



Institut for Nationaløkonomi

Handelshøjskolen i København

Working paper 3-99

**ON THE EFFECTS OF REDUCING THE
GOVERNMENT'S ROLE IN THE LABOUR
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EGYPT WITH SOME NUMERICAL
POLICY EXAMPLES**

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NUMERICAL POLICY EXAMPLES**

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First draft August, 1998.
This version February 1999

Keywords: Uncertain environment, job security, countercyclical government intervention with lifetime employment guarantees, wages, and employment.

Abstract: This paper analyzes the consequences of pursuing a less activist Government employment stabilization policy strategy in Egypt. On the basis of a fairly stylized model we find that a reduction of the Government's involvement in the economy along with an introduction of mild but binding firing regulations in the private sector may lead to a rise in total employment and to an improvement in Egypt's trade balance vis-à-vis the rest of the world.

* This paper has been written for the World Bank. We thank Jan Olesen and Guttorm Schelderup for helpful comments and Christoffer Kok Sørensen for competent research assistance. Finally, the views expressed in the paper are those of the authors' and are not necessarily shared by the World Bank.

1. Introduction

The point of departure of this paper is the high degree of uncertainty that characterizes Egypt and the Middle East in general. The highly volatile economic and political environment provides one reason why the government is so involved in the economy. In Egypt's case the public sector, defined as the government plus the public establishments, now employs one third of the workforce. The relative importance of the public sector has furthermore increased in recent years. As noted by Fergany (1997), the public sector has been the only consistent employment generator in the period 1990-95, which is also characterized by shrinking private sector employment in the beginning of the period due to the recession. Moreover, the public sector has continued to expand also after the private sector has started to pick up. Besides having pursued an active stabilization policy, the government is also offering a high degree of job security like in many other countries. In Egypt's case, the government is virtually offering lifetime employment security as noted by Assaad (1995).

Unlike the public sector, the private sector offers very little job security partly because of lax enforcement of the labour law, see Assaad (1995). Hence, the private sector operates under a very liberal hiring-firing regime. As the unemployment benefit system is highly underdeveloped, jobs in the private sector are much more risky than in the public sector, which in turn is an impediment to a strengthening of the private sector, which accounts for most of the export-oriented firms, relative to the public sector.

The extensive job creation in the public sector in combination with life time job security may lead to a relatively high wage level in the economy, which in turn may have made it more difficult for the private sector to compete at the international market place. An important purpose of this paper is to analyze an alternative policy regime that aims at increasing the role of the private sector and likewise reducing the role of the public sector. The regime we have in mind is still characterized by active government intervention in recessions but only in recessions. Hence, the government continues to offset adverse employment shocks, but in order to make the system more symmetric and balanced, the private sector is also supposed to bear part of the burden through mild but binding firing regulations. Hence, both the public sector and the private sector offer some protection against adverse shocks, which compared to the present state of affairs reduces the riskiness of being employed in the private sector. Another important

feature of the policy regime we analyze is the abolishment of lifetime job security for workers and civil servants. Thus, individuals who get hired by the public sector in recessions to be employed in regular jobs or enrolled in training activities should only be offered temporary state contingent contracts. Thus, when the economy moves from bust to boom, these manpower resources are released such that the private sector easily can expand without competing for labour with the public sector and hence putting an upward pressure on labour costs. The idea is, of course, to facilitate the required reallocation of resources from the public sector, which is mainly non-tradables, to the private sector that accounts for the export sector.

In order to analyze this issue, section 2 constructs a stylized model that allows for an active government stabilization policy and for firing regulations in the private sector. The model is stochastic and hence allows for shocks and uncertainty in general. Indeed, it is the uncertain environment that provides the rationale for active government policies and for some job security in the private sector. Our model extends Bertola (1990) to an open economy framework with a state contingent government policy rule. Section 3 calibrates the model such that it fits the present state of affairs in Egypt. Section 4 goes on to compare the present situation (base run) with a policy reform that reduces the role of the government in upswings and increases the role of the private sector in downswings via the introduction of mild but enforced firing regulations. Besides focusing attention on private and public sector employment, the paper also looks at the trade balance effects of the various policy regimes. Section 5 concludes the paper.

