

Does Growth improve Capabilities? - Evidence from Brazil

(A preliminary case study of Rio Grande do Sul)

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Abstract

This paper consists in an empirical application of the capability approach. It examines one of the most important tenets of the capability approach, that is, that resources are imperfect indicators of well-being and therefore that an informational approach to a plural system of evaluation should be based on capabilities. The paper starts by examining the growth effects on poverty reduction. It argues that there are important differences between the opulence and the capability approach view that should be characterised for an analysis of poverty in the south of Brazil.

Brazil and its southernmost state (Rio Grande do Sul) seem to be a very interesting case of application for the capability approach. Brazil's high levels of income inequality produce meaningless aggregate welfare indexes that hide a the deprivation of capabilities of a large number of people who live under sub-human conditions. The paper estimates a panel model based on official data. It produces growth-poverty elasticities, paying attention to differences between town councils and within town councils. More importantly, the paper provides estimations of elasticities based on important capabilities, e.g., health, education, sanitation and economic.

Key words: Economic growth, poverty, capabilities, elasticity

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Introduction

One of the foundational issues of the capability approach is the promotion of the quality of life (see e.g. Nussbaum and Sen, 1993) and of the standard of living (Sen, 1987) of individuals. As much as the capability approach has furthered our understanding of the meaning of development as an expansion of valuable capabilities (Sen, 1999, Nussbaum, 1999 and 2000), there are important remaining issues concerning the measurement of development and its relationship with economic growth.

The ‘conversion issue’, as we could call it, was defined as a critique of Rawls’ defence of equality in the space of primary goods. The focal space was directed by Sen and Nussbaum to the space of capabilities, with the argument that there are “interpersonal variations in ‘transforming’ goods into functionings” (Sen, 1985:198). Resources were so defined as imperfect indicators of well-being. This would result from a clarification between means vs ends and from the circumstantial heterogeneity among individuals in the conversion of resources into important functionings (Sen, 1992).

It is interesting to note that this tenet of the capability approach, regarding the parametric importance of resources in the definition of well-being, mirrors the debates in the literature on the ‘quality of growth’ (see Ray, 1998 and Fields, 2001). The so-called ‘trickle down’ effect has been difficult to corroborate empirically due to differences in methodologies and data used. Whereas there is a large empirical literature on the validity of the Kuznets hypothesis, there is scope for further investigations on the relationship between economic growth and the promotion of capabilities.

The different patterns of economic growth produce not only diverse profiles of income distribution but also different sets of environments that condition the interactions among individuals’ choice, governments’ policies, societies’ institutions

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and the history and geography of a country. The conversion issue signals the difficulties in defining development as an expression of economic growth. However, it must be noted that GDP per capita is still used as an important measure of development, implying a division of countries between developing and developed.

The perspective of development as an expansion of valuable capabilities emphasises the importance of the promotion of freedom, allowing individuals to choose the sort of lives that they would like to live and the things that they would consider valuable doing. At the same time, they need to have the conditions to do or get the things they have chosen. If resources are imperfect indicators of well-being, it seems reasonable to inquire about how imperfect they are. This tenet of the capability approach is then reduced to an empirical proposition and it is suggested here that it can be examined.

This article tries to do this evaluation using data from Rio Grande do Sul – Brazil (RS) as an example. The state was chosen among all states in Brazil because the aggregate official indicators put it as a developed state. Rio Grande do Sul is an important case study due to the fast economic growth and high GNP per capita. Other statistics rank the state within the places with high human development. For example, the Human Development index classifies the state as a Human Developed State with an index of the 0,809 UNDP (2000). The percentage of Adult Illiteracy is 6,1% and Life Expectancy is 75,45 years (IBGE, 2002). One might wonder the role of economic growth in the promotion of these important capabilities.

Whatever the case, the state remains with a high level of inequality in income distribution, with a Gini Coefficient of 0.637. There are further inequalities in many individual and social aspects, like access to basic goods such as clean water, sanitation, education, health care, infrastructure, credit, investments, job opportunities and some others. This perverse feature might suggest that economic growth in this part of Brazil was not enough to promote some basic capabilities and human development of its people. Fast economic growth in the southernmost state of Brazil has given rise to social problems and high levels of poverty as a result of

the particular pattern of economic growth in this region (see Andreoli, 1989; Klearing, 1989 and Oliveira, 2001).

Given this context, the main goal of this paper is to investigate the relationship between economic growth and expansion of basic capabilities in the state of Rio Grande do Sul, Brazil. It will be done following the next steps.

