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by

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ABSTRACT

Growth Diagnostics, GD, by Ricardo Hausmann, Dani Rodrik and Andrés Velasco, represents a useful and practical approach in order to identify the most binding constraints to explain low economic growth. According to the authors the full list of specific economic constraints is unknowable ex-ante, and as a second best solution it is worth trying to identify the feature which represents the major obstacle to the unleashing of the growth potential of a country.

This paper has two major aims. In the first part we try to expand the GD method by concentrating on those constraints which appear to be on the 'market/demand side' of the determinants of economic growth, and which are not fully examined in the original GD. We present a modified version of GD which widens the 'decision tree' by including a new diagnostics branch represented by Demand-Side variables. This helps to capture the influence of market conditions on profitability and investments.

In the second part of the paper we apply the new decision tree to Palestine. The original GD would not allow to identify the most binding constraints to economic growth in Palestine. In fact, Demand-Side elements are fundamental to explain the constraints to Palestinian development. In particular, Palestine suffers from the small dimension of the local markets and from the impossibility to effectively integrate the different markets. Therefore, Palestinian firms do not grow and do not reach a size which could make them competitive.

Keywords: Palestine, market size, investment constraints.

JEL Classification: O53, O11, E22.

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1 GROWTH DIAGNOSTICS: AN IMPROVEMENT

1.1 The Hausmann, Rodrik and Velasco approach

The Growth Diagnostics, GD, methodology has been first introduced by Ricardo Hausmann, Dani Rodrik and Andrés Velasco, HRV, in 2004 and since then has received increasing attention. GD is an example of 'clinical reasoning' that helps to identify the causes of the economic stagnation of a country. The authors recognize that many different facts and features are behind the poor growth performance of a country, but at the same time it is difficult to intervene on each constraint at the same time. Given the partial knowledge of the situation, and the limited instruments and resources available, it seems wiser for the policymakers to concentrate on the few causes which can be recognized as the most binding.

But how to identify them? In order to implement this analysis, HRV suggest a specific tool which they call a 'decision tree' (shown in Figure 1). By moving along the branches of this decision tree, from the bottom upward, it is possible to recognize the most binding constraint to economic growth. This method helps to examine the different possible impediments to growth, from the high finance costs, to government and market failures, to low investment profitability. Many of these elements may be a constraint to growth in different countries, and the 'decision tree' provides a method to pinpoint the most relevant one.

Theoretically, GD is a Second-Best approach to the problem of the policymaker who wants to maximize a constrained social welfare function (indicated by w); it is a non-linear optimization problem. In order to solve this problem, the authors adopt the partial derivative of the Lagrangian Function, written as follow:

$$\frac{dw}{d\tau_j} = -\lambda_j + \sum_i^N \lambda_i \frac{\partial\left[\mu_i^s(\tau, \ldots) - \mu_i^p(\tau, \ldots)\right]}{\partial \tau_j}$$

The terms $\mu_i^g(\tau, \dots)$ and $\mu_i^p(\tau, \dots)$ are the net marginal valuations of activity i by society and by private agents respectively[1]; $\tau = \{\tau_1, \tau_2, \dots, \tau_k\}$ is the set of distortions and $\lambda_i \geq 0$, $i = \{1,2,3 \dots, k\}$ are the Lagrangian multipliers corresponding to the constraints associated with each of the distortions.

The first term of this equation represents the direct effect of the marginal reduction of the distortion in activity j, while the second term represents the interaction effects across distorted margins. Because of the difficulty of discovering *ex-ante* all these interaction effects, the Diagnostics approach focuses on the size of the direct effects; the idea behind the strategy is that the policy reforms should aim at the removal of the constraints with the largest direct effect.

This is the core of the Diagnostics theoretical framework, and it remains the same in each one of the three major versions presented by HRV; but GD evolves through time. In particular in the 2004 version the authors focus on the general problem of low economic growth, while in the 2005/2008 version they center the analysis on the problem of low investments.

In the 2004 version, the constrained balanced growth path is described by the following equation:

$$\frac{\dot{c}_t}{c_t} = \frac{\dot{k}_t}{k_t} = \frac{r(1-\theta)(1-\psi)p - \rho}{1-\beta} \quad (1)$$

where c is consumption, k is the stock of capital, r is the rate of return on capital, θ indicates the negative externalities (a higher θ means a higher distortion), ψ represents all the distorsive types of taxation, p is the probability that profits are available for investors, ρ is the foreign interest rate, and β summarizes the conditions of access to capital markets.

In the 2005/2008 version the relevant equation is:

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[1] In Hausmann, Rodrik and Velasco (2004) net marginal valuations depend not only on the set of distortions but also on consumption, labor supply, etc.

$$\frac{\dot{c}_t}{c_t} = \frac{\dot{k}_t}{k_t} = \sigma[r(1-\tau) - \rho] \quad (2)$$

where σ represents the intertemporal elasticity in consumption.

In both expressions r depends on total factor; productivity a, externalities ϑ, and availability of complementary factors of production x:

$$r = r(a, \vartheta, x) \quad (3)$$

The two versions of the constrained balanced growth path are essentially the same, but the second one (equation (2)) is less articulated because all the distortions that may affect private return on investment are summarized in the single term τ. In this paper we prefer to use the 2004 version of GD (equation (1)), which gives more emphasis on the causes which may affect profitability and investments. Moreover, this version better corresponds to the different branches of the decision tree of Figure 1, and it is easier to use in empirical applications.

We will not consider the long-run equilibrium condition ($\frac{\dot{c}_t}{c_t} = \frac{\dot{k}_t}{k_t}$). Notwithstanding its origin, the GD methodology seems to be largely independent from this specific theoretical approach. We will focus on capital accumulation only, and on the specific problem of the influence of market and demand on private investment; in particular we want to highlight the main economic factors which cause low investments[2].

1.2 The critique by Rodríguez and the role of institutions

Before introducing the market/demand side variables, we briefly discuss some problems that have already emerged in the GD debate.

