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Incentive Schemes in Export and Investment Promotion Agencies[1]

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Abstract

This study examines the use of incentive mechanisms for employees in export and investment promotion agencies intended to improve their performance. It briefly describes these organizations and presents the contributions from economic theory that are useful to understand the agency problems that arise. It proposes a framework to study the issues that need to be considered to design a sound incentive mechanism. The study concludes that such a design should be carried out carefully, analyzing all of the possible drawbacks of rewarding each measure of employee performance, and identifies the main issues that need to be resolved.

JEL Classification: D23, J24, M50

Keywords: Incentive Mechanisms, Employees, Export and Investment Promotion Agencies.

1. Introduction

Many countries in Latin America and the Caribbean would prefer to export more. One of the reasons that countries have a low volume of exports is lack of information regarding the functioning of export markets. Most countries, including those in the region, try to solve these informational problems through export promotion activities, mainly implemented by specialized organizations. The objective of this study is to analyze the use of incentive mechanisms for employees, intended to improve the performance of these organizations in the development of their tasks.

In the following section, we present a brief description of how these organizations actually function in different countries. In Section 3, we briefly summarize some of the contributions in the theoretical literature related to incentives. In Section 4, in light of the issues illuminated by the theory, we present a general approach to the incentive problem in export and investment promotion agencies and highlight the most important advantages and drawbacks that introducing an incentive scheme may bring. We conclude in Section 5.

2. Export Promotion Agencies[4]

Export promotion policies in Latin America and the Caribbean date back to at least the 1950s. The original policies included fiscal incentives, credit packages and direct support to exporting firms. The methods by which policies were implemented and their organizational arrangements were very different across the region. During the 1980s, due to the economic crisis in the region and the constraints on the use of fiscal incentives and other instruments that could represent a direct export subsidy imposed by international organizations and multilateral trade agreements, most export promotion organizations became inoperative or even disappeared.

In the mid-1990s, a new set of export-promoting policies emerged that aimed at reducing the problems that usually arise due to information failures present in export markets. These failures concern, for instance, the different possible ways of shipping the merchandise, the potential markets abroad and their demand profiles, and the conditions that have to be met to enter into a market, among others. Another important related issue is the image of exporting firms. Exporters trying to enter into a new market or to expand their sales depend on their

[4] This section is based mainly on Volpe Martincus (2010) and Jordana et al. (2010).

reputation. When the exporters lack a significant brand name, their ability to export may depend on the foreign perception of the country of origin.

The Australian Trade Commission (Austrade) divides the potential "clients" for export promotion activities into four categories:[5]

1. *non-intenders*: firms that are not interested in exporting
2. *intenders*: firms that are interested in exporting but do not export
3. *accidental exporters*: firms that have exported, but are not consolidated as regular exporters (this group includes successful intenders)
4. *regular exporters*: firms with established export markets

Austrade also includes an alternative classification of export promotion assistance initiatives by their ability to overcome obstacles faced by each type of exporter. This framework categorizes the policies that are appropriate for each type of potential "client" as follows:

1. *Raising awareness*: these initiatives are intended to increase the awareness of the benefits of exporting and to provide a general understanding of exporting. They are mainly focused on inducing non-intenders to become intenders. They include the general marketing of the benefits of exporting and school education programs.
2. *Building export readiness*: these initiatives provide learning opportunities for intenders to incorporate the knowledge and skills necessary to become new exporters.
3. *Selecting target markets*: these initiatives help intenders identify and understand specific foreign markets/sectors where their products or services have good prospects, so that they can become new exporters. They also help experienced exporters move into new markets.
4. *Identifying sales opportunities*: these initiatives inform intenders, new exporters, and experienced exporters about qualified clients and their needs, expose products to buyers, and help match exporters with potential buyers.
5. *Closing export deals*: these initiatives help intenders become new exporters and

[5] See Australian Trade Commission (2002) and Nathan Associates (2004).

experienced exporters expand their markets, by assisting them in their interaction with prospective buyers, in offering presentations, and in the completion of export contracts. This category may also include follow-up services after the deal.

The first two types of initiatives are usually delivered at home. The following two involve activities at home and abroad. The final type is usually delivered in-market.

The way that these policies are implemented is country-specific. Different countries have diverse organizational models. Moreover, even when the formal organizations in different countries might be similar, there may be important differences in practice. In many cases, the same agency is responsible for the promotion of exports and investments.[6] There are also agencies which are legally separate entities. The agencies could be public, mixed or, in a few cases, private. In addition, some are departments in a ministry or a secretariat.

In Latin American countries, when the export-promoting organization is public or mixed, its head is generally appointed by the government, either by the responsible minister or even sometimes by the country's president directly. The appointment is sometimes made by the board of directors, and in a few cases the head is chosen through a public selection process. The duration of these appointments varies across countries as well: it can be indefinite or for a fixed term, generally between three and five years. In many cases, when the term is fixed, it can be renewed at least once. Recruitment in export promotion agencies is competitive. The agencies arrange, advertise, and carry out public competitions. In some countries this process is run by other public organizations or by consulting companies.

In several developed countries outside Latin America, employee remuneration includes a fixed wage plus a variable component based on individual performance, which can be up to 25 percent. Volpe Martincus (2010) surveyed 17 agencies outside the region[7] and in only six cases the compensation did not include any variable component. Bonuses depended on the external sales of supported companies, the number of assisted firms and, where agencies sell part of their services, on their sales.[8] The use of a variable component in agents' wages was substantially

[6] As we will see in the following section, this is what the literature calls a multitask organization.

[7] The 17 agencies correspond to Australia, Denmark, Finland, France, Ireland, Israel, Italy, Japan, Korea, the Netherlands, New Zealand, the Philippines, Spain, Catalonia, Singapore, Thailand, and the United Kingdom.

[8] This is the case, for example, in the Catalonian agency (COPCA).

lower in Latin America and the Caribbean. The survey examined 18 agencies,[9] of which only 3 (representing Chile, Colombia, and Ecuador) used a variable wage scheme.

Outside the region, export promotion agencies usually have budgets that exceed US$100 million, and in some cases total annual resources amount to more than US$300 million. The number of employees is usually larger than 300, and in some cases surpasses 1,000. In the region, only two organizations have annual budgets close to or exceeding US$100 million and, out of 16 national agencies, 11 have less than US$20 million to undertake promotional activities. Furthermore, only three of these entities have more than 300 employees. Country size differences explain these organization size differences in some of the cases, but certainly not in all of them.

