important of which are fertilizers, pesticides, land and water.
3. Lifting of price controls and regulations on commodities imposed by the government, with the exception of wheat where the government intervention was maintained by determining minimum procurement prices.
4. Reduction of food prices subsidies.
5. Abolishing of public market companies monopoly such as the Sudan Cotton Company in 1993 which moved the control of public sector to private sector in the context of an overall economic reorientation (Aziz, 2011).
6. Shifting from public to private finance.
7. Privatization of Agricultural Corporations.

The main objective of this paper was to assess the impact of the reform and adopted policies on the production of cotton, sorghum and groundnut in New Halfa Agricultural Production Corporation.

METHODOLOGY

The secondary data used in this paper were obtained from different institutional sources, published and unpublished material, mainly from New Halfa Agricultural Production Corporation, Sudan Cotton Company, Bank of Sudan, and General Administration of customs, for the seasons from 2006 to 2011. Policy analysis matrix (PAM) was used to calculate nominal protection coefficient of outputs, nominal protection coefficient of inputs, effective protection coefficient, domestic resources coefficient, international value added and profitability coefficient.

The PAM parameters were used to assess the international competitiveness, protection measures and comparative advantages for cotton, sorghum and groundnut during seasons 2006 to 2010.The policy analysis matrix, is one of the modern tools used to analyze the agricultural policies, to derive some indicators and standards and to measure the impact of the government agricultural economic policies on the agricultural sector (Callaghy, 1990). PAM was to analyze market distortions and policy interventions in terms of their effect on the vertical system, from its initial production in the farm through the primary procurement, processing and marketing stages (Pearson and Monke, 1989).

Policy analysis matrix

Policy analysis matrix is a product of two accounting identities. The first one, defines profitability as the difference between revenues and costs, and the other one, measures the effects of divergences (distorting policies and
market failures) as the difference between observed parameters and parameters that would exist, by filling in the elements of PAM for an agricultural system. An analyst could measure both the extent of transfers
occasioned by the set of policies acting on the system and the inherent economic efficiency of the system. Profits are defined as the difference between total per unit sales revenues and costs of production. This definition generates the first identity of the accounting matrix. In the PAM, profitability measured horizontally, across the columns of the matrix, as demonstrated in Table 1 is profits shown in the right hand column, are found by the subtraction of costs, given in the two middle columns, from the left-hand column. Each of the column entities is thus a component of the profits identity-revenues less costs equal profits. Each PAM contains two cost columns, one for tradable inputs and the other for domestic factors. Intermediate inputs-including fertilizer, pesticides, purchased seeds, compound feeds, transportation and fuel, are divided into their tradable-inputs and domestic factors components.
This process of desegregation of intermediate goods or services separates intermediate costs into four categories, namely tradable inputs, domestic factors, transfers (taxes or subsidies that are set aside in social evaluation), and non-tradable inputs. Costs are classified into as tradable inputs, domestic factors, and transfers.

Table 1. The policy analysis matrix (PAM) structure.

Revenues		Costs		Profits
		Tradable inputs	Domestic factors	
Private prices	A	B	C	D
Social prices	E	F	G	H
Divergences	I	J	K	L

Source: Pearson and Monke (1989).

As shown in Table 1, Monke and Pearson (1989) arranged the data in three rows; the first row for the private prices, the second row for social prices and the third row for the transfers or divergences, which is the difference between profits measured at private prices and those measured at social prices. This difference is referred to as the effect of government intervention,
where:
A = total revenue in private prices (market prevailing prices).
B = cost of tradable inputs in private prices.

C = cost of domestic factors in private prices.
D = private profits.
E = total revenues in social prices (prices which are adjusted for government intervention).
F = cost of tradable inputs in social prices.
G = cost of domestic factors in social prices.
H = social profits
The matrix is made up of the following identities:

Private or financial profit	(D)	D = A –B-C
Social profit	(H)	H = E-F-G
International value added	(IVA) =	E-F= H + G
Output transfers	(I)	I = A – E
Input transfers	(J)	I = B-F
Factors transfers	(K)	K = C-G
Net transfers	(L)	L = D-H = I-J-K