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[2] Hausmann has recently argued (2009) that "in HRV asset accumulation is seen as an interesting area to search for symptoms of a problem because problems get reflected in investment behavior, independent of the relative importance of such behavior for growth" (p. 23).

In the opinion of Francisco Rodríguez[3] the main problem of the Diagnostics Methodology is the implicit assumption that it is possible to relax only one constraint at a time. However, because of the interconnection between the different economic variables, and because of the positive and negative externalities, according to Rodríguez the removal of a single constraint does not guarantee positive results.

The real problem is that the decisional process is totally static and does not explicitly consider all the Second-Best solutions which can be adopted in different instants of time. According to Rodríguez, in order to reach the Second-Best optimum solution it is necessary to follow a more complex methodology in which it should be possible to act at the same time on two or more constraints. Moreover, Rodríguez highlights the importance of the institutional framework which must be strengthened in the short run too.

Let us comment on the problem of institutions in the GD framework. In the decision tree the role of institutions appears only in the 'low appropriability' branch. This is a very limited picture of the function that institutions play in a modern economy. The institutional framework must provide the individuals with the right incentives to accumulate, invest and produce[4]. Moreover, institutions should create a favorable environment in order to shape capabilities, knowledge and entrepreneurship[5]. If the institutional environment is not adequate, individuals might have great difficulties to develop necessary capabilities to enhance the economic system's productivity.

Institutions have a leading role in defining growth strategies, and GD should take into account the possibility that institutional failures might influence different aspects of the economic activity at the same time. So we suggest introducing a cross sectional constraint which is transversal to the branches of the decision tree (see Figure 2). The grey shaded boxes of the tree show the various elements which may be more directly affected by good and bad institutions; each of them refers to a different

[3] F. Rodríguez (2005).
[4] See also Easterly (2001).
[5] See also W. J Baumol (1990), pp. 893-921.

institutional aspect, which requires an *ad hoc* analysis in each different country.

1.3 Adding the Demand-Side Constraints

1.3.1 Upstream-Downstream

The most critical aspect of GD framework is that the Demand-Side is not explicitly considered. If we look at the decision tree we see that it focuses on finance, on various types of 'failures' and imperfections, and on productive resources. This seems to suggest that, in the authors' opinion, what really constraints economic growth are mainly Supply-Side variables. In considering the Demand-Side elements we do not follow the long-run intertemporal equilibrium model[6]. We take a more modest approach which, however, can be useful in bringing to the fore some of those market demand aspects that can significantly affect the investment decisions.

With the term 'market/demand side' we mean all the elements which connect the firm to the market and to the consumers; these elements are considered from the point of view of the firm. Let us represent the firm as a point on a segment: on one side there are all the upstream features of the production process; on the other side we have the downstream elements linking the firm to the market, basically to the point at which sales take place.

Borrowing Hirschman's words we can speak of "*backward*" and "*forward linkages*". Let us repeat that with 'forward linkages' we refer to all the downstream variables which 'connect' the entrepreneurs' decisions to

[6] In General Equilibrium Analysis the Demand-Side is based on the intertemporal preferences of the consumers; in the Diagnostics framework the Demand-Side is synthetically captured by the condition ($\frac{\dot{c}_t}{c_t} = \frac{\dot{k}_t}{k_t}$).

their final market and to the sales of their products[7]. Hirschman underlines that "*backward linkage effects are much neater than forward linkage effects*"[8]. We partly renew his definition of forward linkages. However, we want to stress the importance of the visualization of the potential market by the entrepreneurs, and the way in which they evaluate the forward linkages in order to reach the consumers. These forward linkages can also be seen as all the steps which entrepreneurs regard as necessary, in order to transform the potential demand for their products into effective demand. The vision of the potential market and the evaluation of how to reach it are decisive elements in the firms' investment decisions.

We could say that the original GD approach focuses mainly on backward linkages. The link between productive capacities and their utilization rate not only requires the relaxation of Supply-Side constraints, but also needs to consider the Demand-Side[9]. Both 'upstream' and 'downstream' factors affect the firms' decisions about capacity utilization and, above all, about new investments.

Hirschman dedicates more time to the analysis of backward linkages even though he underlines the fact that backward and forward linkages are closely interconnected in the growth process. He also points out that "*the existence or anticipation of demand is a condition for forward linkage effects to manifest themselves*" (Hirschman 1958, pp. 116-17). We elaborate on Hirschman's insight, and in our addition to the GD framework we stress the role of the *demand anticipation* by entrepreneurs.

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[7] These sales can regard each one of the different components of demand, and buyers can be either consumers, or other firms, or the government, or the products that can be exported.

[8] See Hirschman (1958), p. 116; see also p. 101 where he refers to forward linkages as output-utilization.

[9] See N. Kaldor (1981), p. 603.

1.3.2 The investment function

The main stimulus to the growth comes from private investment[10]; therefore, we focus on the way in which entrepreneurs decide about capital accumulation. Investment decisions and the motivations behind them are one of the most complicated and disputable aspects of economic theory. Here we only want to show that, in order to understand the causes which keep private investment low, the GD methodology and the decision tree may be greatly improved by making the Demand-Side considerations more explicit.

HRV indicate two main reasons which constrain private returns to economic activity: low appropriability and low social returns (see Figure 1). The 'low appropriability' branch of the tree is related to various 'failures': they underline the impact of the low probability to take possession of investment returns, on investment decisions.

But entrepreneurs have to take decisions that also imply an evaluation on the profitability of investments, independently of the fact that they will be able to receive the full returns from them. The first and fundamental evaluation concerns the profitability of investments *per se*. In the 'low social return' branch of the decision tree, we mainly find productive side type of constraints, but nothing about those Demand-Side variables, such as capacity utilization, market size and, above all, expectations about sales dynamics.

Let us examine these new variables in order to throw new light on the possible constraints to private investment.

First, we suggest an *ad hoc* investment function, which partially modifies equation (1):

$$g_k^i = \frac{\dot{k}_t}{k_t} = \phi + \frac{r(1-\theta)(1-\psi)p - \rho}{1-\beta} \quad (4)$$

[10] Of course the main component of demand is consumption which will be considered in the paper as part of the market size determinants.