- Showing and discussing the main changes that have occurred in economic activities in Rio Grande do Sul during the last years;
- Analysing how these changes have affected people's lives and in which dimensions they have been affected;
- Discussing if the economic growth has improved the basic capabilities for all groups in an equalitarian way;
- Identifying what kind of capabilities were less developed.

In summary, this paper tries to evaluate whether the changes promoted by the economic growth in Rio Grande do Sul in the last years have helped to improve the basic capabilities of its people. In other words, this paper tries to analyse the quality of the economic growth from a capability perspective. It will be done using the theoretical evidences about this topic. The analysis will use secondary data with different levels of aggregation like GNP per capita, rate of economic growth, indexes of income distribution, number of people living in farm and non-farm areas and rate of growth in each activity sector. Qualitative data will also be included in order to verify whether economic growth has promoted basic capabilities such as those related to health care, education, shelter, and so on. A correlation analysis will be shown and a panel data will be estimated. The data came from FEE, IBGE, World Bank, Rais e Caged.

The paper is divided into five parts. The first part characterises the state of Rio Grande do Sul in order to justify the degree of heterogeneity found in the state and the different speed in which the economic growth took place. The second part examines the economic growth effects using evidence from the literature and some empirical results from RS data. The third part discusses the capability approach and the limitations of the economic growth as a means to promote development.

The last part of the study will show the main empirical results and discuss the impact of economic growth on the promotion of basic capabilities.

2 - Rio Grande do Sul: stylized facts and main characteristics

The State of Rio Grande do Sul is located in the south of Brazil and it was populated around the end of the eighteenth century. The colonisation process was based on immigration. The first group that began to populate the Rio Grande do Sul was the Portuguese, who needed to protect the land against the Spanish colonisers from Argentina and Uruguay. Land was originally distributed by the central government in large amounts following political-military reasons. The pattern of land use –initially occupied to exploit extensive cattle-raising activities- remained the same until the middle of the 20th century when the industrialisation process started. It generated large farms with extensive production processes low in technology and low in productivity -which is the main characteristic of this region until now. These activities became important during the beginning of the economic growth period. The extensive cattle-raising production was directed to export it to the rest of the country and to other countries. This activity was developed using slave handmade work (intensive labour).

At the beginning of the 19th Century, German immigrants came to work in the state and, at the end of the same century, other groups of Europeans started to settle and produce in the State. These groups were composed of Polish, Dutch, French and, in more number, of Italians (Souza, 1999 e Andreoli, 1989). These groups of immigrants came to Brazil looking for opportunities that were not available in Europe in the after-war period. The immigrants brought with them the technological knowledge that was being used in Europe.

It is very important to remark that the land occupation and economic exploration were differentiated in many aspects like the size of the agricultural land, knowledge (human capital), cultural and geographic aspects, and so on.

The improvements in agricultural technology and the industrialisation process in the last century transformed this state into one of the most productive and competitive states in the country. The rates of Economic Growth were very high comparatively to other states in Brazil (Costa e Passos, 1987 , Targa, 1988, Souza, 1999).

It must be observed that, in a relatively short period of time, the state passed from a rural and almost uninhabited area to an Industrialised and economically developed state. The industrialisation process in Brazil started around the end of the 19th century, happening at the same time in Rio Grande do Sul. In the beginning, this process was directed by the rural sector and the industries were responsible just for transforming rural goods into consumables. The industrial sector became the main sector in Rio Grande do Sul only after 1970. Should the state development be evaluated from an opulence& utilitarian view, using just economic indicators, we could thus classify the state as a developed one. We can see that the economic growth brought many changes to the state’s production structure.

