

RIGHTSIZING THE PUBLIC SECTOR: A CHALLENGING STEP FORWARD IN ECONOMIC REFORMS

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Resumen:

En búsqueda de un modelo teórico de la reducción del sector público que considere la dimensión política de los programas de estabilización, se consideraron diversos aportes de economistas estudiosos de las reformas económicas. Se optó por el modelo de Wyplosz de reducción del sector público en una sola fase como el más adecuado para el caso venezolano. A partir de la formulación realizada por Ágenor, se llegó a una generalización cuyo corolario más resaltante señala que, dada la fatiga financiera de los hogares en los períodos pre-reforma, la condición aceptabilidad política requiere de financiamiento externo a bajas tasas de interés o la implementación de impuestos inflacionarios. Los resultados pudiesen ser considerados como una generalización aplicable a economías hiperdistorsionadas ricas en recursos naturales.

Palabras Claves: Beneficios al desempleo, programas de ajuste económico, reducción del sector público, condición de aceptabilidad política

JEL: E24, P16, P21, P31.

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Abstract:

In searching for a politically viable program for the reduction of the public sector, I studied the Wyplosz's (one-shot downsizing) model. I extended Wyplosz's results based on Ágenor setup of this model. Analytically, I concluded that the economic fatigue of individuals in pre-reform periods requires external funding at low-interest rates in order to make viable the political acceptability condition; an alternative policy would be financing through distortionary taxes. My results might be considered a generalization that could embrace the case of distorted economies with high natural resources endowments.

Keywords: Unemployment benefits, economic adjustment programs, public sector reduction, political acceptability conditions.

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INTRODUCTION

Economic reforms and macroeconomic adjustments constitute two distinct—although close related—phases of economic programs. It has been the case throughout almost all economic stabilization experiences in Asia (since the 1960s), Latin America (circa 1970s and onward) and Eastern Europe (from 1990s and on) that these Pareto-improving public policies face *ex-ante* and *ex-post* political restrictions that were ignored by the average professional economist. Actually, it was due to the puzzles of 1) the status quo bias¹, and 2) the lack of *ex-post* political support of average citizens², that economist struggle to provide a rational explanation of this time inconsistent behavior of individuals³.

In this piece of work, I aim at understanding a particular phase of economic reforms that accompany macroeconomic adjustment policies: *public sector downsizing*. The shrinkage of public sector employment has a twofold objective: 1) fiscal consolidation, and 2) reaching allocative efficiency in public enterprises.

Among the extensive (and contentious) literature, I selected for my study two papers that are considered seminal: the gradualist approach of Dewatripont & Roland, (Dewatripont, M. and G. Roland, 1992) ; and the *big-*

¹ This is, how economic programs that shall benefit the majority of the population were *ex-ante* rejected by the rational (average) electorate. See (Fernández, Raquel and Dani Rodrik, 1991).

² This is more striking in the presence of successful reform programs.

³ One illustrative and compelling case is that of Slovakia, 2006. See (van Wijnbergen, Sweder J. G. and TimWillems*, 2014): "According to Robin Shepherd, 'The Dzurinda Revolution', Wall Street Journal Europe, June 12, 2006: 'Imagine you're the leader of a country where economic growth is running at 6.3%, your government has been praised by the World Bank as the best market reformer in the world [and] unemployment has fallen to a record low of 10.6% from around 20% in just four years. [. . .] With this record in mind, now consider that you face parliamentary elections this Saturday at which, unless the opinion polls change dramatically, you risk annihilation by a leftist opposition party with no experience of government and a policy agenda filled with populist rhetoric. Welcome to the world of Mikuláš Dzurinda, prime minister of Slovakia, who for the past eight years has led what can reasonably claim to have been the most successful neo-liberal government of the 21st century so far'. Despite his impressive reform successes, Dzurinda lost the 2006 elections to Robert Fico of the SMER party (a breakaway party from the successor to the original Communist Party of Slovakia), who reversed many of Dzurinda's reforms [and whose reversal were very dear for Slovakia's population]". Probably another illustrative case subject to discussion is that of the adjustment and reform program in Venezuela between 1989 and 1992.

bang, (a Pareto improving in one-shot) of Wyplosz, (Wyplosz, 1993)⁴. In what immediate follows, I comment on both approaches commencing with the latter.