Equation (4) includes a new variable ϕ, which we specify as follows:

$$\phi = \phi(d_{mt}, i_{mt}, \overline{exps}) \quad (5)$$

In equation (5) (d_{mt}) is the size of the market, (i_{mt}) represents the degree of market integration, and ($\overline{exps}$) stands for sales expectations.

Below we will discuss the rationale for including these three magnitudes in the investment function, but it is clear that they try to capture some elements which are important in the process of determination of investment decisions. In particular they pinpoint some downstream or forward factors which are not included in the original GD methodology, and which all show a positive relationship with ϕ. Equation (5) has a Keynesian flavor; following Joan Robinson and with all the due caveats, we can say that ϕ tries to describe the 'animal sprits' of entrepreneurs[11].

We also provide a somehow different specification of equation (3) and of the magnitudes which influence the rate of profit, or in the words of HRV the social return on investments.

$$r = r(\alpha, \theta, x, u) \quad (6)$$

Besides the magnitudes indicated by HRV, the rate of profit now also depends on the degree of capacity utilization u.

Now we have four new variables which influence investment decisions: (d_{mt}), (i_{mt}), ($\overline{exps}$) and u; let us now examine them one by one.

First we discuss equation (5) and we begin with the *market size* (d_{mt}). From the very beginning of the political economic thought, the market dimension has been a central aspect of growth theories[12]. Notice that a large market has an inherently dynamic potentiality. A more extended market allows economies of scale, in the language of Smith a deeper division of labor, which in turn increases productivity and income. Higher

[11] See Joan Robinson's theory on the capital stock growth rate and in particular the emphasis she gives on 'animal spirits' (Robinson, 1969).
[12] See the well known first three chapters of the *Wealth of Nations* (Smith, 1776).

income may boost consumption and investments as well, reinforcing the markets' growth, and consequently leading to a virtuous growth circle (see Allyn Young 1928). Of course, we can estimate the potential market size for the products of a firm, of an entire sector and of a country; the evaluation process largely depends on the size of the population, on the income per capita and on the degree of openness; but here we do not want to discuss these factors[13].

We rather want to highlight the fact that the *market size* (d_{mt}) may also include an expectations component, or a dynamic component. Entrepreneurs know the size of their potential market, but their decisions may also be influenced by the way in which they expect this market to grow in the coming years; by the way, this is much more difficult to capture. Of course, market dynamics depends on population and income growth, but on many other things as well, such as the improvement in infrastructures, new trade agreements etc. These elements are of particular relevance for developing economies. Here we just want to highlight the fact that (d_{mt}) can be viewed both in a static and in a dynamic sense, the former being much easier to 'measure' than the latter.

Before moving to market integration, let us briefly discuss some further point on market size and innovation opportunities.

In a 2003 paper, Rodrik and Hausmann highlight a policy which seems to bypass the problem of investments profitability. They suggest adopting a strategy by which entrepreneurs, who discover by themselves where investments are more profitable, have incentives to enter new and possibly innovative activities[14]. This approach of *Self-Discovery* is very useful and practical. For sure, entrepreneurs will always try to renew products and processes; but this does not rule out the fact that it is useful to include market size and market dynamics among the determinants of investment.

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[13] Of course, the market size is also influenced by the income distribution, but the sign of its influence on investments can be debated (see for instance Bhaduri Marglin 1990). It is also worth mentioning that the degree of openness *per se* might not guarantee a larger market, because it depends on the export composition.

[14] D. Rodrik, R. Hausmann (2003).

Aghion and Howitt stress the importance of considering the direct link between the probability to generate an innovation and market dimension[15]. In their model one of the main reasons which differentiate between innovative and traditional sectors is in the growth rate of their dimensions, that is to say the increase in the size of the market. Other things equal, it is much easier to innovate in a large and expanding market.

Hirschman is more skeptical about the role of market size, but he, too, indicates the possibility that the forward linkage effects "*will induce attempts to utilize its outputs as inputs in some new activities*" (Hirschman 1958, p. 100). The generation of new activities is crucial; this makes the analyses of the conditions even more important since they can induce the entrepreneurs to enter this type of pioneering processes, and eventually make them successful.

Let us now consider the *degree of market integration*, I_{mi}. The overall potential market might be there, while different markets could be difficult to reach. The obvious case is the situation in which markets are geographically scattered all over the country, with very poor communication systems. The problem of how to really access the markets comes up again: how to transform a potential market into more sales. This is a typical problem of forward or downstream linkages, which has not to do only with physical infrastructures. Market integration includes all the elements which are essential to make the 'selling pipeline' effective. Moreover, besides poor communications, other factors may negatively affect entrepreneurs' decisions about new investments: a fragmented distribution chain, in which you can reach the markets but at higher costs; a system in which payments for sales are delayed. Market integration, as well as market dimension, chiefly depends on exogenous factors like income, demography and individual preferences, but they depend on institutional and political variables too. As we shall see, this is a major problem in Palestine.

[15] It is important to underline that Aghion and Howitt's results (2009, p. 169) are mainly related to economic sectors.

It is reasonable to suppose that in a small-open economy and in the short run, *sales expectations* ($\overline{exps}$) are exogenous. In the case of Palestine this fact is even truer because expectations depend mainly on the political situation, which is completely exogenous. This fact highly damages entrepreneurs' 'animal spirits' and consequently can help to explain the low level of capital accumulation.

As for market size, sales expectations too have both a static and a dynamic component. On the one hand, firms expect to sell a certain amount of their products, and the larger the better. On the other hand, entrepreneurs' investment decisions will also be influenced by their view about the way in which sales will move in the future; this aspect is much more difficult to assess, and it includes medium and long term considerations[16]. Other things equal, the entrepreneurs decide to invest if they can see the potential increase of sales or, even better, the opening up of new markets in front of them. This latter case can be related either to the commercialization of a new product or to the possibility to access new markets.