2. The Model

This section outlines a stylized model of Egypt's economy with particular emphasis on the labour market and the labour market policies the government has pursued in order to cope with the persistent high unemployment problem. Following the presentation of the model and the characterization of the present state of affairs, the paper goes on to analyze the effects of pursuing a less activist policy. The main focus is on two classical themes in economics, namely, internal and external balance. The measure of internal balance is the overall employment situation, whereas external balance is defined by the trade account.

2.1 The Private Sector

The point of departure of the model is the high degree of uncertainty that characterizes the

Middle East in general and therefore also Egypt. Indeed, it is this uncertain economic and political environment that is the *prima facie* reason for the high degree of government intervention in the economy. The volatile economic environment is incorporated into the model by the assumption that the demand for the economy's output fluctuates, that is, the economy is sometimes facing high demand and sometimes low demand. As Egypt has only limited power to affect prices in international trade, the model assumes that the economy is a price taker. In this case, the uncertain demand situation can be captured by a stochastic process for the price of exports or tradables in general. The price for tradables p in period τ is given as,

$$p_{\tau} = Z_{\tau} , \quad \tau = G, B \quad (1)$$

where Z is a state variable which equals Z_G in good states and Z_B in bad states; $Z_G > Z_B$ such that there are periods with high demand/price and periods with low demand/price. The good state Z_G persists with probability P_G , whereas the state shifts from "good" to "bad" with probability $1-P_G$. The bad state Z_B persists with probability P_B , whereas the state shifts from "bad" to "good" with probability $1-P_B$. It is the uncertain demand that provides the rationale for job security policies and government intervention in general.

The export sector produces output Y according to the following standard production function, where L is employment.

$$y_{\tau} = L_{\tau}^{1-\alpha} , \quad \tau = G, B, \quad 0 < \alpha < 1 \quad (2)$$

In the absence of labour shedding and recruitment of new workers, profit equals,

$$\pi_{\tau} = p_{\tau} y_{\tau} - W_{\tau} L_{\tau} , \quad \tau = G, B \quad (3)$$

where W is the wage. Due to labour market regulations, the model economy assumes that it is costly for firms to fire workers. The cost of firing a worker is given by F . It may also be costly to hire new workers on top of the direct wage cost. We take that possibility into account by assuming that the cost of hiring a new employee is given by H . Hence, firms operate under

the following labour turnover costs,

$$A = \begin{cases} H(L_\tau - L_{\tau-1}) & \text{if } L_\tau - L_{\tau-1} > 0 \\ -F(L_\tau - L_{\tau-1}) & \text{if } L_\tau - L_{\tau-1} < 0 \end{cases} \quad (4)$$

The value of the firm is defined as the expected discounted cash flow, given as

$$V_\tau = E_\tau \left[\sum_{j=0}^{\infty} \left(\frac{1}{1+r} \right)^j (\pi_{\tau+j} - A_{\tau+j}) \right], \quad \tau = G, B \quad (5)$$

where E is the expectation operator (given the available information in period τ) and r is the constant discount rate. The goal of the firm is to maximize the discounted cash flow (5) subject to equations (1)-(4), and the assumption that firms take the interest rate r , the wage level W , and the labour turnover costs F and H for given. By solving this problem, we obtain firms' desired labour demand in the two states.¹

$$L_G = \left[\frac{W_G + \frac{(H+F)(1-P_G)}{1+r} + \frac{rH}{1+r}}{(1-\alpha)Z_G} \right]^{-\frac{1}{\alpha}} \quad (6)$$

$$L_B = \left[\frac{W_B - \frac{(H+F)(1-P_B)}{1+r} - \frac{rF}{1+r}}{(1-\alpha)Z_B} \right]^{-\frac{1}{\alpha}}$$

Below we outline the characteristics of the employment equations. An increase in the cost of hiring a new employee H reduces employment in both the good and bad state as expected. The role of firing regulations is more tricky. An increase in the cost of firing F reduces employment

¹) The solution can be obtained on request to the authors; see also Bertola (1990).

in good states because firms are forward looking and hence take into account that there is a risk that the economy moves into a recession in which case firms would like to layoff workers. Hence, firing regulations that are intended to prevent workers from being fired in bad times have a clear negative effect on job creation in good times.