Wyplosz's model is a response (and a critique) to the gradualist approach championed by Dewatripont and Roland. In light of the fact of the disappointing performance of the former Czechoslovakia, Hungary, and Poland, Wyplosz set a big-bang model that achieved allocative efficiency taking into consideration political acceptability of reform policies as a restriction. I based my analysis on this model in the hope of finding ways out of the Venezuelan crisis, being a trait of this one an outsized and inefficient public sector that would hinder any effort of economic reform. Overcoming this anomaly is not only mandatory but imperative in the short-run, should this country transit the path of an economic recovery.

Contrary to Wyplosz, Dewatripont and Roland (1992) considered a downsizing public sector program to be done by phases. To these authors, reaching allocative efficiency in a piecemeal might be very costly in terms of distortionary taxes because workers manage asymmetric information to their favor. In their model setting, slashing employment by firing low productivity workers benefits high productivity workers: bonus compensation in terms of the difference between wages and labor effort. Therefore, if a government is pre-committed to economic reforms, it should minimize budgetary effort to reach allocative efficiency by downsizing the low productivity public sector gradually. This is, offering a severance payment that induces high productivity workers to leave first and then get employed in the private sector; another severance payment that prompts middle productivity workers to leave follows, and so on. In the end, allocative efficiency is reached but in less costly terms than in a one-shot employment shrinkage.

Dewatripont and Roland consider that: 1) high productivity workers are employable by private firms; 2) high allocative efficiency could be reached by low productivity workers and 3) a government in charge of conducting reforms is pre-committed (without taking into consideration the electoral cycle). Those arguments, in my opinion, are not down-to-earth. But more importantly, public sector embraces firms and activities from which many other activities depend on. Allocative efficiency of public enterprises is a key issue for triggering a stagnant economy, in particular because, in the adjustment phase of the program, the expected behavior of private investment reins in, consequently we are in the presence of the "the wait and see" dictum.

This paper is organized as follows. In section II, I describe the Ágenor's setup of Wyplosz's model and find the efficiency conditions. In section III, I cover the issues of *ex-ante* and *ex-post* of political acceptability both with nonfinancial assistance and financial funding to the government from the rest

⁴ My findings do not replicate exactly those of Wyplosz but point to the same direction. I hope my results might be considered a generalization that could embrace the case of distorted economies with high natural resources endowments.

of the world. In section IV, I conclude by presenting some public policies implications.

ECONOMIC EFFICIENCY AS A NON-SUFFICIENT CONDITION FOR SOCIAL WELFARE ENHANCING⁵

Wyplosz's model starts by describing a troubled small economy which public sector counts on a labor factor represented by N (homogenous)⁶ workers with θ_L average productivity, at a pre-reform time t_0

$$1. Y_0 = N\theta_L.$$

Let us assume that at time t_1 a new political administration takes control and aim at overhauling the economy through massive reforms that imply restructuring the (overcrowded) public sector. Accordingly, the new governing team searches for increasing the productivity of the public sector by slashing redundant jobs by a rate α (unemployment rate). If the productivity remains the same at t_1 , the economic activity should drop with respect to pre-reform levels (at t_0) and (official) unemployment rate jumps to α :

$$2. (1 - \alpha)N < N \quad \forall 0 < \alpha \leq 1$$

$$3. Y_1 = (1 - \alpha)N\theta_L < Y_0$$

The economic team in charge of reforms expects the economy to grow fast in the short run, following a J type of recovery as a consequence of better allocation of resources and productivity recovery of keystone public enterprises⁷. Thenceforth, assuming constant the stock of capital, labor layoffs at t_1 should increase productivity and the product beyond pre-reform levels:

$$4. \theta_H > \theta_L \Rightarrow, Y_2 = N\theta_H > Y_0 = N\theta_L$$

where θ_H is the post-reform average productivity level.

⁵ For simplicity, I developed my analysis based on the specification of (Ágenor, 2000).

⁶ Assuming a homogenous labor factor is not a strong assumption in this context because labor productivity is indistinguishable to the economic team in charge of carrying out the downsizing program.

⁷ Public enterprises that include steel and electricity production present strong forward (downstream) linkages (output) with other industrial activities. Hence, the betterment of these public enterprises performance should positively impact the overall productivity of the economy, according to input-output models and CGE model simulations.

Efficiency of the reform program from the aggregate economy perspective

How does our economic team know, in advance, that a labor downsizing program is a worthwhile taking risk? The adjustment program is said to be *ex-ante* efficient if the present value of national income increases relative to no reform. Otherwise, the economic team should not take the political risk of an adjustment:

$$5. \quad Y_1 + \frac{Y_2}{1+r} > Y_0 + \frac{Y_0}{1+r}$$

$$6. \quad (1-\alpha)N\theta_L + \beta N\theta_H > (1+\beta)N\theta_L$$

Assuming β as a discount factor equal to a rate of time preference:

$\beta = \frac{1}{1+r}$ and r the cost of borrowing and lending (say, the world interest rate for simplicity).