Now we move on to examine equation (5), that is to say *profitability and in particular the role of capacity utilization*. As we have seen, the original GD framework includes only the first three variables of the right hand side of equation (6), which regard mainly the impact on profitability of the productive capacity side; u helps to move on to considerations more related to market and demand.

Some quick considerations on the importance or on the lack of capacity utilization in the explanation of the growth process could be useful.

A World Bank Survey by Correa and Lootty on the impact of financial crisis on firms in seven different countries seems to confirm the importance of the market side[17]. The survey included a question about the main effect of the financial crisis, and firms had a list of five options to choose from, including a residual option termed "other effect". In each country covered

[16] We will further elaborate on this point in section 2.3 on Palestine. See also Botta and Vaggi 2010.
[17] P. Correa, M Lootty (2010).

by the survey, more than 70 percent of firms chose the answer: "drop in demand for its products and services" (Correa and Lootty 2010, p. 2).

The Financial Crisis Survey also measured the capacity utilization of manufacturing firms. In all the countries analyzed in the Survey there was a decrease of capacity utilization in the manufacturing sector (see ibid., p.3).

It is worth remembering that many authors emphasize the role of demand and, in particular, the role of the degree of capacity utilization on economic growth. Setterfield writes that in each instant of time, demand determinants affect the degree of capacity utilization through innovation's push[18]. In fact, the availability of productive capacities is fundamental in order to have economic growth, but this does not mean that they are all fully utilized: to know if the productive potential is or not completely exploited, one needs to investigate Demand-Side factors.

Following Kalecki's growth model, Lavoie[19] writes that the private profit rate is given by:

$$r = \frac{\Pi}{K} = \left(\frac{\Pi}{X}\right)\left(\frac{X}{X^{max}}\right)\left(\frac{X^{max}}{K}\right) = \pi u \varepsilon$$

where π is the profit share, ε is the full employment output-capital ratio, and u is the degree of capacity utilization.

The '*new*' decision tree (see Figure 2) that we present includes all the variables introduced in equations $(4) - (6)$ above mentioned, and provides a wider set of possibilities for the research on the constraints to the economic growth of a country.

In this new description of the diagnostic process, we have also grouped the different elements into four major blocs, because this helps to identify more clearly the content of each branch of the tree. From right to left they can be called: the *finance branch*, the *appropriability branch*, the *productivity branch* and the *market-demand branch*. This grouping makes

[18] See M. Setterfield (2002).
[19] See M. Lavoie (1992).

much easier to see whether or not some variables are lacking and it facilitates to examine both the relationships among the different variables inside each branch, and the relations among the different branches.

We want to stress the importance of the linkages between the last two bloc/branches on the left hand side of the tree, namely the *productivity branch* and the *market-demand branch*. The former branch exists in the original GD tree; the latter is the one we have just introduced. It is clear that there are mutually reinforcing forces which link total factor productivity, TFP, to market dimension. In developing countries the linkages between TFP and market size can either result in a positive growth path or generate a "poverty trap"[20].

In a sense, this brings us back to the problem already highlighted by Rodríguez: acting on one constraint at a time could be dangerous. The mutual and possibly reinforcing linkages between these two branches are absolutely crucial to explain both economic growth and the lack of it. In order to trigger off a process of economic growth, it is important to identify the most binding constraint. By the way, strong economic growth is a cumulative process which can be sustained in the long run, only if a number of variables positively interact with one another. Otherwise, new binding constraints will emerge and the country might well risk falling back in a low income and low growth situation.

Take two very simple considerations. On the one hand, given the low level of productivity in many low income countries, stimulating the aggregate demand might generate inflation. On the other hand, the reduction of government and market failures, or the introduction of more efficient technologies may certainly reduce the production costs. But without an increase in market size and in expected sales, capital accumulation and the new output level will not be sustained.

[20] On this argument see J. D. Sachs (2005).

2 THE CASE OF PALESTINE

2.1 The background

In Palestine Market-Demand considerations are particularly useful to explain low economic growth and to identify the most binding constraint. Many of the economic pathologies of Palestine seem to have a Keynesian nature: clearly it is a less-than-full-employment equilibrium, with very small domestic firms which need physical investment to reach more efficient productive scales, and to improve competitiveness. According to the World Bank, Palestine is a typical investment-constrained economy[21].

Palestine represents a peculiar case among Developing Countries because the development of its economy has been influenced by about sixty years of conflict with Israel. Since the Six-Day War (1967), Palestine has been subjected to Israeli military, economic and administrative control[22]; movement restrictions due to Israeli security controls prevent the ordinary progress of economic activity.

As regards trade, Palestine looks like a small-open economy almost completely dependent on Israel, to which is connected by a *de facto* Custom Union[23], nevertheless, goods and people's movements are not free and the two markets are not integrated; moreover Palestine has almost no independent currency and very little economic sovereignty.

Since the Oslo Treaty (August 20, 1993), Palestinian economic performances have been moderately good, but have become very disappointing after the second *Intifada* (2000). The average annual growth

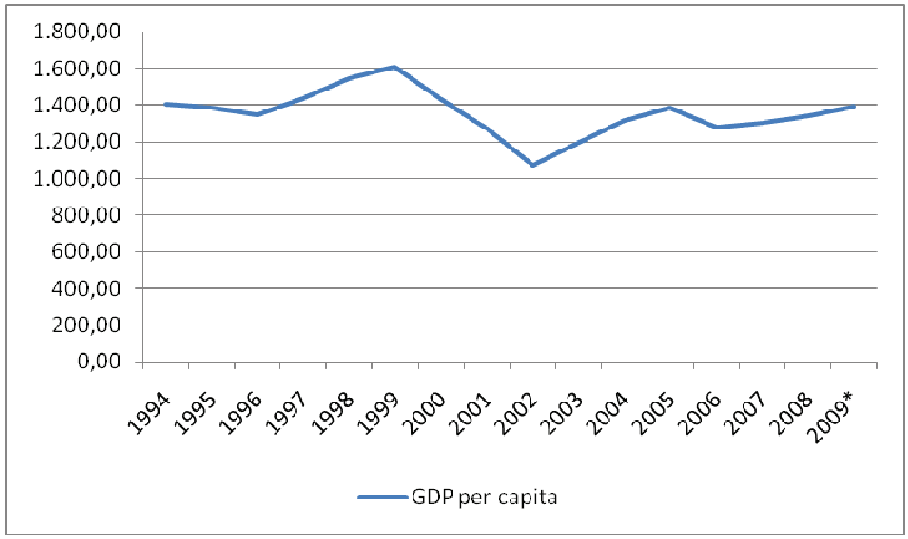
[21] The World Bank (2007a). See also Botta and Vaggi (2010).
[22] See Botta and Vaggi (2010).
[23] This was established by the Paris Protocol (April 29, 1994) which set rules for economic relations between Israel and Palestinian Territories.