However, it remains correct that firing regulations do protect the employed workers in recessions insofar as firms get an incentive to hoard labour. Due to the positive employment effect in recessions and the negative effect when the economy is doing well, firing regulations have an ambiguous effect on the average employment level in the private sector, see also Bentolila and Bertola (1990). It is therefore desirable to try to quantify the effects of firing regulations on average employment, cf. below.

Private sector employment of course also depends on the wage level and the goods price, and as usual private sector employment declines when wages increase, *ceteris paribus*. Similarly, employment will of course be lower in periods with a low goods price. The sensitivity of employment with respect to the movement of the price of tradables and, in general, the prosperity of the region motivates the introduction of the government and its attempt to offset the negative shocks that hit the economy.

2.2 The Government and the Policy Regime

The government is assumed to pursue a countercyclical employment policy. Thus, when the private sector is hit by an adverse shock, the government expands public sector employment according to the following policy rule,

$$\hat{G} = \zeta(L_G - L_B), \text{ where } 0 \leq \zeta \leq 1 \quad (7)$$

where the parameter ζ is a measure of the extent to which the Government intervenes. In the extreme case where $\zeta=1$, the Government completely offsets any fall in private sector employment. In case $\zeta=0$, the Government pursues a pure hands off policy, which may be of interest to consider in contrast to Egypt's more activist policies. The public sector employment level in the bad state is therefore given as,

$$G_B = G_0 + \hat{G} \quad (8)$$

where G_0 denotes a fixed level of public sector employment. In good states, the employment level is defined as,

$$G_G = G_0 + \gamma \hat{G}, \text{ where } 0 \leq \gamma \leq 1 \quad (9)$$

where the parameter γ is a measure of the extent to which those workers who were hired by the public sector in recessions also hang on to the public sector in good times. In case workers enjoy lifetime employment guarantees within the public sector, γ equals 1. In the opposite case where public sector employment is reduced when the private sector again is prosperous, the parameter γ equals 0. In the latter case the policy is purely countercyclical, whereas in the first case the expansionary policy has built in an element of irreversibility.

2.3 Wage Determination

Supply and demand for labour are crucial determinants of wages in any labour market theory. Below we assume that wages are entirely determined by those two factors. Issues of monopolization of the labour force in the form of trade union organizations are left out of the formal model; one reason for this is that it is not really clear whether labour unions in Egypt have much power in influencing wages. Several authors argue that trade union leaders restrain themselves from asking for large wage increases as long as the government admits their influence in the labour market legislation process and as long as job security has high priority in particular in the public sector, see Assaad (1994) and his references. However, we will briefly comment on how an introduction of a formal trade union wage model will influence the results.

Labour supply is assumed to be an increasing function of the real consumption wage defined as the nominal wage deflated by the consumer price index. As we focus mainly on shifts in the price of tradables and how this affects employment we take a partial approach to the determination of the price of non-tradables and assume that this price is constant and equal to one for simplicity. Labour supply is therefore given by,

$$L_{\tau}^S = \left(\frac{W_{\tau}}{P_{\tau}^{\varepsilon}} \right)^{\psi}, \quad \tau = G, B \quad (10)$$

where ε measures the weight tradables have in total consumption and hence in the CPI, and ψ denotes the labour supply elasticity. In an economy like Egypt's with a very high unemployment level and job rationing in the public sector (graduates who seek government employment now wait up to nine years before they get a job as civil servants), one will expect that that labour supply elasticity is considerable, cf. below. The point is that with plenty of labour only small increases in the real wage is required to attract new workers and to make already employed workers work longer hours. In this context it should also be noted that Egypt's unemployment benefit system is virtually non-existent, see Assaad (1994).