Equation 6, from the economic performance perspective, makes some economists believe that the labor reduction program is politically viable.

Efficiency of the reform program from workers perspective

If the economy as a whole is better off with respect to pre-reform levels, some members of the economic team might naïvely believe that workers' (political) support for reforms is taken for granted. This belief turns out to be wrong because workers face uncertainty about who will bear the burden of adjustment. This is, workers who could be dismissed at t_1 and receive no compensation, whatsoever, in which case their income shall be zero at t_1 and θ_H sets in when jobs are restored⁸:

$$7. \quad 0 + \frac{\theta_H}{1+r} < \theta_L + \frac{\theta_L}{1+r} \Rightarrow \beta\theta_H < (1+\beta)\theta_L \Leftrightarrow \frac{\theta_H}{\theta_L} < \frac{1+\beta}{\beta}.$$

Or workers who could be better off if they happened not to be fired⁹:

$$8. \quad \frac{\theta_H}{\theta_L} > \frac{\alpha + \beta}{\beta}$$

⁸ We deemed average income as the counterpart of average productivity.

⁹ Divide equation 6 by $N\theta_L$.

Combining 7 and 8 we get **the efficient condition** of the downsizing policy action. Although this condition should hold as a necessary one, it does not assure *ex-ante* workers political support:

$$9. \quad \frac{\alpha + \beta}{\beta} < \frac{\theta_H}{\theta_L} < \frac{1 + \beta}{\beta}.$$

The efficient condition 9 considers both workers with α probability of being made redundant and those workers actually being dismissed at t_1 , ($\alpha = 1$). The condition is not welfare enhancing because the burden is asymmetrically born. For a reform to be *ex-ante* (politically) supported, both homogenous workers should improve their income in a way that the cost of the program could be shared. More importantly, this condition says that even if the aggregate national income improves, it does not guarantee a better position to an individual worker who happens to be fired. Therefore, the reform might be politically reversed even before it starts.

POLITICAL ACCEPTABILITY

Assuming that the efficiency condition holds, we should consider, in advance, the political restriction the program shall face from the population (workers).

Let us assume that a representative worker has an isoelastic-logarithmic utility function $v(c_t)$ where c_t is a stream of consumption at period t ¹⁰. It might be claimed that a reform is politically acceptable if all workers expect their own situation to improve in such a way that

$$10. \quad E \left\{ [v(c_1) + \rho v(c_2)] / \Omega_1 \right\} \geq (1 + \rho)v(\tilde{c}), \quad \forall 0 < \rho < 1$$

where ρ is the time preference or subjective discount factor not necessarily equal to β ¹¹, Ω_1 the information set available at t_1 and \tilde{c} a constant level of consumption if no reform is implemented.

¹⁰ The findings that follow are invariant to the utility function specification. Ágenor opted for the isoelastic specification out of simplicity (elasticity of intertemporal substitution equal to one). We follow the same treatment. Later in the text, we will comment further about the isoelastic utility function as a particular case of the constant relative risk averse (CRRRA) utility function specification.

¹¹ The possibility that $\rho \neq \beta$ implies that this discrepancy tilt the consumption path toward either an (explosive) consumption growth if $\rho > \beta$ or a consumption decline if $\rho < \beta$ for a small-open-economy model with individual with the same lifespan. If an individual passes away after, say, two periods of life and her place is taken by an identical individual of the following generation, a constant consumption keeps on so the small economy might reach the steady state even if $\rho \neq \beta$. The same argument holds

The equation 10 is the ***ex-ante political acceptability condition***. If this condition is not satisfied all (*ex-ante* homogenous) workers shall rationally choose to reject the reform program, even if its design is economically efficient.

Now, suppose that the *ex-ante* political acceptability condition is satisfied; does it guarantee *ex-post* political support? The answer is no. The reason behind this answer is that upon implementation, the program divides the aforehomogeneous labor market into employed and unemployed workers. Hence, the labor market becomes heterogeneous: one group of workers is winning and another group is losing. Thus, a government that conducts a reform might (rationally) be supported *ex-ante* and rejected *ex-post* upon the program implementation with the peril of (a costly) policy reform reverse. According to the Wyplosz's model¹², the way to circumvent policy rejection is to design a program with unemployment benefits such that the adjustment burden might be perceived as equally distributed.