All agencies in the region have employees with master's degrees in various specialties (e.g., marketing, international relations, information technologies, engineering, etc). The share of these employees in total personnel reaches or even exceeds 25 percent in some cases. Some agencies have employees with Ph.D.s. Many organizations hire individuals with previous trade experience; these employees account for more than 50 percent of the personnel in several agencies.

In addition to their main office, some export promotion agencies in developed countries have regional offices to facilitate access by companies to their services, as well as a large number of offices abroad, both to support their activities and to provide firms with onsite assistance. Meanwhile, in the region, many agencies have only one office: the headquarters. However, there are intermediate organizational arrangements that contribute to ensure that these entities have some form of expanded presence. Moreover, there is substantial heterogeneity across countries' export promotion organizations in terms of their presence abroad.

Generally, these agencies' performance is assessed using activity (input) and outcome (output) indicators. Input indicators are on average well developed and typically consist of the number of firms using the services provided by the agencies and the number of export support actions undertaken. Some agencies also resort to other input indicators that capture alternative dimensions of their performance, such as the quality and/or conditions of service delivery. These

[9] The18 agencies represent Argentina, Córdoba, Mendoza, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, and Uruguay.

indicators include: call responsiveness rates, share of market intelligence report services whose relevance has been peer-reviewed by marketing managers, quality of export support services, time to respond to service requests, and, in the region, time needed to approve a new export project, percentage of services offered by electronic means, and percentage of users employing electronic systems. A few agencies have their own balanced scorecard.

In contrast, output indicators on average are, as expected, less developed and more heterogeneous in terms of their design and implementation. Some agencies in developed countries have clear indicators that have been specifically defined according to the strategic goals established in their multiannual work plans. Indicators are periodically monitored to evaluate the degree of accomplishment of these goals. They include, for instance, the number of both established and new or irregularly assisted exporters that have achieved export "success," the number of assisted firms that achieve global sales above a certain threshold, and the financial benefits generated by trade services as determined by the sum of the value of additional profits that firms expect to achieve as a result of the help provided by the organization. Moreover, most entities assess the effects of their actions based on client satisfaction measures, and many on the value of exports achieved by supported firms (or its change).

Clearly, any complete evaluation of each of the agencies is not as good or easy as one would like. Making individual evaluations, as an input for incentive mechanisms, would certainly be a more complicated challenge. Thus, as expected, measurement problems impose a constraint on the set of payment schemes that can be implemented.

There may be formal limits to the use of incentives as well. Regulations that place severe constraints on explicit incentives or even forbid them are not unusual in public agencies. Then, it may be the case that only informal incentives—such as specialized training or trips to international fairs or exhibitions—are available when designing a scheme to motivate employees.

3. The Theory of Incentives: Issues Relevant to Export Promotion Agencies

This section briefly presents the approach and main results in the theoretical literature that are most closely linked to the problem of providing incentives in export and investment promotion agencies. It is mostly based on specific aspects of the context that is widely known in the literature as the "principal-agent problem," but includes as well some connected issues that, strictly speaking, do not fall into the category described by that expression. We do not intend to

provide a complete account of all aspects of the literature or a full development of any of the specific models that will be mentioned below. Instead, we will summarize the issues and the implications of each model, with an eye on their relevance for the promotion agencies studied in this report.

From here on, in keeping with the literature on which we will be basing our discussion, we refer to the employees who work in the promotion agency as "agents." We refer to the designer of the rules under which the agents perform their tasks as the "principal." Given that in most cases promotion agencies are government or mixed institutions, specifying who the principal is may be problematic, but this potential difficulty will not be addressed here.

The principal faces at least two problems: first, she must choose the agents that will work in the organization. Second, she must induce those agents to select an adequate level of effort as part of their work in the agency. These two problems are closely intertwined, as will become clearer below. However, for expositional reasons we present them separately.

3.1 Personnel Selection

In general, "before" the compensation scheme is designed, there is a step, frequently not analyzed, in which the principal hires the agent. When agents are homogeneous, the hiring step is very simple: the principal merely has to ensure that the agent would accept the job—in technical terms, that the participation constraint is satisfied. However, when agents are heterogeneous the situation changes. The problem can be solved by adding a stage in which the principal selects the optimal type of the agent. In the spirit of Grossman and Hart (1983), she needs to find the optimal payment scheme for each agent type and then choose the optimal type.[10] This method works not only for the case in which all dimensions of heterogeneity are observable, but also where some of the dimensions are observable and some are not.[11] If there is only non-observable heterogeneity, we are back in the case of homogeneous agents, since in fact they are observably homogeneous.

Related to the notion of observability, it is customary to organize some form of public competition as part of the personnel selection process. That way, by objective or subjective

[10] See Di Tella and Weinschelbaum (2008).

[11] In this case, of course, the selection has to be made only taking into account the observable dimensions.

comparison, information is extracted about characteristics that are not initially observable.

In cases where those unobservable (to the potential employer) characteristics are each candidate's private information, an adverse selection problem may arise. This connects the personnel selection problem with that of providing incentives in the organization. For reasons that will be discussed below, many organizations, e.g. in the public sector, sometimes use low-powered incentive schemes: compensation for employees is weakly conditioned to their job performance. When candidates for a position hold better information about their innate ability or productivity, and there are alternative positions that provide stronger incentives, then those with higher innate ability will tend to select the alternative positions. This implies that the pool of candidates that will remain available for positions with weaker incentives will, on average, have lower levels of innate ability.[12]

3.2 The Basic Analysis of Moral Hazard

Let us assume, from here on, that an agent has already been selected, and the problem remains of how to provide her with incentives so that she will fulfill her duties according to the principal's interests. The basic, canonical case in the literature is usually described as *moral hazard*. In essence, the principal delegates a task—or, as we will describe later, a series of tasks– to the agent. The latter will later choose an effort level that is not observable to the principal:[13] this is the *hidden action* model. Here we will focus on the case where the principal specifies *explicit incentives* for the agent.

To have a benchmark, let us focus on the following simple model.[14] The agent selects an action e, which stochastically generates a result x. Once again, e is not observable to the principal, but x is. Therefore, the principal can specify the reward the agent will receive, w, as a function of x. The principal's utility is given by

$$\pi(x - w(x)) = x - w(x),$$

[12] See Lazear (1998) for details.

[13] Actually, all that matters is that the principal cannot condition any reward to the agent on the latter's choice of effort. Then, independently of whether the effort level is observable or not, it is crucial that it cannot be verified by a third party.