The determination of wages in the two states is given by the equilibrium condition in the labour

$$\begin{aligned} L_G^S &= L_G + G_G \quad \text{market,} \\ L_B^S &= L_B + G_B \end{aligned} \quad (11)$$

The average total employment level in the economy is given by

$$L = \Omega_G (L_G + G_G) + \Omega_B (L_B + G_B) \quad (12)$$

where $\Omega_G = (1-P_B)/((1-P_G) + (1-P_B))$ and $\Omega_B = (1-P_G)/((1-P_G) + (1-P_B))$ are the long run proportions of good and bad states. Thus, after a certain number of years, say X , the economy will tend to have experienced $\Omega_G X$ good years with an employment level $L_G + G_G$, and $\Omega_B X$ years with recession where employment equals $L_B + G_B$. As policy reforms should be judged not only for their effects in the short term but certainly also for their long term effects, we will later quantify how various policy measures affect \bar{L} .

2.4 The Trade Balance

Besides focussing attention on the effects on the internal balance situation, this paper also calculates the effects on the trade balance in the short and long term. The trade balance equals

the difference between the country's total output of tradables and its own demand for tradables,

$$B_{\tau} = y_{\tau} - C_{\tau}\left(\frac{p_{\tau}}{1}, Q_{\tau}\right), \quad \tau = G, B \quad (13)$$

where C is consumption of tradables, which is a negative function of the relative price between tradables and non-tradables and a positive function of real income Q . This specification of private sector consumption emphasizes the role of current real income. Expected future income could also play a role but due to the highly imperfect credit markets, this role is likely to be small in Egypt's case and this is why our specification concentrates on current income and relative prices.

Real private sector income is defined as,

$$Q_{\tau} = \left[\frac{p_{\tau}y_{\tau} + W_{\tau}G_{\tau} - T_{\tau}}{p_{\tau}^{\varepsilon}} \right], \quad \tau = G, B \quad (14)$$

and equals (nominal) income in tradables plus wage income from the public sector $W_{\tau}G_{\tau}$ less taxes T_{τ} , all deflated by the CPI. In order to simplify matters, we assume that the public sector balances its budget. Hence, $0 = N_{\tau} + T_{\tau} - W_{\tau}G_{\tau}$, where N_{τ} denotes public sector production, assumed to be non-tradables with a price normalized to one. By using this condition we obtain the following expression for real private sector income,

$$Q_{\tau} = p_{\tau}^{1-\varepsilon}y_{\tau} + p_{\tau}^{-\varepsilon}N_{\tau}, \quad \tau = G, B \quad (15)$$

It should be noted that this equation also measures the country's total value added, defined as the sum of private and public value added both in units of the CPI. Public sector value added is given by the following production function

$$N_{\tau} = G_{\tau}^{1-\beta}, \quad \tau = G, B, \quad 0 < \beta < 1 \quad (16)$$

The average position of the trade balance is a weighted average of the trade account in good and bad states and can be thought of as the cyclically adjusted trade balance. The cyclically adjusted trade balance is obtained by using the earlier defined proportions/weights of good and bad states. Similarly, we may define the country's average/trend output level as a weighted average of the output level in good and bad states, respectively.

3. Calibration of the Model

In order to get a rough quantitative estimate of the effects of the various policy changes this section calibrates the model. The parameter values used in the base simulation are given in Table 1.