In the case of a public sector downsizing program, what should be the size of unemployment benefits that guarantee both the *ex-ante* and *ex-post* conditions? The concern is relevant: if an amount of distributional benefit is said to ensure *ex-ante* political support but fails to fulfill the equality between the *ex-post* incomes of heterogeneous workers, the unemployed individuals shall oppose the program continuation and strive for welfare detrimental policy reversals. In the next two upcoming sub-sections, I will try to reach the optimal unemployment benefit that guarantees the equality between *ex-ante* and *ex-post* acceptability conditions.

Political acceptability with government and workers unable to borrow

Following Ágenor's set up, let us suppose that workers consume current income—i.e., $c_1 = \theta_L$ or 0 and $c_2 = \theta_H$ for $t = 1, 2$. The government, as we assumed above, foregoes borrowing from the rest of the world for is not willing to comply with creditor's conditions in terms of cost (interest rate), time of repayment, or actions such as privatization of certain industries or activities deemed strategic for growth and development in the future¹³. As a result, unemployment benefits (b) should be financed out of non-distortionary taxes (τ) levied at t_1 on employed workers who earn θ_L .

for models with financial assets accumulation. Cfr. (Obsfeld, Maurice and Kenneth Rogoff, 1999).

¹² And actually, according to historical experiences in Eastern Europe.

¹³ This is equivalent to assuming that the economic team in charge of conducting the reform faces a stringent credit restriction from the rest of world, and also to presuming that the domestic financial system is in such bad shape that it is unable to provide credit to individuals willing to cash on non-liquid assets at a financial cost.

The *ex-ante* political acceptability 10 could be written as

$$11. E \left\{ [v(c_1) + \rho v(\theta_H)] / \Omega_1 \right\} \geq (1 + \rho)v(\theta_L),$$

where $\tilde{c} = \theta_L$.

Observe that at period 1, everyone is worse off with respect to the pre-reform situation and the *ex-ante* political acceptability requires that expected utility rises sufficiently to compensate the consumption sacrifice at the time t_1 . This assertion is clearer if we re-write 11 as

$$12. (1 - \alpha)v(\theta_L - \tau) + \alpha v(b) \geq (1 + \rho)v(\theta_L) - \rho v(\theta_H).$$

This is, at t_1 dismissals occur (randomly) with probability α , and transfer policy is implemented through taxes τ and unemployment benefits b . The budget government constraint is

$$13. \tau(1 - \alpha)N = \alpha Nb \Leftrightarrow \tau = \left(\frac{\alpha}{1 - \alpha} \right) b.$$

When the downsizing takes place, the labor market is not homogenous any longer: there are employed workers that earn net income $\theta_L - \tau$ and unemployed workers that receive a transfer b . Therefore, the left-hand-side of the inequation 12 contains two **ex-post acceptability conditions**:

$$14. v(b) \geq (1 + \rho)v(\theta_L) - \rho v(\theta_H)$$

$$15. v(\theta_L - \tau) \geq (1 + \rho)v(\theta_L) - \rho v(\theta_H).$$

These two *ex-post* conditions indicate that the *ex-ante* condition 12 is actually a weighted average—weighted by the random probability of being dismissed. Conditions 14 and 15 also say that when they are altogether satisfied, 12 is also satisfied but not the other way around.

Condition of ex-ante and ex-post coincidence

The government should choose an equidistribution scheme of income that equates the adjustment burden between employed and unemployed workers at t_1 , if it is determined in pursuing the downsizing reform of the public sector. With that purpose in mind, we maximize the left-hand-side of the *ex-ante* acceptability condition 12:

$$\text{Arg } \max_b (1 - \alpha)v(\theta_L - \tau) + \alpha v(b)$$

F.O.C.

$$-\alpha(1 - \alpha) \frac{v'(\theta_L - \tau)}{(1 - \alpha)} + \alpha v'(b) = 0 \Rightarrow v'(b) = v'(\theta_L - \tau)$$

Having $v(c) = \ln c$ ¹⁴, then

$$16. \frac{1}{b} = \frac{1}{\theta_L - \tau} \Leftrightarrow b = \theta_L - \tau.$$

Proceeding further we find the results we are interested in: winners' utility intersects the losers' one after the program implementation: the left-hand-side (LHS) of both *ex-post* conditions 14 and 15 comes to be the same. If it also happens to be the LHS of the *ex-ante* condition 12, we get to a full coincidence between *ex-ante* and *ex-post* conditions. These two claims are obvious by firstly, substituting the budget government constraint 13 into 16; secondly, by evaluating 17 into 15; and thirdly by considering 17 into the LHS of 12. That is,

$$17. b = \theta_L - \frac{\alpha}{1 - \alpha} b \Rightarrow b = (1 - \alpha)\theta_L.$$