[14] The simple moral hazard model, based on Grossman and Hart (1983), is developed in detail in Bolton and Dewatripont (2005), Laffont and Martimort (2001) and Salanié (2005), among many others. Helpful surveys of the model, its practical applicability and extensions can be found, for example, in Gibbons (1998) and Prendergast (1999). For an examination of its application to government institutions, see Tirole (1994) and Dixit (2002).

whereas the agent's utility is

$$U(w, e)= u(w) - c(e).$$

Then, we have assumed that the principal is risk neutral, and that her objective coincides with the result x. In addition, $u(w)$ is increasing, and it is frequently assumed that it is strictly concave —i.e., the agent is risk averse. In turn, $c(e)$ is an increasing, strictly convex function that describes her cost of effort. A higher level of e makes a better result x more likely, but, again, only in a stochastic way.

The principal must choose the reward function $w(x)$ so as to maximize her own expected welfare—subject to two constrains. First, the agent must want to accept the contract (participation constraint). Second, she must voluntarily choose the level of effort that the principal decides to induce her to choose (incentive compatibility constraint).

This problem, in general, has a complex solution that results from a tradeoff between incentives and risk sharing. On the one hand, the principal wants to condition the agent's reward to the result to provide her with incentives to choose higher values of e. However, doing so makes the agent receive a stochastic reward, which makes her less prone to accept the contract unless the expected value of the reward is higher: optimal risk sharing would imply specifying a fixed reward. The solution to the problem dictates to what extent w will depend on x.

Nevertheless, there is a very simple case, widely used in the literature, that allows us to describe the optimal contract offered by the principal in a straightforward way. Let us assume that $x = e+\varepsilon$, where ε is a random variable that is normally distributed with mean 0 and variance σ^2. Then, the result that the principal cares about is just the agent's choice plus normally distributed noise. In addition, we assume that the agent's utility for the reward, $u(w)$, reflects constant absolute risk aversion[15] and that $c(e) = \frac{ce^2}{2}$ where c is a positive constant. Then, it can be shown that it is optimal for the principal to select a linear reward scheme[16]

[15] This means that $u(w)= K - e^{-rw}$, where K is a constant and r is the agent's coefficient of absolute risk aversion.

[16] Even though the theoretical conditions that describe this case are rather special, the literature has paid significant attention to linear reward schemes for two reasons: they are simple, and they are quite frequently used in practice.

$$w(x) = \alpha + \beta x$$

where

$$\beta = \frac{1}{1 + rc\sigma^2}, \tag{1}$$

and r is the agent's coefficient of absolute risk aversion. Note that we always have $0 \leq \beta \leq 1$. The principal will provide sharper incentives (i.e., she will select a higher β) when the result is less stochastic and hence more informative of the effort level that the agent has chosen, when effort is less costly and when the agent is less risk averse. There are two relevant cases where incentives are extreme, with $\beta = 1$: when the agent's action determines the result ($\sigma^2 = 0$) and when the agent is risk neutral ($r=0$). In these two special cases, there is no tradeoff between risk sharing and providing incentives. In the first, there is no risk, while in the second, the agent unaffected by risk.

3.3 Beyond the Basic Model: Variations and Extensions

A direct recommendation in favor of providing explicit incentives by contractually rewarding the result of the agent's action emerges clearly from the basic, canonical moral hazard model described above. Offering contracts for performance, directly conditioning monetary compensations to measurable results, seems to be the logical consequence.

The most useful role of the basic model for our purposes here is not, however, a descriptive one. It is quite helpful, though, as a reference point. Some of the assumptions underlying the basic model do not apply to government or mixed agencies in general, or to export promotion agencies in particular. Now, we point out some of the assumptions in the basic model that do not seem adequate to describe the situations we are most interested in, and we examine how relaxing these assumptions changes our previous conclusions about the desirability of incentives for performance. We look first at the difficulties in defining and measuring a simple objective for the principal. Then, we move to the case where the agent's task is more complex than a single dimensional variable. After examining incentives in principal-agent relationships that occur more than once, we briefly mention the main issues that arise when the principal hires

a group of agents instead of just one. Finally, we move to the case where agents have *intrinsic motivation* —i.e., an inner motivation to perform well on the job— and describe how such motivation could interact with explicit incentives.

It is the standard in theoretical studies of agency relationships to examine each of these separately. One of the main challenges of studying incentives in export promotion agencies is that all of them appear simultaneously. We will come back to this in the next section.

3.3.1 The Principal's Objective: Definition and Dimensionality

One issue that the basic model leaves aside is the possibility that the measurable result on which the principal can condition the agent's reward not be so simple as a single-dimensional, clearly measurable variable. A more general case has been studied in Baker (1992). Take, for instance, the context where the agent's effort generates two observable results as follows:

$$x_1 = e + \varepsilon_1$$
$$x_2 = e + \varepsilon_2$$

where $\varepsilon_i \sim N(0,\sigma_i^2)$, $i = 1, 2$, so that both normally distributed random variables, ε_1 and ε_2, are independent. Additionally, assume that the value of x_1 to the principal is 1 per unit, whereas the value of x_2 is p per unit. This could represent two consequences of the agent's effort that have some value to the principal,[17] such as, perhaps, exports and foreign direct investment –as long as both are consequences of *the same* effort. The cost of effort is just as above: $c(e)=\frac{ce^2}{2}$. In this case, it can be shown[18] that if the principal decides to use a linear reward function

$$w(x_1,x_2)= \alpha + \beta_1 x_1 + \beta_2 x_2$$

she should set

[17] However, as we will see shortly, this setting allows us to consider results that have no value other than being indirect performance measures of the agent's effort.
[18] See Dixit (1997).

$$\beta_1 = \frac{\sigma_2^2(1+p)}{\sigma_1^2 + \sigma_2^2 + rc\sigma_1^2\sigma_2^2}$$

and

$$\beta_2 = \frac{\sigma_1^2(1+p)}{\sigma_1^2 + \sigma_2^2 + rc\sigma_1^2\sigma_2^2}.$$

Then, the reward should be conditioned to a larger extent to the result that reflects *e* more precisely (i.e. the x_i such that ε_i has a lower variance).

Furthermore, this framework allows us to consider a couple of interesting special cases. First, assume that $p=0$. This implies that result x_2 has no direct value to the principal. However, it is still rewarded: $\beta_2 > 0$. This is because it still carries informational value about the agent's choice of effort, and helps make inducing the desired level of effort cheaper. Second, if result x_1 is observed with a lot of error (i.e. if σ_1^2 goes to infinity) then β_1 goes to zero, but β_2 remains positive. Even if $p=0$, we have $\beta_2 = 1/(1 + rc\sigma_2^2)$: result x_2, worthless in direct terms, is rewarded according to the value generated by x_1.