Table 1: Parameters	Symbol	Base run
Firing costs per employee	F	0
Hiring costs per employee	H	0
Public sector employment stabilisation degree	ζ	1
Public sector employment guarantee	γ	1
Base public sector employment	G_0	0.10
Interest rate	r	0.10
Output elasticity of labour in private sector	$1-\alpha$	0.60
Output elasticity of labour in public sector	$1-\beta$	0.30
Labour supply elasticity	ψ	0.50
Share of imported goods in total consumption	ε	0.30
Share of good states	Ω_G	0.42
Share of bad states	Ω_B	0.58
Probability wrt. good state continuation	P_G	0.30
Probability wrt. bad state continuation	P_B	0.50
Tradables price in good state	Z_G	0.50
Tradables price in bad state	Z_B	0.25
Elasticity of consumption of tradables wrt. relative price	e	-0.5
Elasticity of consumption of tradables wrt. income	v	1

The base simulation assumes full stabilization $\zeta = 1$, and life time public sector employment guarantee $\gamma = 1$. The private sector has no costs in laying off employees and there are no hiring costs either $F = H = 0$. With the chosen state probabilities, the model economy is more often hit by negative shocks than by positive shocks. Thus, the share of recessions is assumed to equal 58 %, whereas the share of upturns equals 42 %. Put differently, in the last 35 years, 20

years have been good and 15 have been bad. In good states, the tradables price exceeds the bad price by 50 %. The output elasticity w.r.t. employment equals 0.6 in the private sector and 0.3 in the public sector, reflecting relative low public sector productivity. The constant discount rate in the private sector equals 10 %. The labour supply elasticity equals 0.5. The share of imported goods in total consumption equals 30 %. The price elasticity in consumption of tradables (say imports) is moderate and equal to -0.5. The income elasticity equals one. The base public sector employment level G_0 is chosen such that the simulated model economy resembles Egypt's economy, see Table 2. It is important to emphasize that absolute numbers in the tables have no meaning; only relative numbers matter, cf. below.

Table 2: Base Run and Laissez Faire

Variables	Simulations:	Base Run ¹⁾	Laissez Faire ²⁾
Private Employment	<i>Good state</i>	0,48	0,58
	<i>Bad state</i>	0,36	0,46
Government Employment	<i>Good state</i>	0,22	0,10
	<i>Bad state</i>	0,22	0,10
Total Average Employment		0,63	0,61
Nominal Wages	<i>Good state</i>	0,40	0,37
	<i>Bad state</i>	0,23	0,21
Real Product Wages	<i>Good state</i>	0,80	0,75
	<i>Bad state</i>	0,90	0,82
Real Consumption Wages	<i>Good state</i>	0,49	0,46
	<i>Bad state</i>	0,34	0,31
Average Trade Balance in % of GDP		-0,025	0,13
Notes:			
1) $\gamma = \zeta = 1, F = 0$			
2) $\gamma = \zeta = 0, F = 0$			

As regards employment, the base simulation presented in Table 2 shows that government employment is around one third of average total employment; to be precise 0.22/0.63 which is

34.9 %. The trade balance deficit in proportion of GDP equals 2.5% in the base run.

Below, we analyze various policy experiments. The first experiment we consider is a highly extreme one, namely, the one where the government does not pursue an active stabilization policy and does not offer lifetime employment guarantees to the workers and civil servants. The purpose of looking at the laissez faire case is mainly to come to understand the workings of the model.

When the government takes the hands off in the sense that it stops pursuing an active stabilization policy, labour demand is, of course, reduced in both good and bad states, which in turn results in a considerable fall in wages independent of which wage concept we are looking at, see Table 2. The considerable fall in wages leads to a rise in employment in the private sector. Hence, there is an element of crowding in via the wage moderation effect. According to Table 2, the average employment level does however fall, and the fall is substantial - equals more than 3 %. Because the public sector is reduced to roughly 50 % of what it is today and because the tradables sector expands, the model produces a huge surplus on the trade account as expected. That effect is obtained at the cost of a large increase in unemployment, which at present is already very high and close to 20 %. While this example merely illustrates the workings of the model, we now turn to less drastic and more realistic policy changes.