Social prices for tradable output and input

Guidelines for the empirical estimation of the prices of tradable goods are identical for importable and exportable goods and for outputs and inputs. The private prices of tradable commodities (for the top row of the policy analysis matrix) found in the farm budgets from actual market prices at the farm-gate. The counterpart social prices are border prices (comparable import prices for importable and export prices for exportable goods). The social (or efficiency) prices of tradable commodities could be given by comparable world prices because the import or export price is the best measure of the social opportunity cost of the commodity. For an exportable, the export price is a measure of the opportunity cost of an additional unit of domestic production since that would be exported, not consumed domestically. The world price at domestic currency is equal to the world price at foreign currency times the foreign exchange rate (the conversion ratio given in domestic currency times the foreign currency units).The calculation of social price of output begins with the free on board (F.O.B) export price for exportable and cost, insurance and fright (C.I.F) import price for importable. These border prices are located at Port Sudan. The sources of these prices are the annual reports of the Bank of Sudan and unpublished data from the Sudan Cotton Company .The first step for deriving social outputs is the desegregations of these inputs into domestic and foreign components by applying the standard percentages of foreign components of tradable determined by the Ministry of Finance and Economic Planning.

Estimating the shadow exchange rate factor and the standard conversion factor

The shadow exchange rate (SER) is the economic price of foreign currency. There is a common misconception that if the market for foreign exchange is a free float, the shadow exchange rate is equal to the market exchange rate. That would be the case only if there were no taxes and subsidies on the demand and supply of tradable goods, if all commodities and factors are priced at their economic value, and if the current account

deficit was sustainable. In all cases, the SER will diverge from the market or official exchange rate (OER).In general, the greater the divergence between

the OER and the SER the more likely will depreciation or appreciation occur and affect project performance.

Market prices are adjusted to economic values, by using accounting prices, more commonly referred to as shadow prices. Shadow prices are introduced to reflect the true economic cost of inputs and output to the society in order to give emphasis to contribute to government's efforts to achieve national development objectives. Shadow prices of goods or services, also known as National Economic Parameters, are thus a measure of the real worth to the economy of specific resources. This method of shadow pricing is tedious, time consuming, and consequently rarely followed. Instead, non-traded goods are generally valued at economic prices by the use of conversion factors. A conversion factor is a short-cut method for converting prices of non-traded goods and services into border prices. At the most aggregated level a single conversion factor, the standard conversion factor (SCF) can be derived by taking the ratio of all exports and imports at the border prices to their value at domestic prices. Shadow prices of non-traded items can be obtained by multiplying the SCF with the market prices. This reduces market prices to their real economic value. The formula for the SCF is:

$$SCF = \frac{M + X}{(M + D) + (X - T)}$$

where:
M = value of imports at border prices.
X = value of exports at border prices.
D = total import duties.
T = total export taxes.

This approach of converting the financial market value of non-traded goods and services to economic values is considered the weakest link in the logical chain of establishing shadow prices. Many applied studies therefore treat non-traded goods and services very approximately (Ministry of finance, 2003). Standard conversion factor (SCF) defined as the ratio of the
economic price value of all goods in an economy at their border price equivalent values to their domestic market price value. It represents the extent to which border prices equivalent values, in general, are lower than domestic market price values. The SCF will generally be less than one. For economic analysis using the world price enumerative, it could be applied to all project items valued at their domestic market price values to convert them to border prices equivalent value, while items valued at their border price equivalent value are left unadjusted. Conversion factors can be calculated and used when testing the economic viability of a project. A conversion factor is the ratio between the economic price value and financial value in project output or input. This ratio can be applied to the constant price financial values in project analysis to derive the corresponding economic values (Lyn, 1975). The conversion factor used is 0.98 (Babiker, 2012.).

Measures of protection

The most important measures of protection used are the nominal protection coefficient and effective protection coefficient.

Nominal protection coefficient of output (NPCO)

It reflects the price distortions between the private prices and social prices, and measures the extent of policy intervention on the output side; it is a ratio of the price of a commodity actually received by farmers, including the distortions of government interventions, to computed border equivalent price, which would prevail in the absence of market distortions. It measures the deviation of domestic prices from their world or border price equivalent. In addition, it is estimated by dividing the revenue in private prices (A) by
the revenue in social prices (E)

NPCO = A/E ……..…… (1)

If this ratio is less than one (NPCO < I), it shows the presence of taxes on output and indicates negative protection. If it is greater than one (NPCO >1), it indicates the presence of output subsidies and implies that the
domestic product is protected. When it equals to one (NPCO = I), that means no intervention in the product market.

Nominal protection coefficient of inputs (NPCI)

It measures the actual divergences or distortions between the domestic prices of tradable input and its boarder or world price; is obtained by
dividing the tradable inputs value in private prices (B) by its value in social prices (F).