In general terms, all signals that are informative of the agent's effort should be rewarded, a result that is known in the literature as the *informativeness principle*, presented initially in Holmström (1979). Note, however, that doing so requires a very precise definition of each of the results' value to the principal, as well as of the process by which effort turns into each specific result. We will come back to this when referring to the main implications that the theory offers when examining incentives in export promotion.

3.3.2 The Dimensionality of the Agent's Effort: Multiple Tasks

The basic model starts by assuming that the task the agent has to perform, or the effort she has to select, can be described by a single-dimensional variable. This is not the case, though, in most organizations, particularly in public agencies. Once the agent has to select how to perform a number of activities, a whole new set of issues arise. These tasks could be substitutes or complements and could generate results that are measurable with different degrees of precision and with different time horizons.

The first analysis of moral hazard under multitasking is provided by Holmström and Milgrom (1991). Let us focus on a very simple case. We assume that the agent performs two tasks, e_1 and e_2. To continue with our previous setup, we take the case where there are two observable results, x_1 and x_2, where

$$x_1 = e_1 + \varepsilon_1$$
$$x_2 = e_2 + \varepsilon_2$$

with $\varepsilon_1,\varepsilon_2$ being normally distributed with mean zero and variance σ^2. For simplicity, we assume that the agent's cost function, which depends on the levels of effort allocated to the two tasks, is

$$c(e_1,e_2) = c(e_1+e_2+2ke_1e_2)$$

where c and k are constants, with $c > 0$, and $-1 < k < 1$. If $k > 0$, both tasks are substitutes for the agent, and if $k < 0$ they are complements. Once again, we consider the best linear compensation scheme $w(x_1,x_2) = \alpha + \beta_1 x_1 + \beta_2 x_2$. It can be shown that it is optimal for the principal to set

$$\beta_1 = \beta_2 = \frac{1}{1+(1+k)rc\sigma^2}. \qquad (2)$$

Comparing (2) with (1) in the previous section, it is clear that incentives are adjusted according to the substitutability or complementarity of the two tasks.[19] Incentives are weakened if the tasks are substitutes, and they are strengthened if they are complements. This, in turn, has important implications for organizational design. In the substitutes case, it may be desirable to allocate the tasks to different agents.

Suppose that both tasks are substitutes. The agent faces an effort-substitution problem. In that case, incentives tend to be low-powered. This conclusion becomes more significant if (we do not show this here) both results do not share the same degree of measurability. If both errors are normally distributed with mean zero, but the variance of ε_i is σ_i^2, $i = 1, 2$, then if, for instance, σ_1^2

[19] Both expressions would coincide if the two tasks were independent for the agent (i.e. if $k = 0$).

grows, it can be shown that both β_1 and β_2 fall. Under effort substitution, the incentives provided for both tasks are complementary. Furthermore, imagine that the first result is basically unobservable (e.g., σ_1^2 goes to infinity). In addition, suppose that the principal only cares about task 1. Then, it may be optimal for the principal to provide no incentives at all. Otherwise, the agent would game the incentive system by concentrating all her effort on the dimensions that are observable. An alternative is provided by subjective evaluation by, for example, a supervisor. Even if vulnerable to collusion, subjective evaluation that can at least partially take into account the dimensions that cannot be measured may be better than providing incentives exclusively on dimensions that are measurable.

The model we just discussed generates some of its main conclusions, chiefly about organizational design and the optimal power of incentives, in the case where there is effort substitution by the agent. If the two tasks were independent (i.e., if $k = 0$), we would largely be back in the basic model. This is no longer the case if there is a direct conflict between tasks. This happens, for instance, when an agent has to sell products that are substitutes of one another, or, in the public sector, when she has to act on behalf of different constituencies. In these situations, studied by Dewatripont and Tirole (1999), it is generally recommended that tasks be allocated to different agents, who then act as advocates of the objectives of each specific task.

3.3.3 Incentives and Performance through Time

When the agent performs her task in different periods, new, intertemporal issues arise. Take the simplest possible case, based on Holmström (1999). There are two periods, $t = 0, 1$. In period t, the agent chooses the single-dimensional task (effort) e_t, and generates the result $x_t = \theta + e_t$. Again, e_t is not observable. We interpret θ as the agent's productivity, which is only observed by her, not by the principal. This is a context, then, that combines moral hazard with adverse selection.

The repeated performance of the task by the agent has the potential to transmit information about her privately known productivity. Such information transmission gives way to at least two issues. First, the principal would like to condition the effort that she will induce the agent to select to the agent's productivity. If a higher productivity level is revealed, then the principal will become more demanding, which in turn will reduce the agent's welfare. Then, the agent will have, in the first period, incentives to select lower effort levels, so as not to face sharp

incentives in the second period. This is known in the literature as the *ratchet effect*, and has been studied by, for example, Hart and Tirole (1988).

There are, however, countereffects. To take an extreme case, assume that x_t is observable but not verifiable, so that the reward to the agent has to be fixed. Take the case where the agent is risk neutral, so that her intertemporal utility is given by $w_0 - c(e_0) + \delta(w_1 - c(e_1))$. The function $c(e_t)$, as before, reflects the agent's cost of effort. The discount factor δ is such that $0 < \delta < 1$, so that the agent values more current than future welfare. In this context, providing incentives in direct terms (i.e. through the reward scheme we derived in the static case) is impossible. However, there may be implicit incentives, provided by the labor market. To simplify, assume that the agent can receive in the labor market, in the second period, a wage that is equivalent to the expectation of the result given the information available about her productivity. When potential employers observe the agent's fist-period result x_1, their expectation of the agent's productivity will be

$$E(\theta \mid x_1) = x_1 - e_1^* = \theta + e_1 - e_1^*$$

where e_1^* is the agent's equilibrium first-period effort choice. Even though all potential employers (including the current principal) can compute e_1^*, in the margin the agent can have an influence on the information she transmits through her choice of e_1. Since it will be true that $w_2 = E(\theta \mid x_1)$ –the second being the last period, the agent will choose $e_2 = 0$– the agent will select her effort level in the first period so as to maximize

$$w_1 - c(e_1) + \delta(\theta + e_1 - e_1^*)$$

Then, the optimal first-level effort will be given by

$$c'(e_1) = \delta$$

which, anticipated by all parties, also defines e_1^*. Note that the more the agent values her future welfare (i.e. the larger is δ), the higher her first-period effort choice will be.[20]

Hence, employment through time (both within the agency and in the labor market)

[20] This follows from the fact that $c(e_1)$ is a strictly convex function.

provides implicit incentives early in the agent's career. This basic analysis has been extended to many periods and to different speeds of learning about the agent's productivity.[21] But much of the intuition derived from the model we have described remains valid. Agents will exert high effort levels early in their careers without necessarily being offered high-powered, explicit incentives. The implicit incentives provided by their "career concerns" will suffice. As they progress in their careers, agents will take advantage of their reputations and sharper incentives will be necessary to induce them to perform as their principals expect.