rate of income has dropped by 8%, and GDP per capita has fallen by nearly a third since 1999[24] (see Figure 3).

In 1967 Palestine had many marks of economic weakness and very little has changed since then. In particular, for what concerns the structure of the economy, the agriculture's share has fallen to about 7 percent of GDP, even though agricultural activities are still quite important for peasant households, and the industry's share remains only about 13 percent[25] (see Table 1).

Today Palestine is in a distorted state of development, and it looks like a service-dominated economy with an important role for the construction sector, perhaps larger than it looks from the figures. The Palestinian private manufacturing sector stagnates.

Figure 3: Economic Growth (1994-2009).



Source: World Bank, Palestinian Central Bureau of Statistics (PCBS), 2010.
*Data for the year 2009 are preliminary and based on quarterly estimates and will be revised.

[24] The World Bank (2009b).
[25] The World Bank (2007a).

Of course the Israeli occupation does not help the private sector revival. The West Bank and the Gaza Strip are in fact two different economies. Moreover, the physical and administrative barriers imposed by Israel inside the West Bank isolate the main cities that are not able to trade one another, with the Jordan Valley and East Jerusalem (see World Bank 2010, p. 4).

Table 1: Share of GDP by selected activities in West Bank and Gaza.

	1994	2000	2007
Agriculture and Fishing	13,2	9,7	8,2
Mining, Manufacturing, Electricity and Water	22	13,2	12,7
Of which:			
Mining and quarrying	4,4	4,3	4
Manufacturing	89,4	86,6	82,7
Electricity and Water supply	6,2	9,1	13,3
Construction	8,9	8,9	2,5
Wholesale and Retail trade	18	11,3	9,9
Transport, Storage and Communication	3,4	5,3	11,5
Financial intermediation	1,2	4,3	4,6
Other Services	23,6	22	22
Public Administration and Defense	9,4	12,6	14
Value of GPD	3012,3	4118,5	4133,4

Source: Palestinian Monetary Authority.
http://www.pma.ps/pdf/Real_GDP_by_Economic_Activ.xls

By using the '*new*' decision tree, we shall see that the fragmentation of the domestic market is one of the major causes of the lack of investment in Palestine, because it creates a risky and precarious investment climate and in the end it hinders the Palestinian productive potential.

2.2 Palestinian Constraints: the traditional branches of the GD decision tree

The main problem in Palestine is the lack of investment and our purpose is to identify what keep investment levels low. In order to investigate what

constrains investment in the Palestinian economy, we will use the '*new*' decision tree in Figure 2, and we will see that without the market-demand branch and the variables it includes, it would be impossible to identify the most binding constraint to Palestinian economic growth.

We will examine the four branches of the tree, from right to left.

Let us first focus on the *finance branch*. Currency-risk is null because Palestine does not have a proper currency; country-risk is low even though there exists a situation of political instability, because the Palestinian Authority does not issue government securities and so there is no risk of default; moreover, the trade deficit is always balanced by international aid.

As regards *local finance*, the banking sector, which dominates the financial system in WBG, is relatively sound and its total assets steadily increased from USD 4,885 million in 2004 to USD 6,704 million in 2007. The banking system is successful in attracting public savings, which have even increased since 2001. The WBG deposit ratio (total deposit/GDP) is 102 percent, which is close to those observed in developed countries and well above those of the MENA Region, which are around 60 percent[26]. Credit facilities to private people have increased by 23 percent between 2008 and 2009, but investments remain concentrated on real estate, construction and public sector, and not on manufacturing and high value added services (see World Bank 2010, p. 12).

The lack of investments does not seem to reflect the lack of funds: there is no saving constraint. The representation of Palestinian investment as being saving-determined would probably be misleading; we rather believe that there is an absence of profitable investment opportunities (on this, see also Botta and Vaggi 2010).

We now move to the second bloc: the *appropriability branch*, which is central in the original Diagnostics framework. We concentrate on the macro and micro risks due to *government failures*.

[26] The World Bank (2008b).

With regard to *macro risks*, we have already seen above that Palestine does not have financial and monetary instability problems. The fiscal situation deteriorated after the second Intifada: the Palestinian National Authority's deficit increased from the pre-Intifada value of around 3% of GDP, to 18% of GDP in 2005[27]. However, it must be emphasized that the fiscal deficit is always largely covered by international aid[28]. Palestine fiscal fragility does not seem to be the most binding constraint to growth, at least for the time being.

The main *micro risks* include corruption, high taxation and lack of property rights. With regard to corruption, the World Bank's results[29] show that only 13% of firms in WBG are expected to pay bribes to public officials, and only 1.56% are expected to pay bribes in order to get an operating license; these findings are much better than those concerning the MENA Region, where the average values of the two data are 30% and 15% respectively [30].

Entrepreneurs do not consider the fiscal regime in WBG as a main problem, because in fact it is intended to provide incentives for investment; as a matter of fact, Palestinian tax rates are either below or on the average of MENA Region's values[31].