NPCI = B/F ……..…… (2)

If this ratio is less than one (NPCI < I), it implies support to farmers through inputs subsides by the government, when the ratio is greater than one (NPCI > 1), means that the inputs is subjected to taxes. If this ratio is equal one (NPCI= 1), it means that the absence of government intervention.

Effective protection coefficient (EPC)

It is a comparison between the value-added measured in private prices (A-B) by the value added measured in social prices (E-F), and it is a more
efficient measure of the policy effect as it assess the pure impact of the
polices on each of the input and output and it could be measured as

EPC = A-B/E-F ……..……..(3)

If the effective protection coefficient is greater than one (EPC > 1), then the combined impact of the transfers on the revenues and tradable input will increase the private profits (subsidy) up to the optimum economic levels. In addition, if the (EPC < I). that means the combined impact of the transfers on the revenues and tradable inputs will decrease the private profits (taxes) less to the optimum economic levels. If it equals one (EPC = I), that means there is no presence of any intervention which can influence the combined
impact of transfers on the revenues and tradable inputs and that means it is in complete competition.

Measures of comparative advantages

Domestic resources coefficient (DRC)

Also called social cost-benefit ratio and is used to measure the domestic production efficiency relatively to the world markets. In other words, it measures the economic efficiency or the comparative advantages in the international exchange average. Moreover, it clarifies the fact that if the
social costs and profits to produce a commodity are better than export, it also compares the social cost of using the domestic factors (G) to the production value added in social prices (E-F), i.e. it measures social domestic resources cost ratio and comprehensive efficiency of the commodity system. It is calculated as follows.

DRC = G/E-F …… (4)

If DRC > I that means the opportunity cost to use the domestic resources will exceed its value added in social prices, and thus (socially) this activity
is unprofitable. In this case, the country will not be an international competitor or it has no comparative advantage in producing this commodity. If the DRC is less than one, its value added in social prices, in this case the country has a comparative advantage in producing this commodity relatively to export cost to the same commodity that exceed its domestic production cost. That means, it is preferred to expand in producing this commodity domestically than import it from outside. If DRC = I that means arrival to the break-even point

Measures of competitiveness

International value added (IVA)

The IVA is defined as the revenue of the crop less the imported (tradable) inputs expressed in foreign currency. It is equal to (A-B) in financial analysis and (E-F) in economic analysis. It is an absolute measure of competitiveness. A crop with a positive IVA indicates positive foreign exchange earnings or saving. The principal defect of such a measure is that it neglects the effect of domestic factors.

IVA = E-F ……. (5)

Profitability Coefficient (PC)

Profitability coefficient (PC) is a measure of absolute competitiveness and the incentives of commodity. It could be calculated as a ratio of private profitability to social one.

PC = PP/EP = D/H ……... (6)

PP = private profitability

EP = economic profitability

When PC equal unity the government policy has no effect on the production system, if PC is greater than one it indicates the presence of incentives and the government favors its production, and when the PC is less than one indicates that the system is efficient in producing the commodity and government is disfavoring its production (Abu Alhassn,2006).

RESULTS AND DISCUSSION

The nominal protection coefficients of outputs (NPCO)

The average values of nominal protection coefficient of outputs for cotton, sorghum and groundnut in NHAPC, seasons 2006/07-2010/11, were greater than one (Table 2),that means

cotton, sorghum and groundnut outputs were positively provided by incentives for producers, which favored production of cotton, sorghum and groundnut and these crops were protected.

Table 2. Nominal protection coefficient of outputs for cotton, sorghum and groundnut in NHAPC, seasons 2006/07-2010/11.

Crops/seasons	2006/07	2007/08	2008/09	2009/10	2010/11	Average	Sd
Cotton	1.80	1.80	1.36	1.45	1.90	1.70	0.24
Sorghum	1.27	2.50	1.85	2.02	1.86	1.90	0.44
Groundnuts	1.51	1.03	1.23	1.22	1.16	1.23	0.18

Source: Babiker (2012).

The nominal protection coefficients of inputs (NPCI)

The average values of nominal protection coefficient of inputs for cotton, sorghum and groundnut in NHAPC, seasons 2006/07-2010/11, were greater than one which means that the cotton, sorghum and groundnut inputs were subjected to taxes (Table 3).

Table 3. Nominal protection coefficients of inputs for cotton, sorghum and groundnut inputs, in NHAPC, seasons 2006/07-2010/11.

Crops/seasons	2006/07	2007/08	2008/09	2009/10	2010/11	Average	Sd
Cotton	1.02	1.03	1.21	1.10	1.90	1.30	0.37
Sorghum	1.01	1.80	1.35	1.63	1.25	1.41	0.31
Groundnuts	1.01	2.19	1.91	1.90	2.08	1.82	0.47

Source: Babiker (2012).