This career approach about implicit incentives can be combined with the multitasking model described above. As exposed by Dewatripont, Jewitt and Tirole (1999b), the complementarity between tasks and productivity can lead to multiple equilibria. However, some simple conclusions obtain. First, expanding the set of tasks pursued by the agent typically reduces total effort. When the link between performance and market inference about productivity becomes too weak, inducing any effort level may be problematic. Second, equilibria in which the market is uncertain about the nature of tasks pursued by the agent typically involve less total effort than equilibria in which the market knows the effort allocation across tasks, which makes inference about productivity easier. The main implication is then that it is preferable to hire a "narrow" specialist, a professional with a concrete, specific mission.

3.3.4 Incentives and Team Production

When the principal controls a group of agents, new problems arise. There is one case, though, where our previous, single-agent analysis remains valid. If the total result that the principal is interested in is the sum of each agent's results, and the error terms involved in all agents' results are independent, then the principal will still prefer to select individual compensation schemes that are unrelated to one another. In all other cases, incentives for the group as a whole must be designed together.

This gives way to a different set of issues. Should the group as a whole be rewarded, should separate individuals be rewarded, or should the principal use a combination of both possibilities? If the team as a whole is rewarded, then each of its members will have incentives to free ride on her teammates' efforts. Except in very small teams, there is a very weak marginal

[21] See, for instance, Gibbons and Murphy (1992), or Dewatripont, Jewitt and Tirole (1999a, 1999b).

connection between an individual's effort and the collective result. With team rewards, this implies a very small marginal effect of effort on compensation, making incentives for individual effort weak. In theory, as shown in Holmström (1982), this problem can be solved by using a step function as a reward scheme. If the desired result, say $\bar{x}$, can only be reached if every member of the team chooses a high effort level, then the principal could offer a very low reward for results lower than $\bar{x}$ and a significant reward if $\bar{x}$ is reached. This makes the marginal compensation for each member's individual effort be large around $\bar{x}$. Such a scheme, however, is often very hard to use in practice. The free-rider problem, though, is less significant in contexts where the task performed by an agent is perfectly observed by her teammates. There may be enough peer-pressure to ensure that an adequate level of effort is chosen by each individual: norms of behavior may emerge.[22] This pressure disappears if the compensation to the group is fixed.

When individual compensation can be conditioned on some measure of individual performance in addition to team performance, a "tournament" may be used. This implies rewarding more those who end up in higher positions in the performance ranking. Naturally, though, this is harmful to incentives for cooperation, and may generate sabotage activities. Finally, it may also be possible to set up tournaments among different teams or divisions in the agency.

3.3.5 Incentives and Motivated Agents

So far, we have assumed that agents will choose a non-minimal effort level only when they expect to receive a monetary reward once that effort translates, perhaps stochastically, into an outcome. Even though this approach is reasonable in a wide range of contexts, it abstracts from other sources of motivation that agents may have and, therefore, ignores the interaction that may exist among different sources of motivation.

A very useful distinction that has been widely used in the literature on incentives is that between *intrinsic* and *extrinsic* motivation. Intrinsic motivation refers to the agent's desire to perform the task he has been assigned for its own sake. On the other hand, extrinsic motivation relates to rewards that are contingent on the outcome generated by the agent's performance. In

[22] See Lazear (1998), chapter 5.

these terms, we have so far described issues that arise when extrinsic motivation is employed in complete absence of any form of intrinsic motivation.

However, the fact that agents usually attach some value to performing their task adequately is widespread in a number of contexts.[23] One prominent case, particularly relevant for public and non-profit agencies, is that in which the organization has a given *mission* that agents find appealing. In fact, public service motivation by agents has been mentioned as a justification for government provision in some settings.[24] Given the nature of the organizations we are interested in, intrinsic motivation appears as an issue that should not be left aside.

Once personal, intrinsic motivation is recognized, a new problem arises: the interaction between intrinsic and extrinsic motivation once rewards for performance are employed. The desirability of introducing material compensation may become less or more attractive depending on whether, as a side effect, it dampens or enhances agents' inner motivation--that is, on whether both types of motivation are substitutes or complements. In the terms used in the literature, external rewards may *crowd out* or *crowd in* intrinsic motivation.[25]

The fact that external incentives may turn into poorer performance by reducing personal motivation has been documented in a variety of experiments and empirical studies.[26] To cite only one, Gneezy and Rustichini (2000) examine, in a field study, the problem faced by Israeli day-care centers trying to reduce the number of parents that arrived late to collect their children. They determine that introducing a fine for late-coming parents—i.e., a negative monetary incentive to deter undesired behavior—resulted in an increase in the number of latecomers. An external intervention at least partially crowded out inner incentives to arrive on time, by turning intrinsically undesirable behavior into a commodity, with the fine playing the role of a price.

Crowding-in may happen, for example, when rewards for performance apply to teams, rather than to individuals. As mentioned in the previous subsection, in the absence of intrinsic motivation the free-rider problem appears: individual effort is costly and generates a minor effect on team compensation, given other team members' behavior. However, free-riding may be regarded as personally undesirable, and thus intrinsically costly. If such "misbehavior" may cause the team to be less rewarded, the external incentive interacts positively with the intrinsic

[23] See Frey (1997) for a long list of examples.
[24] See Francois (2000).
[25] See Frey (1997, 2001).
[26] See Frey and Jegen (2001) for a survey of empirical evidence.

cost: free-riding could be less likely.

The interaction between intrinsic and extrinsic incentives also influences other aspects of the principal-agent relationship. It poses, for example, challenges to job design. The literature[27] emphasizes the fact that external control tends to undermine individual motivation, insofar as the person affected feels that his or her competence is not acknowledged. This means that rewarding specific performance may be less effective than directing compensation at general behavior.

Moreover, since inner motivation is certainly not uniform among potential employees, there is an additional dimension to the matching problem between positions and candidates, along the lines described above. This, as has been emphasized by Besley and Ghatak (2003, 2005), is more important the stronger the sense of mission that can be attached to the tasks performed in the agency.