In Palestine there is no clear *property rights* regime. This is a problem for economic activity, in particular as regard Land Administration. The implementation of a clear property rights regime would be a fundamental step for Palestinian Authority in order to develop a modern incentive system for investment. Among the micro risks this is the more relevant one, in particular for the long-run investments, but it is not the major cause of prolonged stagnation[32].

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[27] The World Bank (2006b), p.11.

[28] In the period 2000-2005 financial aid represented about 10% of WBG GDP, while in 2008 it reached about 30% of GDP. Source: The World Bank (2009b), p. 11.

[29] We refer to World Bank (2004) and the results of the Enterprise Surveys available at www.enterprisesurvey.org.

[30] Enterprise survey database.

[31] See Doing Business Database available at http://www.doingbusiness.org; and The World Bank Report no. 36320 WBG (2006b).

[32] The World Bank (2006b).

The third bloc, the *productivity branch*, is particularly important because it includes all the externalities which negatively affect productivity. For sure, Palestinian *geography* is not particularly favorable to economic development. On the one hand, poor geography cannot be considered as a real constraint, because there are examples of landlocked countries that reached positive results in terms of rate of growth (i.e. Botswana, Zambia). On the other hand, the geographical circumstances of Palestine would not be so terrible but for the political conditions. It is a small country but with a seaside, and situated at a very short distance from major potential partners such as Israel and Jordan, and not that far away from Egypt. Water is a problem, but again mainly because of the political circumstances and, in any case, there is no process of desertification going on.

In Palestine the *human capital* level is very good. The education indicators compare favorably to those in the rest of the MENA Region: for example the secondary gross enrolment ratio is above 90 percent with respect to just above 70 percent in MENA as a whole[33]. Similarly, labor market rigidity does not seem to be a binding constraint for the Palestinian economy; its legislation on labor is more flexible than in Turkey (see Table 2).

Table 2: Rigidity of Employment in WBG and in some MENA Countries.

Country/Region	Rigidity of Employment Index (0-100)[1]
Egypt, Arab Rep.	27
Jordan	24
Israel	17
Libanon	25
Turkey	35
West Bank and Gaza	31
MENA average	24.5

Source: Doing Business database. Figures are for 2010.

[1] The Rigidity of Employment Index is the average of three sub-indices: Difficulty of Hiring Index, Rigidity of Hours Index, and Difficulty of Firing Index. Each of these indices assigns values between 0 and 100, with higher values representing more rigid regulations.

Without investigating the Demand-Side variables, our diagnostics analysis would end up with the identification of Low Total Productivity as the most-binding constraint for Palestine. Total factor productivity is difficult to

[33] The World Bank (2009b), p. 20.

measure, but if we take labor productivity[34] in the industrial sector we see that it has steadily decreased until 2000, and only after 2003 has begun to pick up again[35]. Low labor productivity and low TFP are certainly major constraints to economic development in Palestine, but why is productivity low? The answer to this question and the reasons of these weak conditions will emerge more clearly in the analysis of the fourth branch of the tree: the one related to market and demand.

Before proceeding with the analysis of the market-demand branch, it is useful to consider briefly whether or not the *Palestinian institutions* may be regarded as the major constraint to economic growth[36]. The Palestinian National Authority is quite recent and it is still too weak to constitute a well-functioning, solid and complete institutional environment.

However, the PNA had a positive performance in institution-building and delivery of public services since 1993[37].

The PNA's Palestinian Reform and Development Plan for 2008-2010 underlines the importance of high quality institutions, in order to achieve social and economic development goals[38].

In some areas, such as the management of public finance and the establishment of security and the rule of law, important reforms have taken place and progress continues to be made. In other crucial areas, such as the judiciary, the land management and the border management, reforms are proceeding at a slower pace, also because of the limited institutional capacities in certain areas of the administration; another reason is the presence of constraints imposed by the situation of occupation, which prevents the PNA from taking responsibilities of some important areas of the administration, for instance external trade and the related fiscal issues.

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[34] We consider labor productivity as an indicator for total factor productivity because the Palestinian economy is characterized by labor-intensive products.
[35] The World Bank (2007a).
[36] As we said before, although Rodrik asserts the necessity of a solid institutional framework (see D. Rodrik, 1999), he does not explicitly consider it in the decision tree.
[37] The World Bank (2009b).
[38] The World Bank (2007c).

A report of September 2009 by the World Bank says that Palestine must strengthen the existing institutions and build new ones in order to provide support for the market economy. But it concludes that "*no amount of well-functioning institutions, will, however, lead to economic growth in the absence of access to markets, whether within the West Bank and Gaza, in Israel, or in the rest of the world*" (World Bank 2009b, p. 7).

2.3 Demand-Side Constraints in Palestine

In Palestine both total and labor productivity are low, mainly because of the extremely small size of the industrial establishments. Low productivity is the result of the *small dimensions of firms*, which imply lack of productive backward and forward linkages between firms, and lack of learning mechanisms that push innovation. The average dimension of firms is four workers in West Bank and five workers in the Gaza Strip, and they have no real opportunities and very little incentive to growth.

Micro firms which serve isolated economic zones cannot achieve the economies of scale necessary to guarantee sensible productivity improvements and investment flows[39]. But why these firms do not grow?

This situation is due to Israeli security restrictions that have fragmented the whole territory and the West Bank in particular. Physical and administrative barriers all over the territory increase transportation costs, reduce firm's competitiveness, and hinder trade inside the West Bank and between the West Bank and the Gaza Strip. Palestinian firms work in a fragmented economic environment which also prevents the development of new activities.

Restrictions on the ground also increase in uncertainty and risks. Uncertainty about market access, and market fragmentation are the two elements which prevent entrepreneurs from fully exploiting the possibilities of forward linkages; this situation keeps investments low and it is the real cause of Palestinian stagnation. These restrictions also prevent

[39] The World Bank, (2007a).

Palestinian people and firms from taking advantage of Israeli infrastructures such as roads, ports and airports[40].

Palestine has a productive potential, but it does not exploit it and the above considerations seem to indicate that the most binding constraints do not so much belong to Supply-Side part of the decision tree, but rather to its Demand-Side. Let us now move to the *market-demand branch* of the '*new*' decision tree and examine the four variables that we have introduced in equations (5) and (6).