4. Pure Stabilization Policy with some Job Security in the Private Sector.

At present the government offers lifetime employment guarantees to workers and civil servants. All employees who are hired in recessions therefore continue to be employed in the public sector when times change to the better and business conditions improve in the private sector. Below we look at the case of dismantling this employment guarantee. We continue to assume that the public sector stabilizes in recessions, but the new feature is that these manpower resources are released in upturns. That reduces the demand for labour in good states and hence puts downward pressure on wages. It is through this mechanism that the tradables sector can expand more easily. However, at present jobs in the private sector are much more risky than in the public sector, and this may in reality also impede the reallocation of resources. That is why we also look at the consequences of imposing mild but binding firing regulations on the private sector. Our results are given in Table 3.

Table 3:

Variables	Simulations:	Base Run ¹⁾	No employment guarantee, full stabilization, private firing costs ²⁾
Private Employment	<i>Good state</i>	0,48	0,55
	<i>Bad state</i>	0,36	0,29
Government Employment	<i>Good state</i>	0,22	0,10
	<i>Bad state</i>	0,22	0,36
Total Average Employment		0,63	0,65
Nominal Wages	<i>Good state</i>	0,40	0,34
	<i>Bad state</i>	0,23	0,28
Real Product Wages	<i>Good state</i>	0,80	0,69
	<i>Bad state</i>	0,90	1,11
Real Consumption Wages	<i>Good state</i>	0,49	0,42
	<i>Bad state</i>	0,34	0,42
Average Trade Balance in % of GDP		-0,025	-0,058

Notes:

1) $\gamma = \zeta = 1, F = 0$ 2) $\gamma = 0, \zeta = 1, F = 0,06$

As the government does not interfere when the economy is booming, labour demand from the government sector is low in upswings as shown in Table 3. That releases a downward pressure on both nominal and real wages as compared to the base run. By releasing resources in upturns the government paves the way for a high employment and output level in the private sector. Due to the large increase in employment in upswings, the gap between private sector employment in the two states is much larger now in spite the present regime is also characterized by firing regulations in the private sector, cf below. The large increase in government employment in recessions that is required to fill the gap between up- and downswings is associated with upward pressure on both nominal and real wages as compared to the base run, see Table 3. That is the key explanation of the relatively low employment level in the private sector in recessions. Thus, in spite the private sector now has to pay severance payments when the workforce is reduced, these costs do not prevent the private sector from reducing employment quite substantially as compared to the base run. Put differently, the rise in wages due to the government

intervention gives the private sector a strong incentive to fire, and this incentive is much stronger than the labour hoarding incentive that follows from the binding firing costs. In this particular case, severance payments as a proportion of the annual wage amounts to $0.06/0.28$ or 21 %. These costs correspond to paying wages in 10 weeks after the individual has been made redundant.

The above case raises at least two questions. First, what would happen if the government was less active in stabilizing the economy in which case there will be less upward pressure on wages in recessions. Would it then be possible also to achieve an increase in total employment as in the above example or at least maintaining status quo without inducing an increase in the trade deficit? Second, what are the consequences of making it slightly more costly to fire - are there any desirable effects associated with such a strategy? These questions are addressed in section 5 and 6 below.

5. Partial Stabilization with some Job Security in the Private Sector.

Consider now the case where the government only partially stabilizes the economy. The stabilization degree is assumed to be 50%, which means that the government absorbs half of those who get fired in the private sector when the economy moves into recession. In upswings, these resources are released to the private sector reflecting that the government no longer offers lifetime employment guarantees. The results are presented in Table 4.

Table 4:

Variables	Simulations:	Base Run ¹⁾	No employment guarantee, partial stabilization, private firing costs ²⁾
Private Employment	<i>Good state</i>	0,48	0,55
	<i>Bad state</i>	0,36	0,45
Government Employment	<i>Good state</i>	0,22	0,10
	<i>Bad state</i>	0,22	0,15
Total Average Employment		0,63	0,62
Nominal Wages	<i>Good state</i>	0,40	0,34
	<i>Bad state</i>	0,23	0,23
Real Product Wages	<i>Good state</i>	0,80	0,69
	<i>Bad state</i>	0,90	0,95
Real Cons.Wages	<i>Good state</i>	0,49	0,42
	<i>Bad state</i>	0,34	0,36
Average Trade Balance in % of GDP		-0,025	0,081