Evaluating 17 into 15 we get the coincidence of both *ex-post* conditions:

$$18. v\left\{\theta_L - \frac{\alpha}{1 - \alpha}(1 - \alpha)\theta_L\right\} \geq (1 + \rho)v(\theta_L) - \rho v(\theta_H)$$

$$v\{(1 - \alpha)\theta_L\} = v(b) \geq (1 + \rho)v(\theta_L) - \rho v(\theta_H)$$

By considering 17 into the LHS of 12 we obtain the concurrence of the *ex-ante* and *ex-post* conditions:

¹⁴ The utility function $U(c) = \ln(c)$ is a special case of the constant elasticity of intertemporal substitution utility function in which the intertemporal elasticity of substitution σ tends to one. The general specification of this isoelastic utility function

for identical agents is $U(c) = \frac{c^{1-\sigma} - 1}{1-\sigma}$. If $\sigma \rightarrow 1$, we get a $\frac{0}{0}$ limit indetermination

trivially solved by L'Hôpital's rule: $\frac{du(c)}{d\sigma} = c^{1-\frac{1}{\sigma}} \ln c$. Evaluating again in the limit

implies that $u(c) = \ln c$.

$$19. (1-\alpha)v\left\{\theta_L - \frac{\alpha}{1-\alpha}(1-\alpha)\theta_L\right\} + \alpha v\{(1-\alpha)\theta_L\} = v\{(1-\alpha)\theta_L\}$$

Having found the optimal benefit scheme (equation 17) that guarantees the coincidence between *ex-ante* and *ex-post* conditions, we could claim that our downsizing program is a time consistent equidistribution scheme: the reform is welfare improving for society as whole and for each citizen—they all share the burden and reap the benefits of the adjustment.

Observe that the compliance of the aforementioned conditions depend heavily on the unemployment rate level and the time preference rate (impatience rate).

$$20. v\{(1-\alpha)\theta_L\} \geq (1+\rho)v(\theta_L) - \rho v(\theta_H)$$

If our troubled small economy presents a high level of labor redundancy and has a population that drags a perceivable economic fatigue, the condition 20 might not be politically viable in electoral regimes. Consequently, public borrowing from abroad should be seriously considered as an option to carry out an adjustment program.

Getting public debt from abroad to finance the adjustment transition

In electoral regimes, electoral cycles either validate public policies or not. When a new government team faces the imperative of an economic adjustment program, it might encounter full support from the population if pre-program conditions are precarious (Drazen, Allan & Vittorio Grilli, 1993). However, notwithstanding the good prospect of a well-designed economic program, it is very likely that the “economic pain” in the phase of the adjustment shall induce the population to push for the reversal of the undertaken political actions. We could assert, with a certain degree of confidence, that only authoritarian regimes can pursue a harsh adjustment—such as the one described in the sub-section III.1 of this document—and reap the political benefits of a good economic policy¹⁵. This statement impels us to deal with the financing of the adjustment phase from external sources.

Let us assume now the government is able (and willing) to borrow from abroad to finance the unemployment benefits to be paid out in the interim transition. Of course, taxes (τ_1, τ_2) shall be levied in both periods to repay the debt¹⁶. Accordingly, the *ex-ante* acceptability condition is

$$21. (1-\alpha)v(\theta_L - \tau_1) + \alpha v(b) + \rho v(\theta_H - \tau_2) \geq (1+\rho)v(\theta_L),$$

¹⁵ The emblematic Chile's Pinochet survived by a democratic regime.

¹⁶ Naturally, the net marginal income in period one with external financing will be higher than the one without funding.

with *ex-post* conditions following those in 14 and 15.

Now, the intertemporal budget constraint is

$$22. \quad \alpha b = (1 - \alpha)\tau_1 + \beta\tau_2 \Rightarrow \left\{ \begin{array}{l} \tau_1 = \frac{\alpha b - \beta\tau_2}{(1 - \alpha)} \\ \tau_2 = \frac{\alpha b - (1 - \alpha)\tau_1}{\beta} \end{array} \right\}.$$

Finding the adequate level of unemployment benefits b , it implies maximizing the (compound and separable) utility function in 21 with respect to b :

$$\text{Arg } \max_b (1 - \alpha)v(\theta_L - \tau_1) + \alpha v(b) + \rho v(\theta_H - \tau_2)$$

F.O.C.