The main economic signal which indicates a demand problem is the firms' rate of *capacity utilization* (u). A recent World Bank Survey[41] found that the average level of capacity utilization was only about 57 percent in the West Bank and 47 percent in Gaza (in our fourth branch of the tree u is low); micro enterprises operating at only half capacity cannot hope to be internationally (nor nationally) competitive, and are not able to stimulate demand growth[42].

Another important signal that emerges from the analysis of the Palestinian economy is the difference between the *size of the market* that firms can actually serve without incurring prohibitive costs, and the overall Palestinian potential market. In terms of population Palestine is nearly four million people, but the market served by each firm does not go beyond the municipal area in which it is located. In the largest cities (Ramallah, Nablus, Hebron) markets are just a few hundred thousand inhabitants, so the market dimension (d_{mr}) is quite small[43]. Entrepreneurs who know that

[40] Administrative impediments also prevent Palestinian from building new infrastructures: the Israeli Government does not issue licenses that are necessary in Area C, which represents about 60% of WBG Territory.
[41] West Bank and Gaza 2006 Enterprise Survey, www.enterprisesurveys.org.
[42] The World Bank (2007a).
[43] It is very difficult, if not impossible, for Palestinian firms to sell their products in Israel and to export them to the nearby Arab countries. Of course, many Palestinians work in the Gulf and send remittances back home.

they can only serve small markets do not need to increase productive capacity, and they have no motivations to increase investments[44].

The *domestic market fragmentation* has worsened after the outbreak of the second Intifada in September 2000. The Government of Israel has strengthened security measures, and this has caused the fragmentation of the West Bank territory in at least three different areas: North, Centre and South. Since the political elections of 2006 there has been an almost complete separation between the territories of the West Bank and the Gaza Strip (very low level of market integration i_{mt}).

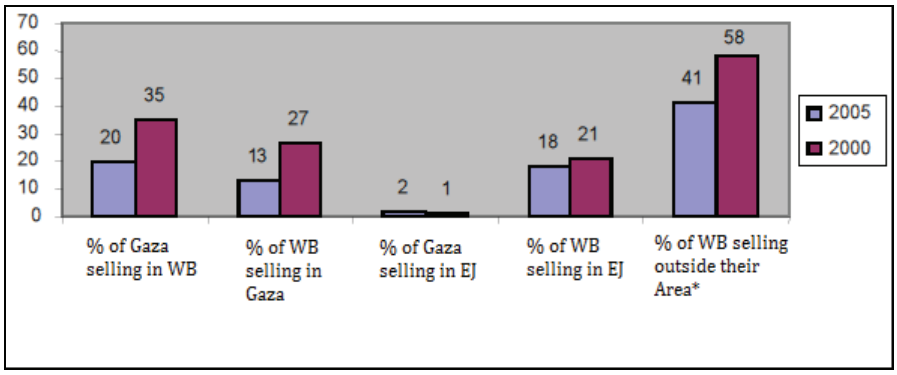
As a result there has been a large drop in the percentage of establishments in Gaza and in the West Bank selling into the other region. Inside the West Bank there is also an important decline in the percentage of establishments which manage to have a significant amount of their sales in other areas of the West Bank itself[45] (see Figure 4).

Since 2009 the mobility situation has lightly improved in the West Bank; some check points have been removed and communications between the major cities are a bit easier.

However, for the time being, this has not created a significant increase in trade flows inside the West Bank, and has not brought back industrial employment to the situation of 2000 (see World Bank 2010, p. 119).

Figure 4: Percentage of sample selling out of their Region.

[44] In the private service sector an exception is the mobile phone provider Jawall, which managed to wholly cover the West Bank.
[45] World Bank 2006 Enterprise Survey.



Source: 2006 World Bank/PCBS Enterprise Survey.
*% of WB enterprises selling more than 25% out of their area.

The fact that some relaxation to movement restrictions has not generated economic impetus does not at all contradict our analysis of the stagnation of the Palestinian economy – quite the contrary. This problem leads us to the last element that affects investment decisions in the demand side branch in our '*new*' decision tree: *sales expectations* ($\overline{exps}$). This is probably the most important element that influences firms' decisions about investments; in particular one should consider the dynamics of expected sales, that is to say their forecasted change over time. Remember that this magnitude includes expectations about the possible opening up of new markets. In all these cases entrepreneurs will invest more only if they are convinced that the expected increase in sales will last for some time in the future. The dynamic part of ($\overline{exps}$) is related to some sort of expected enduring improvement, which can produce a new scenario which will last for the time necessary to recover the funds invested and to make decent profits.

These changes, hopefully increases, in sales expectations are related to long term phenomena and are not just the result of some short lived event[46].

In Palestine sales expectations are exogenous because dependent on the political situation, and they are deeply and negatively affected by the Israeli-Palestinian conflict.

[46] This point is further elaborated in Botta and Vaggi (2010).

Above all, temporary improvements in the political conditions on the ground are not going to modify this element of the investment function. Therefore, some relaxation of the constraints to movements in the West Bank will have very little impact on investments, until they will be quite substantial and the entrepreneurs will be convinced that they are irreversible.

Following the Oslo agreements and until September 2000, there has been a period in which investments increased in Palestine, including the establishment of an Industrial Zone on the northern edge of the Gaza Strip. This was certainly due to political pressures coming from the international community, but the general investment mood was much more positive than before, and Palestinian wealthy people were prepared to invest their funds at home.

Unfortunately those positive expectations have not lasted long.

3 CONCLUSIONS

Without considering the Demand-Side branch of the decision tree it would be difficult to single out the main constraints to economic growth in Palestine. What really prevents Palestinian economic growth is the small size of the domestic market and its fragmentation, that is to say the low level of market integration (i_{mi}).

Low capacity utilization and low productivity are more a consequence than the real cause of Palestinian economic stagnation; actually they are low because there are no incentives for entrepreneurs to increase the size of the firms.