Notes:

1) $\gamma = \zeta = 1, F = 0$ 2) $\gamma = 0, \zeta = 0,5, F = 0,06$

As there is less stabilization in recessions, wages are lower as compared to the previous case with full stabilization. Hence, the private sector is a much larger employer in this case. As employment in the private sector in upswings is identical to the level in the previous case, the private sector is now on average a more important player in the economy. Due to the rise in the private sector, the trade balance improves quite considerably in the model, which is likely to be an exaggeration as there are many activities in the private sector that are non-tradables. However, underlying the very considerable improvement in the trade balance is of course also the reduction in government absorption. The fall in public sector activities reduces employment, whereas the rise in private sector activities increases employment. It is interesting to note that total average employment only falls very little as compared to the base simulation. With a modest increase in the degree of government stabilization, it is possible to get both an increase in employment in the private sector and an improvement of the trade balance without hurting total employment in the economy, see Table 5. In this example the degree of stabilization

ζ is 0.7.

The main point is that with some firing regulations, there is less need for government intervention. Moreover, when the government moves from complete to partial stabilization of the economy, the government releases a downward pressure on wages that gives the private firms an incentive to hire more workers even though there are now some costs associated with reducing the payroll in recessions. The rise in the private tradables sector is big enough to exactly offset the fall in public sector employment. As a result of the increased role for the tradables sector and the reduced role for the public sector, the trade balance is bound to improve and this tendency is also clear in Table 5. We believe that this regime is an interesting challenge to the present policy regime because it delivers the same average employment level in the economy while at the same time the tradables sector is strengthened.

Table 5:

Variables	Simulations:	Base Run ¹⁾	No employment guarantee, partial stabilization, private firing costs ²⁾
Private Employment	<i>Good state</i>	0,48	0,54
	<i>Bad state</i>	0,36	0,42
Government Employment	<i>Good state</i>	0,22	0,10
	<i>Bad state</i>	0,22	0,19
Total Average Employment		0,63	0,63
Nominal Wages	<i>Good state</i>	0,40	0,34
	<i>Bad state</i>	0,23	0,25
Real Product Wages	<i>Good state</i>	0,80	0,69
	<i>Bad state</i>	0,90	0,98
Real Cons. Wages	<i>Good state</i>	0,49	0,42
	<i>Bad state</i>	0,34	0,37
Average Trade Balance in % of GDP		-0,025	0,04

Notes:

1) $\gamma = \zeta = 1, F = 0$

2) $\gamma = 0, \zeta = 0,7, F = 0,06$

6. Partial Stabilization with Much More Private Sector Job Security.

Let us now keep the degree of stabilization at the level just considered, that is, $\zeta = 0.7$. Suppose the costs of firing increases to $F = 0.10$, which means that the cost of firing equals 40 % of the annual wage. Due to this increase in labour turnover costs, firms hire fewer workers in upturns; in recessions labour hoarding is more pronounced. Hence, the employment difference between the two states is reduced. Therefore, there is less government intervention in recessions. As compared to the previous case with less restrictive firing regulations total average employment goes down; in this regime average employment equals 0.62 as compared to 0.63 in the previous regime. Hence, the fall is modest, but the firing regulation regime is now so restrictive that there may be negative side-effects that are not incorporated into the model. Risager and Soerensen (1997) investigate the relationship between firing costs, firms' profitability and optimal investments, and show that firing costs under some conditions may have negative investment effects in spite of the incentive to substitute labour with capital.

7. Conclusions

Due to the high degree of instability in the Middle East, Egypt's economy will be highly volatile without government intervention. This paper has also argued that the mean employment level is likely to be lower in comparison to a situation where the government pursues sensible stabilization and regulation policies.