4. An Agency Model for Export Promotion Agencies

Export promotion agencies have specificities that are relevant when examining ways to introduce incentive schemes or to improve their design. Some of them have already received significant analysis in the literature while others still need to be studied. In this section we briefly discuss these specificities in the framework of the literature introduced in the previous section. As we have already mentioned, the literature on incentives in agency relationships has dealt with the issues we highlighted above (many of which are directly linked to the specificities in export promotion) one by one, in a separate way. In export promotion agencies, they appear simultaneously and are interconnected. From a theoretical point of view, it would be desirable to have a single model that incorporates all of them, but such a model does not exist. In practice, then, those issues that are more relevant to the problem at hand should be picked up, and their interaction should be examined.

We present now a model that reflects the most important issues discussed above. This model is extremely general, intended to provide a framework that we will later use to highlight, one by one, the most important issues concerning the functioning of incentives in export promotion.

[27] See, for example, Frey (1997, 2001).

First, it is generally not clear what the objective of export agencies is. Should they maximize exports? Does the sector composition of exports matter? Does the firm composition matter? The set of possible export promotion assistance initiatives is large and can be designed to help firms in different stages of development and to overcome diverse obstacles faced by different firms. Moreover, there are agencies that have both export and investment promotion objectives. The agencies' objective function is a question that has to be clearly resolved, since it will certainly be crucial to the design of a good incentive mechanism.

Second, there are employees in different positions that interact in the implementation of export promotion policies. Some of them work at the export promotion agencies we are interested in, while others report to other government organizations even though their work is an important input in export promotion. Furthermore, even among the employees that are formally in promotion agencies there is an important degree of heterogeneity. One difference that clearly appears is the one between headquarters agents and those in representative offices abroad. All these sources of heterogeneity increase the complexity involved in the design of an incentive payment scheme. Such a scheme can only be implemented "in principle" for the employees that report directly to the agency. This means that we are dealing with a case of team production where only a subset of the team can face an incentive scheme. Moreover, there are situations in which a formal incentive scheme cannot be implemented because of regulations that constrain the forms of compensation that can be applied throughout the public administration.

Third, the possible constraints on "formal monetary" incentive mechanisms bring the possibility of using "informal incentive mechanisms." Agents may be compensated with rewards, such as promotions or specialized programs or courses that do not necessarily have a monetary component. This, in turn, takes us back to the complementarity or substitutability of formal and informal incentive systems that we described in Section 3.

4.1 A General Model

These and other specificities make the problem of designing a reward scheme highly complex. In what follows, we present it formally in general terms, and then describe a few concrete contexts where a solution to the problem is simpler to describe, to stress what a general solution may look like, depending on which of the specificities are more significant.

In general, we can consider that the promotion agency's objective function is to

maximize X (which can be total exports, weighted exports, etc.).

$$X = X\,(t_H\,, t_R, t_M\,, a_H\,(.), a_R(.), a_M\,(.))$$

The level of X will depend on

1. the vector of characteristics of:
   (a) employees in the agency's headquarters (t_H)
   (b) employees in the agency's representative offices (t_R)
   (c) employees of other government bodies whose performance impacts the effectiveness of export promotion policies (t_M)

2. the vector of actions selected by:
   (a) employees in the agency's headquarters (a_H)
   (b) employees in the agency's representative offices (a_R)
   (c) employees of other government bodies, as described above (a_M)

Note that the actions of the three sets of employees,

$$\begin{pmatrix} a_H(f_H, i_H, f_R, i_R, i_M, t_H, t_R, t_M) \\ a_R(f_H, i_H, f_R, i_R, i_M, t_H, t_R, t_M) \\ a_M(f_H, i_H, f_R, i_R, i_M, t_H, t_R, t_M) \end{pmatrix},$$

will depend on (a) all agents' types, (b) the formal payment schemes that apply to both the headquarters (f_H) and representative offices' employees (f_R), (c) the informal reward schemes that both types of employees face (respectively, i_H and i_R), and (d) the informal compensation schemes that the agency can use to reward other government employees (i_M).

The types of each of the three sets of agents are generally not observable, and neither are their action—or at least the nature of these actions precludes conditioning rewards directly on them. Thus, it is necessary to condition compensation payments on observable statistics that provide information regarding the chosen actions.

Following Di Tella and Weinschelbaum (2008)—in the spirit of Grossman and Hart

(1986)—we can split the design of the compensation scheme into two steps: (i) obtaining, for each possible type of worker, the incentive scheme that induces her to select the best level of effort, and (ii) choosing the optimal types of workers. As for (ii), the agency can only select the type of employees that will report directly to it (both in the headquarters and in the representative offices), but it has to take as given the type of workers other government offices choose – although it may have some influence on that decision. In the case of (i), we are assuming that the agency cannot provide formal incentives to the workers in other government bodies, while in some contexts, as we have already discussed, it also faces constraints on the monetary incentives that it can use.

Regarding personnel selection, in order to choose one employee it is naturally necessary that she wants to work for the agency. Needless to say, the payment scheme will play a role in this decision. Thus, the following participation constraints must be satisfied:

$$U_H\,(t_H, t_R, t_M, a_H(.), a_R(.), a_M(.), f_H, i_H) \geq \overline{U}_H \tag{3}$$

$$U_R\,(t_H, t_R, t_M, a_H(.), a_R(.), a_M(.), f_R, i_R) \geq \overline{U}_R \tag{4}$$

where U_H (U_R) is the utility function of one of the agency's headquarters (representative office) employees, and $\overline{U}_H$ ($\overline{U}_R$) is the corresponding reservation utility level. Utilities depend on the types of all workers that interact in this policy, on their actions and on the incentive schemes each kind of worker faces.

As we discussed in the literature review, the key issue is how to motivate agents to choose the right level(s) of effort. The traditional objective of compensation schemes conditional on output is not to split the gains (i.e., to reward the agent). It is a tool to use the information that output provides to reduce the informational cost of inducing the agent to choose the right level of effort. Thus, the main question is which dimensions of effort agencies should incentivize and which are the observable (and contractible) variables that should be included in the contract. It could be just output, the amount of exports, the number of firms that export, the number of firms that begin to export, etc. But it could also include some "input" variables, such as how many firms have been helped, how many trade fairs or expos the agency has organized or taken part in, etc.

Once this problem has been solved, we have to decide who should be rewarded:

employees? Local agencies? The agency as a unit? This will clearly depend on the level of complementarities between the work carried out by different workers, as well as on the possibilities of cooperation and/or sabotage of coworker's tasks.