The stagnation of the private manufacturing sector depends neither on the lack of savings, not even on credit possibilities – the financial sector is sound and very liquid, and the credit requirements needed are low – nor

on the laziness of entrepreneurs, who are conscious of the much needed investments.

In the current situation, *in which firms have great difficulties to access to market and to evaluate – we could say to view and to understand market potential* – entrepreneurs show little inclination to invest because they are not able to see any profitable investment opportunity[47]. Expectations about future sales remain pessimistic.

In particular, because of the small and fragmented markets, it is very difficult, not to say almost completely impossible, for the Palestinian entrepreneurs to try to implement that process of *Self-Discovery* of new profitable activities (see Rodrik and Hausmann 2003). The pessimistic/optimistic mood of entrepreneurs is the main cause influencing the introduction of innovative activities. This consideration is so obvious to be almost a tautology. Innovations are strictly dependent on the entrepreneurs' expectations about the potential increase in their sales and in their lasting into the future.

Moreover, large and growing markets are a very important stimulus to introduce new products and to open new initiatives. As a matter of fact, they are very useful conditions to transform a potential demand into effective demand for the firm's own products, including the new ones.

In the case of Palestine it is clear that Palestinian entrepreneurs will bring their money back to the country, and foreign firms will join only if the political situation and the operating conditions on the ground will show a permanent improvement, giving some sort of guarantees that it will not be reversed in the medium-term. The analysis of the Palestinian economy has shown the importance of including market-demand side considerations in the Growth Diagnostics approach. This is a very peculiar case, but the diagnostic potentialities of the '*new*' decision tree are not limited to Palestine.

[47] The World Bank (2007a).

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The World Bank (WB): http://www.worldbank.org/

United Nations Conference on Trade and Development (UNCTAD): http://www.unctad.org/

Figure 1: The 2004 HRV Decision Tree.

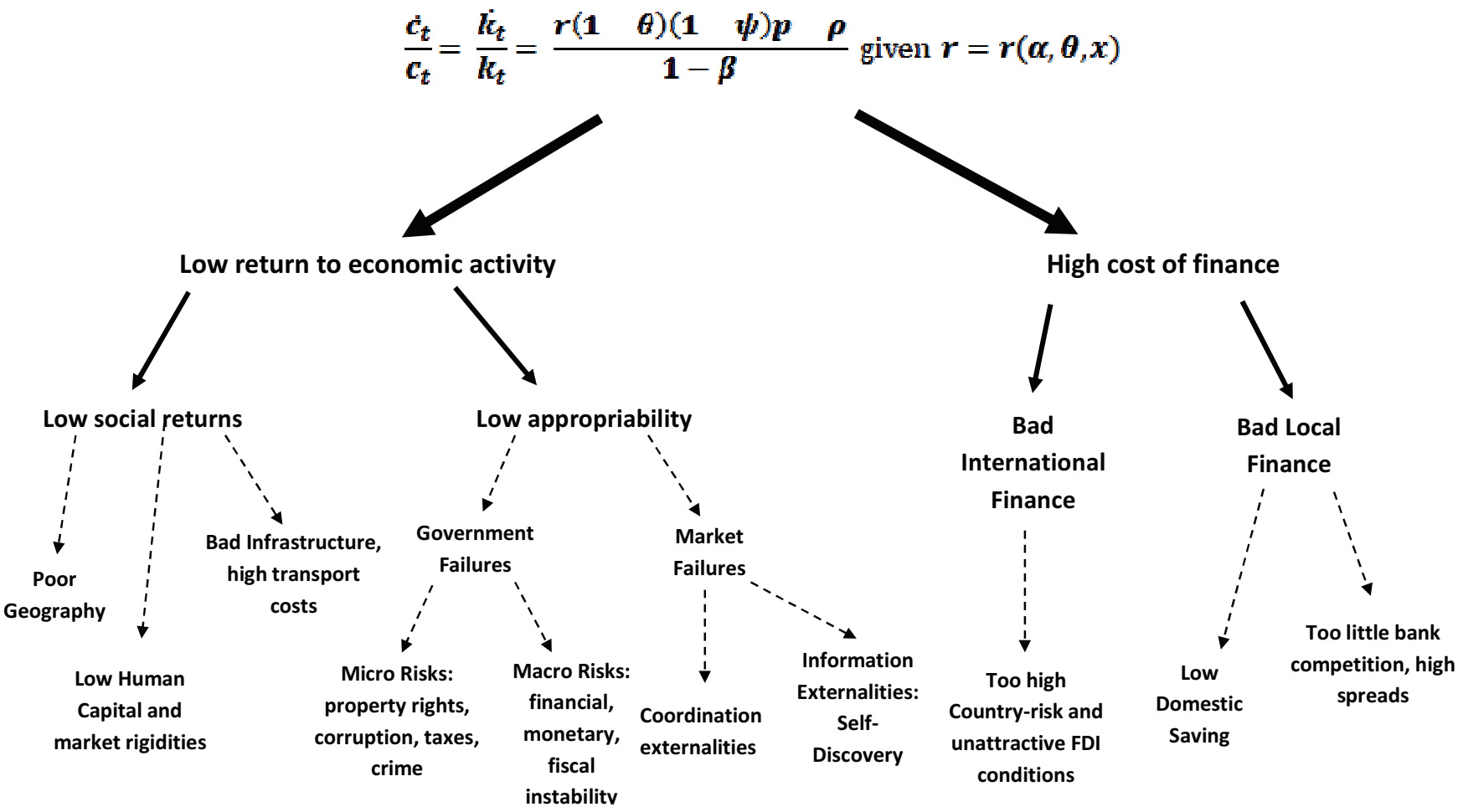

Figure 2: The New Decision Tree.

$$g_K^i = \frac{\dot{k}_t}{k_t} = \phi + \frac{r(1-\theta)(1-\psi)p - \rho}{1-\beta} \; given \; r = r(\alpha, \theta, x, u) and \; \phi = \phi(d_{mt}, i_{mt}, \overline{exps})$$