$$-\alpha v'(\theta_L - \tau_1) + \alpha v'(b) - \frac{\alpha}{\beta} \rho v'(\theta_H - \tau_2) = 0$$

$$23. \quad \Rightarrow v'(b) = v'(\theta_L - \tau_1) + \frac{\rho}{\beta} v'(\theta_H - \tau_2)^{17}.$$

As we did before, we can change the utility function by any increasing transformation without affecting consumers' optimum choice:

$$v(c) = \ln c$$

Therefore 23 could be re-written as¹⁸

$$24. \quad \frac{1}{b} = \frac{1}{\theta_L - \tau_1} + \frac{\rho}{\beta} \frac{1}{(\theta_H - \tau_2)}.$$

The equation 24 offers an important result: if $\rho \square \beta$ —low interest rate and low impatience rate, 24 resembles 16 and the adjustment is not only smooth but

¹⁷ If τ_1 were very small, as expected when counting on external funding, then the marginal utility of consumption in period one is expected to be positive but small. In this case, the system depends on the so called Euler's intertemporal equation where the levels of unemployment benefits and the level taxes in period two play a key role.

¹⁸ Following the comment made on the footnote 15, when τ_1 is small, the first term of the RHS of the equation 24 should also be small. Therefore, the level of unemployment benefit in period one depends, intertemporally, on the tax level in period two and interest rate level charged on the debt. Were the interest rate level small, it would mean that unemployment benefits would not represent a hulky burden.

intertemporal consistent. However, if $\rho = \beta$ and $\rho > \beta$, the cases to consider are not trivial: the intertemporal budget constraint 22 is difficult to evaluate into the equation 24 to derive the *ex-post* acceptability conditions¹⁹. Yet 24 depends critically on the discount factor β and the time preference factor ρ . (β and α parameters appear both in the economic efficiency condition contained in 9.) So, assuming ρ as exogenous, and according to (Wyplosz, 1993) and (Ágenor, 2000), there should be a level for both β and ρ that suffice to comply with all political acceptability conditions. The expression that relates the efficiency condition 9 and the optimum unemployment benefit is²⁰

$$25. \frac{\theta_H}{\theta_L} \geq \left(\frac{1}{\theta_L - \tau_1} \right)^{(1-\alpha)} \left(\frac{1}{\theta_L - \tau_1} + \frac{\rho}{\beta} \frac{1}{(\theta_H - \tau_2)} \right)^\alpha,$$

for $\beta = \frac{1}{1+r}$, $0 < \rho < 1$ and r the interest rate from the rest of the world.

If $\rho > \beta$, it might be that consumption repression and expectations on a positive shock on the terms of trade raise the impatience rate. In this situation, rightsizing the public sector might not be politically viable, even with relatively low interest rate: productivity gains could not cope with the tendency of workers to consume more at present date—explosive path—and employees would be unwilling to pay higher taxes in both periods. This case illustrates well a factor specific, or commodity specialized economy, as an oil economy, for instance.

¹⁹ Similar to the case of reforms without financing, the economic efficiency condition given by 9, although a necessary condition, it still does not imply *ex-antes* support; and *ex-ante* political acceptance does not guarantee *ex-post* acceptability, as we reckoned before.

²⁰ Please see appendix for a full derivation.

The RHS of 25 could be empirically evaluated if we refer it to $\frac{\alpha + \rho}{\beta}$. Assume that the

valuation of pre-reform incomes is independent of the interest rate. Then,

$$5') Y_1 + \frac{Y_2}{1+r} > Y_0 + \rho Y_0 \text{ where } \rho \neq \beta = \frac{1}{1+r}. \text{ Therefore,}$$

$$6') (1-\alpha)N\theta_L + \beta N\theta_H > (1+\rho)N\theta_L \text{ and dividing by } N\theta_L :$$

$$8') \frac{\theta_H}{\theta_L} > \frac{\alpha + \rho}{\beta}.$$

We should observe that the RHS of 25 is a factor elevated to a number less than one and whose components are likely to be less than one as well. Therefore, we could informally assess that

$$\left(\frac{1}{\theta_L - \tau_1} \right)^{(1-\alpha)} \left(\frac{1}{\theta_L - \tau_1} + \frac{\rho}{\beta} \frac{1}{(\theta_H - \tau_2)} \right)^\alpha \leq \frac{\alpha + \rho}{\beta}. \text{ If this were the case, a}$$

sufficient condition for 25 to be valid is that $\rho < \beta$.