An additional problem arises when the same agency and the same employees have tasks that involve both exports and investment promotion. This is particularly disturbing since the time horizons, the observability and the way that work is organized do not necessarily coincide for both dimensions. A usual way of dealing with this kind of problem is the use of scoring functions that attach different weights to the different dimensions of observable output. However, we have to be very careful when designing incentive schemes in those cases, since the problems of effort substitution and conflicting objectives may generate unwanted behavior by agents.

Finally, it would be interesting to analyze the advantages and disadvantages in this environment using compensation schemes based on objective measures as compared to schemes based on subjective measures. These assessments are inputs in the compensation scheme: it has to be determined to a certain extent if the agency's objectives were achieved or not. The evaluations may be based on either objective or subjective variables, or on some mixture of them. Objective variables have the advantage of being contractible upon, i.e., contracts contingent on them can be enforced by a court of law. Also, they are sometimes readily available, thus providing a low-transaction-cost alternative. On the other hand, it is often the case that people are mostly interested in subjective variables for which there are no good, objective measurement technologies available.

The vector of actions that each of the group of employees will choose depends on worker types and on the compensation scheme that applies to the corresponding worker. The incentive constraints faced by the agency are then

$$a_H^* = arg\ max\ U_H\ (t_H, t_R, t_M, a_H(.), a_R(.), a_M(.), f_H, i_H) \quad (5)$$

$$a_R^* = arg\ max\ U_R\ (t_H, t_R, t_M, a_H(.), a_R(.), a_M(.), f_R, i_R) \quad (6)$$

$$a_M^* = arg\ max\ U_M\ (t_H, t_R, t_M, a_H(.), a_R(.), a_M(.), i_M) \quad (7)$$

Thus, the agency's problem is

$$\max_{t_H, t_R, f_H, i_H, f_R, i_R, i_M} X(t_H, t_R, t_M, a_H^*, a_R^*, a_M^*) - C(f_H, i_H, f_R, i_R, i_M, t_H, t_R, t_M)$$

subject to (3), (4), (5), (6) and (7), where *C(.)* is the cost function of implementing a vector of incentive schemes (f_H ,i_H ,f_R,i_R,i_M).

As we have already mentioned, this is a complex problem. Let us now focus on a number of particular cases where some of the possible complications are absent so as to isolate the effects of the specificities of export promotion agencies.

4.2 Observable Types, Observable Actions

A first, simplest case is one in which worker types t_H, t_R and t_M, and actions a_H , a_R and a_M are all observable and contractible upon. In such a setting, very few of the issues we have mentioned above remain.

Splitting the principal's problem into two stages, as described above, for any vectors of types t_H, t_R and t_M, an optimal incentive scheme should be chosen to solve

$$\max_{a_H,a_R,a_M,f_H,i_H,f_R,i_R,i_M} X(t_H,t_R,t_M,a_H,a_R,a_M) - C(f_H,i_H,f_R,i_R,i_M,t_H,t_R,t_M)$$

subject to

$$U_H(t_H,t_R,t_M,a_H,a_R,a_M,f_H,i_H) \geq \overline{U}_H$$

$$U_R(t_H,t_R,t_M,a_H,a_R,a_M,f_R,i_R) \geq \overline{U}_R$$

The solution to this problem[28] yields which actions the principal will induce and what compensation schemes will be used as a function of the types of agents that will be hired. Given that the actions the agents choose are contractible upon, payments to any agent can be contingent on those action choices. There are no costs to the principal that derive from any informational asymmetry. At the second stage, the principal's problem is that of selecting the types t_H, t_R such that the solution to this problems yields the best result.

The matching problem faced by the agency (i.e., which employees to choose) boils down

[28] Note that we are assuming that the principal also has a_M as an instrument to solve her problem —though none of the conclusions we describe depend on this assumption. Even though employees outside the agency cannot be formally rewarded, recall that informal incentives may be used in their case, too.

to selecting the types of agents that fit best. The two dimensions that describe an agent's type are her productivity and her inner motivation, i.e., her personal interest in the mission of the public agency. As types are observable, selecting those that are more productive and motivated is the direct, natural objective for the agency. Furthermore, as actions are observable, formal, extrinsic incentives play no role. This situation, however, can only be helpful as a reference point.

4.3 Unobservable Types, Observable Actions

Assume now that types t_H, t_R, and t_M are unobservable and that potential employees are heterogeneous, but effort is contractible upon–once again, for the sake of comparison. As above, the principal's problem can be divided into the same two stages, but now type unobservability poses challenges to the second stage.

If types are partially observable, the principal can select taking advantage of the possible correlation between observable and unobservable characteristics. In addition, information about types can emerge as part of the selection process. This second stage can comprise some form of public competition that favors the extraction of information about those characteristics of potential employees that are not observable at the beginning.

In this case, incentives—both formal and informal—may be helpful so that it is more likely that the "right" type of worker is hired by the agency. In the terms used in Section 3, in the absence of intrinsic motivation, formal incentives help select the most productive among prospective employees (i.e., it helps solve the adverse selection problem posed by type unobservability). In this context, incentives seem desirable. But taking into account intrinsic motivation may well reduce this favorable conclusion for monetary rewards.

4.4 Observable Types, Unobservable Actions

Let us now turn to the complementary case where types are observable but actions a_H, a_R and a_M are not. For example, if employees are highly productive or mission-oriented, then this is observed by the principal. The second stage of the principal's problem stays as in the general model. The first must now consider the fact that actions are not contractible upon, so that incentive compatibility constraints (5), (6) and (7) have to be taken into account.

Then, monetary compensation recovers the classical role of rewarding those dimensions that provide the principal with information about effort. But, as we mentioned above, turning to

such rewards poses a number of challenges: which outcome dimensions best reflect the agent's effort, and how different formal incentive schemes affect the effort mix chosen by the agent in the presence of multitasking. This benchmark scenario is significantly simpler than the general problem posed above, and less complex than the actual operation of export promotion agencies. Still, a warning already arises that formal, monetary compensation may have substantial drawbacks if all the dimensions of effort and outcomes are not adequately taken into account.

If issues related to team performance are also considered, then the effects of formal incentives are even more difficult to evaluate. If individual performance is at least partially observable, should individuals or teams be rewarded? How much weight does the free-rider problem in teams carry as compared to the issues that may appear once individual monetary compensation is applied, such as lack of cooperation among team members? As we mentioned above, intrinsic motivation, if present, may favor team rewards, but the free-rider problem is a counterforce. Even more, this assumes that the definition of the relevant team is clear cut. If the performance of exports to a given country is deemed highly successful, which share of the credit should be given to the headquarters and which to the corresponding representative office? And we must not forget that some of those who have an effect on export performance (namely, employees in other government offices) certainly cannot be rewarded materially.