The effective protection coefficients (EPC)

It measures the degree of protection provided by the policy for cotton, sorghum and groundnut in seasons 2006/07-2010/11.The average values of EPC were greater than one (Table 4), which indicated that the adopted policy provided positive incentives for production of cotton, sorghum and groundnut.

Table 4. Effective protection coefficients for cotton, sorghum and groundnut in NHAPC, seasons 2006/07-2010/11.

Crops/seasons	2006/07	2007/08	2008/09	2009/10	2010/11	Average	Sd
Cotton	2.30	1.05	1.02	1.30	1.20	1.37	0.53
Sorghum	1.70	1.90	2.26	2.80	2.33	2.20	0.42
Groundnuts	1.46	2.11	2.40	2.30	2.10	2.10	0.37

Source: Babiker (2012).

Measures of comparative advantage

The domestic resources coefficients (DRC)

It measured the comparative advantage of product, the average values of DRC for sorghum, cotton, and groundnut inputs in NPCO, seasons 2006/07-2010/11, were less than one (Table 5), This result indicated that the
scheme has comparative advantage in producing cotton, sorghum and groundnut and the domestic factors are socially profitable.

Table 5. Domestic resources coefficients for cotton, sorghum and groundnut in NHAPC, seasons 2006/07-2010/11.

Crops/seasons	2006/07	2007/08	2008/09	2009/10	2010/11	Average	Sd
Cotton	0.68	0.80	0.63	0.83	0.75	0.74	0.08
Sorghum	0.91	0.45	0.55	0.66	0.48	0.61	0.20
Groundnuts	0.98	0.61	0.56	0.46	0.56	0.63	0.20

Source: Babiker (2012).

Measures of competitiveness

International value added for cotton: (IVA)

It measures the international competitiveness of the product and it is an absolute measure of competitiveness. The results showed positive values of IVA for cotton, sorghum and groundnut in NHAPC, seasons 2006/07-2010/11. The interpretation of this result is that the production of cotton, sorghum and groundnut in New Halfa Scheme were competitive and provided positive foreign exchange earning.

Table 6. International value added for cotton, sorghum and groundnut in NHAPC, seasons 2006/07-2010/11.

Crops/seasons	2006/07	2007/08	2008/09	2009/10	2010/2011	Average	Sd
Cotton	375	299	326	352	316	333.60	30.10
Sorghum	329	322	299	301	302	310.60	13.90
Groundnuts	326	320	302	299	306	310.60	11.80

Source: Babiker (2012).

Profitability coefficient (PC)

It measures the efficiency of the crop and the incentives of the government for the producing the crop and it is a measure of absolute competitiveness and the incentive of commodity. The average ratios for cotton, sorghum and groundnut in NHAPC, seasons 2006/07-2010/11, were
greater than one, which means that the government provided incentives and favored the production of cotton, sorghum and groundnut farmer was receiving seasonal profits (Table 7).

Table 7. Profitability coefficient for cotton, sorghum and groundnut in NHAPC, seasons 2006/ 07 -2010/11.

Crops/seasons	2006/07	2007/08	2008/09	2009/10	2010/11	Average	Sd
Cotton	2.01	1.93	1.87	1.63	2.12	1.91	0.18
Sorghum	1.51	1.03	1.23	1.22	1.16	1.23	0.18
Groundnuts	2.19	2.30	2.50	2.36	2.10	2.30	0.15

Source: Babiker (2012).

CONCLUSION AND POLICY IMPLICATIONS

This paper has attempted to analyze the impact of the government policies on the production of cotton, sorghum and groundnuts in NHAPC. The analysis indicated that the adopted policies had a positive impact on the production of the three crops in terms of protection, competitiveness and comparative advantages in NHAPC. There is, in fact, room for improvements in New Halfa, through intensification of crops production, However, the adopted polices (inputs taxes), which hinder the producers from utilizing their resources fully, should be revised and re-evaluated.

REFERENCES

Abu Alhassn, F.M. 2006. Impact of Agricultural Policy on Cotton Production in the Gezira Scheme, Unpublished M.Sc. Dissertation. University of Gezira, Wad Medani, Sudan.

Alnagarbi, E.E.M. 1997. The Impact of Privatization on the Gezira Scheme. Unpublished M.Sc. Dissertation, University of Gezira, Wad Medani, Sudan.