The above result depends on the levels of (targeted) unemployment rate, the factor of time preference (impatience rate) and the discount factor. Assuming that: 1) the population of our troubled small economy is under a high economic stress, and 2) the public sector is so crowded that demands an important downsizing—i.e., a high α that might surpass fifty percent. Therefore, it is critical to acquire public debt with low-interest rate from the rest of the world²¹:

²¹ Bear in mind that we are also assuming the elasticity of intertemporal substitution is $\sigma = 1$: present consumption does not depend on the interest rate r but on individual's impatience to consume and on her current and (discounted) future incomes.

For instance, for a two-period model $c_1 = \frac{1}{1+(1+r)^{\sigma-1}\rho^\sigma} \left(Y_1 + \frac{Y_2}{1+r} \right)$ is

$$c_1 = \frac{1}{1+\rho} (Y_1 + \beta Y_2) \text{ when } \sigma = 1. \text{ See (Obsfeld, Maurice and Kenneth Rogoff,}$$

1999). However, despite consumption is careless about interest rate, debt repayments hinge crucially on it, as equation 25 asserts. The fact we are assuming $\sigma = 1$ also implies that the Arrow-Pratt coefficient of risk aversion, η , is also one: $\sigma = \frac{1}{\eta}$. This

means that, in practice, consumers cannot differentiate between aversion to risk and

if the discount factor β tends to be small with respect to the subjective discount factor ρ , the condition 25 would be rejected. One conclusion we could infer—particularly in the presence of high unemployment rate—is that as important as foreign assistance to alleviate the adjustment pain might be, the levels of interest rates on immediate later periods should be small for the productivity gains to sustain the downsizing program. Otherwise, costly policy reversal would take place as a consequence of *ex-ante status quo* bias of workers and complaint pressures of *ex-post* unemployed workers.

SOME PUBLIC POLICY IMPLICATIONS

From the aforementioned arguments, we could derive some partial policy conclusions. Firstly, allocative efficiency due to downsizing programs of the public sector (the efficiency condition) has an important counter-image in the public budget and in the viability of the foreign sector. In fact, regarding the latter, it is due to the allocative efficiency that current account surplus could be generated. However, as important as economic efficiency condition might be, it does not constitute a sufficient condition that might make feasible the political transition of an adjustment program, in particular in electoral regimes.

Secondly, although downsizing a congested public sector *à la big-bang* without external financing might intertemporally be consistent, it does not consider pre-reform economic fatigue as a restriction. Economic fatigue of an outworn population might constitute an insurmountable obstacle in the adjustment phase—period one in the Wyplosz's model. Simply put it, consumption contraction in pre-reform periods does not give room to cut income and consumption further, as required, notwithstanding how "fair" the adjustment burden might be perceived. This assertion departs from the assumptions of non-distortionary taxes and electoral cycles.

Thirdly, accepting the above consideration implies that external financing becomes critical. The more congested the public sector is, the more important external borrowing is in terms of resources and interest rates. High-interest rates could make nonviable the reform program in terms of political acceptability. Ergo, negotiations with external creditors should include a commitment to the program pursuance but also time and interest rate levels that make reform politically viable. Should the negotiations with external creditors do not meet the expectations in terms of adequate interest rate and time of repayment, inflationary taxes (inflation) might be an option. This means privileging allocative efficiency over macroeconomic stability in the short run.

intertemporal preferences. The equivalent of the constant elasticity of intertemporal substitution utility function is the well-known Arrow-Debreu constant relative risk averse utility function, CRRA.

South Korea transited this path in the 1970s with important competitive gains in the manufacturing sector²².

Fourthly, privatization of public firms does not invalidate Wyplosz's findings: the optimum unemployment benefits should be in place to comply with political acceptability conditions of downsizing reforms. It does not mind whether the private sector carries the shrinkage of pay-sheets through. If political restrictions are violated, privatizations run the risk of (costly) reversals.

Finally, well-endowed economies represent a case where perception of wealth—windfalls—makes harder the reform of the public sector. First, because workers subject to uncertainty might hold the idea that public reforms are not really necessary, rejecting, in advance, any political efforts pointing to this direction. Second, for external creditors might harden repayment conditions in terms of time and interest rates—shortening grace periods, if expectations over commodities prices are high; or charging higher interest rates if expectations over commodities prices remain low, for instance. And third, because wealth level perception could bend the concavity of utility function—and preference parameters—across state of nature and time²³. Given that wealth perception is an exogenous condition, policy makers should focus on securing the economic program through interest level negotiations and grace periods of repayment subject to state of nature contingent to export commodity prices.