The preceding description leads to conclude that, even when available to export promotion agencies, monetary rewards should be used with care, and are particularly helpful in cases where a well-defined team performs a task with adequate performance measures (ideally, at the individual level).

4.5 No Formal Incentives

What if, in addition, formal incentives cannot be used? In terms of our general problem, this means that there are fewer instruments for the principal. Instead of being able to select any formal schemes f_H and f_R, now those compensation rules are constrained to a smaller set, perhaps as low-powered as fixed wages. This necessarily means that the final outcome will be weakly worse for the promotion agency.

As noted in Section 3, even in this case monetary incentives may be present, in the form of career concerns. Quite frequently in export promotion agencies employees stay for a few years and then leave for the private sector. The labor market seems to recognize the agents' performance and human capital accumulation in export promotion even when these agencies do

not pay for performance. Higher future wages elsewhere may be a strong enough incentive.[29]

Still, the impossibility of pay-for-performance schemes leaves room for compensation in the agency. As mentioned above, non-pecuniary benefits, as reflected in i_H , i_R and also i_M , may be valuable, and even more effective than monetary rewards, since they may crowd in the effort that results from intrinsic motivation. In addition, it may be a more adequate way to compensate teams. Then, promotions, specialized courses and training that may raise the human capital stock of current employees —and therefore their value in the labor market— as well as involvement in the most attractive activities available in export promotion agencies, may play the most significant role in personnel motivation.

However, we cannot justify forbidding the use of explicit, pecuniary motivation here. Doing so reduces the number of instruments available to the principal and therefore cannot improve results in terms of employee performance. Some agent types may become more expensive or impossible to hire, and some actions that agents could choose may become more expensive or impossible for the principal to induce.

Another possibility that the principal may explore is introducing motivation through some form of competition among different divisions in the agency—e.g., among representative offices abroad. Incentives could well be strengthened this way, but serious difficulties may appear. Such a form of competition could be detrimental to the concept of a "country brand" (if one exists or is used). Furthermore, it may be complex to design rewards in such a context, since those different divisions do not face similar or even analogous situations: they perform their activities in distinct, probably non-comparable contexts, which makes the issue of how to measure relative performance difficult to tackle.

5. Conclusions

Incentives for performance are frequently employed as a means to improve results in very different settings and organizational contexts. As we discussed in the literature review, the key

[29] There are other reasons why this may not be a bad outcome for export promotion agencies. If one of the agencies' objectives is to help the private sector solve the informational problems that reduce their capacity to export, it may be the case that training workers, creating human capital for the private sector is desirable. These agents, once employed in the private sector, will actually help solve those informational difficulties. However, we can imagine several reasons why this outcome is not optimal. If this were the case it would be useful to find incentive instruments to reduce this migration of well-trained employees from promotion agencies to the private sector.

issue with incentive schemes is how to motivate agents to choose the right level(s) of effort. The central objective of compensating agents conditional to their output is not to split the gains (i.e., to reward agents), but rather to use the information that output provides to reduce the informational cost of inducing the agent to choose the actions and effort levels that best suit the principal's interests. How to attain this goal is straightforward in the simplest possible context provided by the basic analysis of moral hazard. As soon as some of the strong assumptions in the basic model are relaxed, though, the task of designing an optimal compensation scheme becomes more complex.

Export and investment promotion agencies are complex organizations. Many of the issues that arise outside the basic moral hazard model are present in these agencies: measurement problems, multitasking, dynamic incentive issues, team production, etc. A sound organizational design that properly takes into account these issues would certainly enhance efficiency and performance. However, for such a design to achieve its goals it has to incorporate each and every one of these issues. If one of them is ignored, the resulting design—however well it may consider all other problems—may turn out significantly worse than expected.

Most if not all of the theoretical literature that deals with the problems associated with principal-agent relationships considers each of these issues isolated from one another, thereby disregarding the potential interactions among them and their effects on agent performance. Furthermore, some of these issues are not properly examined at all. It is a challenging and still pending task to make progress in dealing with these problems at the same time, to deliver significant conclusions for actual, complex organizations. From a practical standpoint, it is crucial to identify which of these problems are more relevant for the organization of interest and to carefully examine the interactions that may arise from their simultaneous presence.

Here we have set up a general model that incorporates most of the issues present in export and investment promotion agencies. It is intended mostly as a first step to provide a general framework in which specific cases can be incorporated and studied. The interpretation of the experience, and the situation in which export and investment promotion agencies develop their tasks, in light of this general model, helps us point out the main challenges that designing a sound incentive scheme faces in this context:

- So far, there is a highly general description of what the objectives of an export promotion agency are. In order to design an incentive scheme, it is imperative to make this general

definition operational through a very specific set of goals, ideally all of which should be measurable. Compensation schemes demand, then, concrete definitions at two levels: the objectives of each division in the agency should be specified as clearly as possible, and then it should be determined how the degree of attainment of those objectives will be measured.

- Which performance measures to use in compensation schemes is problematic as well. As we mentioned, it would be optimal from a theoretical point of view to reward all outcomes that are informative of the agent's effort. Both objective and subjective measures are possible, both of the agent's input and of her output. It is critical not to ignore those outcomes that are most connected to the agent's effort, independently of whether they are valuable to the principal or not.
- When there is multitasking, being unable to reward some dimensions of effort is very serious. In this context, leaving some of the agent's actions without compensation while concentrating incentives on other actions —because there are available measureable outcomes— severely distorts the agent's effort allocation decision. When export promotion and other objectives, such as enhancing foreign investment, are combined in one organization, a mission that already may have embodied different tasks is turned into one where multitasking is unavoidable.
- Most roles in agencies as complex as the ones we are studying here are performed by groups, not by sole individuals. It is highly likely that team compensation issues will arise whenever explicit incentives are used. As we pointed out above, this brings a number of other issues. Some of them are negative: mainly, the free-rider problem. Some though, are positive: rewarding teams may crowd in the agents' intrinsic motivation. In any case, designing a scheme to reward individuals when team effort is relevant may lead to undesirable results.
- The fact that not all agents will be rewarded is an issue that cannot be ignored when selecting a compensation scheme. Employees in other government agencies will have influence on export performance, but formally cannot be provided with explicit incentives by the agency. Furthermore, restrictions on the use of explicit incentives in the agency itself may also exist.
- Incentive schemes may lead to a significant increase in efficiency for the agencies

involved. Reaching that goal requires, however, very careful thinking about the organization's objectives, the tasks performed by the agents involved and how to measure performance. Introducing explicit compensation without taking these problematic issues into consideration may not help improve performance, and it may inadvertently harm it.

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