At present, Egypt has a very large public sector that accounts for one third of total employment. The public sector has expanded in particular during recessions as noted by e.g. Fergany (1997). An important feature of the public sector's employment policy is the high degree of job security; as soon as individuals become public sector employees they are virtually impossible to lay off, which means that individuals only leave the public sector if they want to do so. Employment in the public sector is thus highly irreversible. By contrast, the private sector offers very little job security because the private sector is able to get around the formal labour market regulation policies as noted by Assaad (1995). Due to this asymmetry, it is entirely the public sector that dampens the fluctuations in the economy, and provides insurance against adverse shocks.

On the basis of a stylised model that captures some of the institutional features characterizing Egypt's economy and labour market, this paper has argued that the present policy regime may very well lead to relatively high wages that make it difficult for the private sector to compete at the international market place. In this context it is important to note that we have assumed a competitive labour market, which means that it is purely as an absorber of labour that the public sector pushes up wages. If there are strategic effects in the determination of wages in the sense that trade unions take advantage of the public sector's stabilization policy and the lifetime employment guarantees, wages will be even higher, and the crowding out of the private sector will be more pervasive. Also, the paper has ignored another factor

that may lead to additional crowding out, namely, the effect on financial funds and borrowing conditions in general. It is therefore likely that the paper understates the crowding out effects associated with the large public sector in Egypt.

Instead of offering lifetime employment guarantees, the paper has looked at alternative policies. One possibility is that the government continues to undertake some stabilization in bad times, but reduces employment in good times such that the tradables sector can more easily expand. Such a situation can be achieved by offering state contingent temporary employment contracts. As the private sector is known for circumventing many of the existing firing regulations, there is a need for making these constraints more binding without getting into the extreme where the private sector cannot reduce its workforce. We have simulated the effects of reducing government job security and increasing private job security such that both the private and public sector offer some protection against adverse shocks. It is important to stress that we have looked for mild firing regulations to be imposed on the private sector; in one example we consider the case where it costs a private firm the equivalent of 21 percent of the annual wage (equivalent to 10 weeks pay) to fire an employee. In this particular case, the results show that this regime outperforms the present unbalanced regime. Thus, the numerical simulations show that this regime leads to an average employment level that is around the level in the base simulation reflecting the present situation. Equally important, the private-tradables-producing-sector increases. Due to the expansion of the private sector, this policy shift is associated with an improvement of the trade balance. The most important reason that we get these desirable effects is that firing costs are not nearly as important for the private sector as the reduction in wage costs that are a result of reduced government intervention in upturns. Finally, it is important to emphasize that the results we have arrived at are tentative and based on a stylized model, but we believe that they are worth considering in more detail.

References

Assaad, R. (1995), 'Structural Adjustment and Labor Market Reform in Egypt,' paper presented at the 1993 Conference of the Middle East Studies Association, November 11-14, 1993.

Bentolila, S. and G. Bertola (1990), 'Firing Costs and Labor Demand: How Bad is Euroschlerosis?,' *Review of Economic Studies* 57, 381-402.

Bertola, G. (1990), 'Job Security, Employment and Wages,' *European Economic Review* 34, 851-86.

Dixit, A. (1989), 'Entry and Exit Decisions under Uncertainty,' *Journal of Political Economy* 97, 620-38.

Fergany, N. (1997), 'Dynamics of Employment Creation and Destruction,' Working Paper.

Galeazzi, G. and D.S. Hamermesh (1992), Introduction, in G. Galeazzi and D.S. Hamermesh (eds.), *Dynamic Labor Demand and Adjustment Costs* (Edward Elgar Publishing Ltd.), IX-XXV.

Lazear, E.P. (1990), 'Job Security Provisions and Employment,' *Quarterly Journal of Economics* 105, 699-726.

Risager, O. and J.R. Sørensen (1997), 'On the Effects of Firing Costs when Investment is Endogenous: An extension of a model by Bertola,' *European Economic Review* 41, 1343-53.

World Bank (1997), 'Egypt: Employment and Labor Market,' *Issues Paper*.