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²² This course of action went to an extreme in South Korea in the 1980s with important consequences for the macroeconomic stability of this country (Asian crisis of the 1990s).

²³ Cfr. (Frederick, 2002) and (Markowitz, 1952).

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APPENDIX

To derive the expression 25 we will copy the equations 21, 24 and the logarithmic utility function. Keep in mind that the left-hand-side (LHS) of the efficiency condition is θ_H/θ_L .

$$21. (1 - \alpha)v(\theta_L - \tau_1) + \alpha v(b) \geq (1 + \rho)v(\theta_L) - \rho v(\theta_H - \tau_2).$$

$$v(c) = \ln c.$$

$$24. \frac{1}{b} = \frac{1}{\theta_L - \tau_1} + \frac{\rho}{\beta(\theta_H - \tau_2)}.$$

The logarithmic utility function implies that

$$i. \quad v\left(\frac{1}{b}\right) = \ln\left(\frac{1}{b}\right) = -\ln(b) = -v(b) \Rightarrow v(b) = -v\left(\frac{1}{b}\right) \quad \forall b > 0$$

Using *i* the equation 21 could be re-written as

$$(\alpha - 1)v(\theta_L - \tau_1) - \alpha v\left(\frac{1}{b}\right) \geq (1 + \rho)v(\theta_L) - \rho v(\theta_H - \tau_2), \text{ or}$$

$$ii. \quad (\alpha - 1)v\left\{\frac{1}{b} - \frac{\rho}{\beta(\theta_H - \tau_2)}\right\} - \alpha v\left(\frac{1}{b}\right) \geq (1 + \rho)v(\theta_L) - \rho v(\theta_H - \tau_2)$$

Working on the right-hand-side of *ii* to replicate the left-hand-side (LHS) of the efficiency condition, θ_H/θ_L :

$$(1 + \rho)v(\theta_L) - \rho v(\theta_H - \tau_2) = v(\theta_L) + \rho v(\theta_L) - \rho v(\theta_H - \tau_2)$$

$$\text{If } \theta_H - \tau_2 \leq \theta_H \Rightarrow v(\theta_H - \tau_2) \leq v(\theta_H) \Rightarrow -\rho v(\theta_H - \tau_2) \geq -\rho v(\theta_H).$$

Therefore, we can say that

$$(1 + \rho)v(\theta_L) - \rho v(\theta_H - \tau_2) \geq v(\theta_L) + \rho v(\theta_L) - \rho v(\theta_H),$$

and also

$$v(\theta_L) + \rho v(\theta_L) - \rho v(\theta_H - \tau_2) - v(\theta_L) \geq \rho[v(\theta_L) - v(\theta_H)].$$
 Then

$$\rho[v(\theta_L) - v(\theta_H - \tau_2)] \geq -\rho[v(\theta_H) - v(\theta_L)] \text{ and}$$

$$v(\theta_L) - v(\theta_H - \tau_2) \geq -v\left(\frac{\theta_H}{\theta_L}\right).$$
 Observe that if this inequation is true, it

$$\text{must also be true that } (1 + \rho)v(\theta_L) - \rho v(\theta_H - \tau_2) \geq -v\left(\frac{\theta_H}{\theta_L}\right).$$

In combination with *ii* and by transitivity:

$$(\alpha - 1)v\left\{\frac{1}{b} - \frac{\rho}{\beta(\theta_H - \tau_2)}\right\} - \alpha v\left(\frac{1}{b}\right) \geq -v\left(\frac{\theta_H}{\theta_L}\right)$$

$$\Rightarrow v\left(\frac{\theta_H}{\theta_L}\right) \geq (1 - \alpha)v\left\{\frac{1}{b} - \frac{\rho}{\beta(\theta_H - \tau_2)}\right\} + \alpha v\left(\frac{1}{b}\right). \text{ Hence,}$$

$$\text{iii. } v\left(\frac{\theta_H}{\theta_L}\right) \geq (1 - \alpha)v\left\{\frac{1}{\theta_L - \tau_1}\right\} + \alpha v\left(\frac{1}{b}\right) \quad \forall 0 < \alpha \leq 1.$$

Substituting by 22 and making the proper arrangement we get

$$\text{iv. } \frac{\theta_H}{\theta_L} \geq \left(\frac{1}{\theta_L - \tau_1}\right)^{(1-\alpha)} \left(\frac{1}{\theta_L - \tau_1} + \frac{\rho}{\beta(\theta_H - \tau_2)}\right)^\alpha \text{ for } \beta = \frac{1}{1+r} \text{ and } 0 < \rho < 1$$