Aziz, Y.A.M. 2011. Financial and Economic Evaluation of Cotton Production in New Halfa Agricultural Production Corporation. Unpublished M.Sc. Dissertation. University of Gezira, Sudan.

Babiker, N.O. 2012. Impact Analysis of the Government Policies on the Production ofCotton, Sorghum and Groundnut in New Halfa Agricultural Production Corporation (2006- 2010) Un published M.Sc. Dissertation, University of Gezira.

Callaghy, T. 1990. "Lost Between State and Market: The Politics of Economic Adjustment in Ghana, Zambia, and Nigeria," pp 257-320 In; Economic Crisis and Policy Choice: The Politics of Adjustment in the Third World, USA.

FAO. 1998. Food and Agriculture Organization of the United Nations. Measurement of Instability of Agricultural Production and the Associated Risk of Insecurity. A paper presented in the Sixth Seminar on Agriculture. Statistics – Russia – 29 June –3rd July, 1998.

IFAD. 1992. International Fund for Agricultural Development (IFAD). Eastern and Southern Africa Region, the Northern Province of Sudan Irrigation Rehabilitation Project. The Staff Appraisal Report-Khartoum.

Lyn, S. 1975. Economic Analysis of Projects. John Hopkins University Press, Retrieved from: www.Press.jhu.edu.

Mahir, M.E.. 2004. Agricultural Growth and Instability in Sudan. Unpublished Ph.D. Thesis. Sudan University of Science and Technology, Khartoum, Sudan.

Ministry of Finance. 2003. Different Reports, Khartoum, Sudan.

NHAPC. 2010. New Halfa Agricultural Production Corporation. Annual Report, New Halfa, Sudan.

Pearson, A. and S.R. Monke. 1989. The Policy Analysis Matrix for Agricultural Development. Retrieved from: www.Stanford.edu.com.

تحليل أثر السياسات الحكومية على إنتاج القطن و الذرة و الفول السوداني في مؤسسة حلفا الجديدة الزراعية، ولاية كسلا، السودان (2006-2010)

السيد السر مصطفى النقرابى[1] ونعمات عمر إبراهيم بابكر[2] وعماد أحمد محجوب[3]

[1]قسم الاقتصاد الزراعي، كلية العلوم الزراعية، جامعة الجزيرة، واد مدني، السودان.
[2]وزارة الزراعة والثروة الحيوانية والري، ولاية الجزيرة، واد مدني، السودان.
[3]هيئة البحوث الزراعية، واد مدنى، السودان.

الخلاصة

تعتبر مؤسسة حلفا الجديدة الزراعية من المشاريع الزراعية الرائدة وتعتبر ثاني أكبر مشروع بعد مشروع الجزيرة من حيث المساحة. الهدف من الدراسة تحليل أثر السياسات الحكومية على إنتاج القطن، الذرة والفول السوداني بمؤسسة حلفا الجديدة الزراعية في الفترة من 2006 إلى 2010. اعتمدت الدراسة بصورة أساسية على البيانات الثانوية الواردة في تقارير وسجلات مؤسسة حلفا الجديدة الزراعية والمؤسسات ذات الصلة بموضوع الدراسة وتم استخدام مصفوفة تحليل السياسة حيث تم تقدير معاملات المصفوفة وهى: معامل الحماية الإسمي للمدخلات، معامل الحماية الإسمي للنواتج، معامل الحماية الفعال، معامل تكلفة الموارد المحلية، القيمة المضافة ومعامل الربحية لمعرفة تأثير السياسات الحكومية على إنتاج القطن والذرة والفول السوداني بمؤسسة حلفا الزراعية للفترة من 2006 إلى 2010. تبين من الدراسة أن معامل الحماية الإسمى للمدخلات للمحاصيل الثلاث أكبر من الواحد الصحيح وفقاً لمتوسط أرقام فترة الدراسة مما يشير إلى أن هنالك ضرائب فُرضت على مستلزمات إنتاج تلك المحاصيل في تلك الفترة وإن معامل الحماية الإسمي للمنتجات أكبر من الواحد ما يشير أن هنالك حماية إيجابية للمنتجين ومعامل الحماية الفعال أكبر من الواحد وأن معامل تكلفة الموارد أقل من الواحد الصحيح مما يشير أن لمشروع حلفا الجديدة ميزة نسبية في إنتاج تلك المحاصيل. وتوصي الدراسة بالتوسع في زراعة القطن، الذرة والفول السوداني في مؤسسة حلفا الزراعية وضرورة تقليل الضرائب على مدخلات الإنتاج.