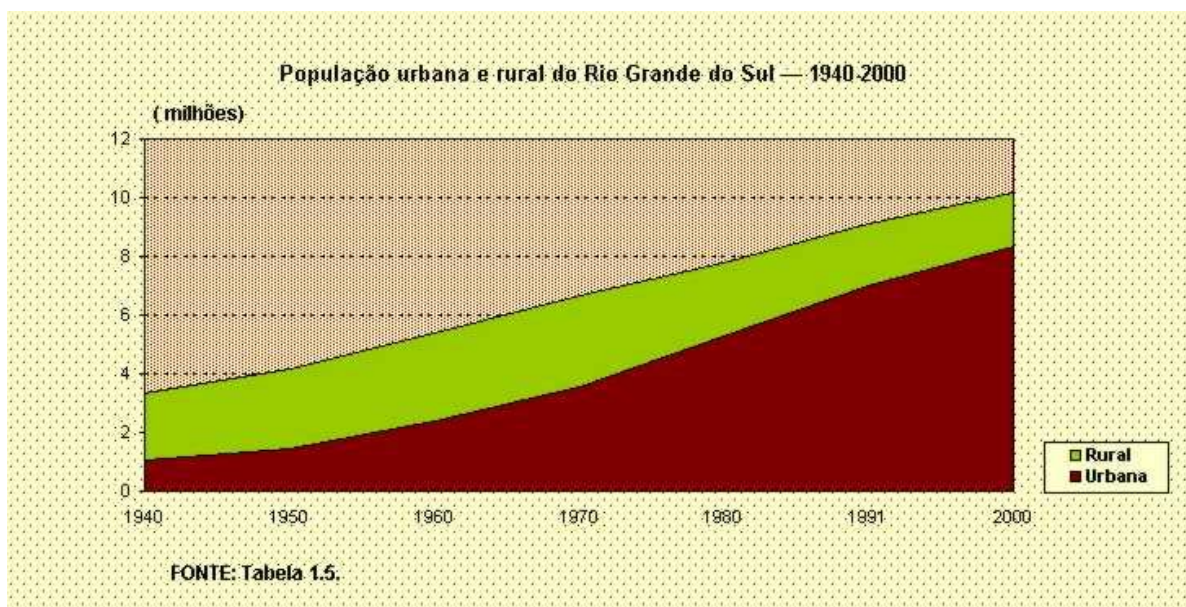
More importantly, perhaps, is how these changes have been distributed among people and regions. Along the last century many transformations have happened. The population increased sharply, the urbanisation process was very quick, the GNP per head reached a high position in the country. Table 1 and Graph 1, shows the evolution of the urbanisation process in Rio Grande do Sul. We can see that the state became an urban one with less than 20% of people living in rural areas.

Table 1: Urbanisation process in Rio Grande do Sul — 1940-2000

INDICADORES	1940	1950	1960	1970	1980	1991	1996	2000
Overall population	3,320,689	4,164,821	5,448,823	6,664,891	7,773,837	9,138,670	9,637,682	10,181,749
Urban population	1,034,486	1,421,980	2,445,774	3,553,006	5,250,940	6,996,542	7,581,230	8,312,899
Degree of urbanisation(1)	31.15	34.14	44.89	53.31	67.55	76.56	78.66	81.65

Source: FEE (1) Urban, Rural and overall population, multiplied by 100.

Graph 1. Rural and urban population in Rio Grande do Sul



Together with this urbanisation process, the composition of the GNP changed substantially. This process evolved towards an expansion of the urban production (industry and services), being responsible for almost 90% of RS's economic production. Services are historically responsible for almost half of production as we can see in Table 2.

Table 2: Evolution of GNP composition from 1995 to 2000

Year	Agriculture	Industry	Services	Total
1995	14.22	36.69	49.08	100
1996	13.75	36.60	49.65	100
1997	12.30	39.58	48.12	100
1998	13.46	36.66	49.88	100
1999(1)	13.29	37.50	49.21	100
2000(1)	11.67	40.49	47.84	100

Source. FEE Macroeconomic Information department – 2003

In the last decade the economic growth rates per year fluctuated strongly as we can see in table 3. In spite of that, Rio Grande do Sul experienced increases in GNP. The state's GNP per head achieved almost 1,4 times of the country's GNP average.

Table 3. GNP per Head – Rio Grande do Sul and Brazil, and Growth rates. (R\$)

Year	GNP/per head RS	Growth Rate	GNP per head Brazil	Growth Rate
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1990	0,10	-7,93	0,08	-
1991	0,51	-3,49	0,40	-,54
1992	5,95	7,13	4,21	-2,05
1993	135,01	9,59	91,24	3,37
1994	3.297,79	4,07	2.227,43	4,33
1995	5.623,58	-6,02	4.063,69	2,75
1996	6.564,10	-0,54	4.830,40	1,24
1997	7.006,34	3,46	5.326,59	1,87
1998	7.062,83	-1,60	5.517,53	-1,21
1999	7.477,82	1,96	5.799,81	-0,55
2000	8.356,81	3,44	6.472,53	2,99
2001	9.457,33	2,08	6.961,47	0,10
2002	10.554,02	0,69		

Source. FEE – Macroeconomic department - 2003

This growth was accompanied by high levels in income inequality. Table 4 shows the evolution of Brazil's and RS's Gini coefficients. The Gini index is practically stable during all the most recent years for both. This index shows that the income distribution in Rio Grande do Sul is worse than it was in the last century. Waquil and Mattos (2002) calculated the Gini index using a Brazilian survey, and they found that the urbanisation process increased the income inequality. Urban inequality is stronger than rural inequality.

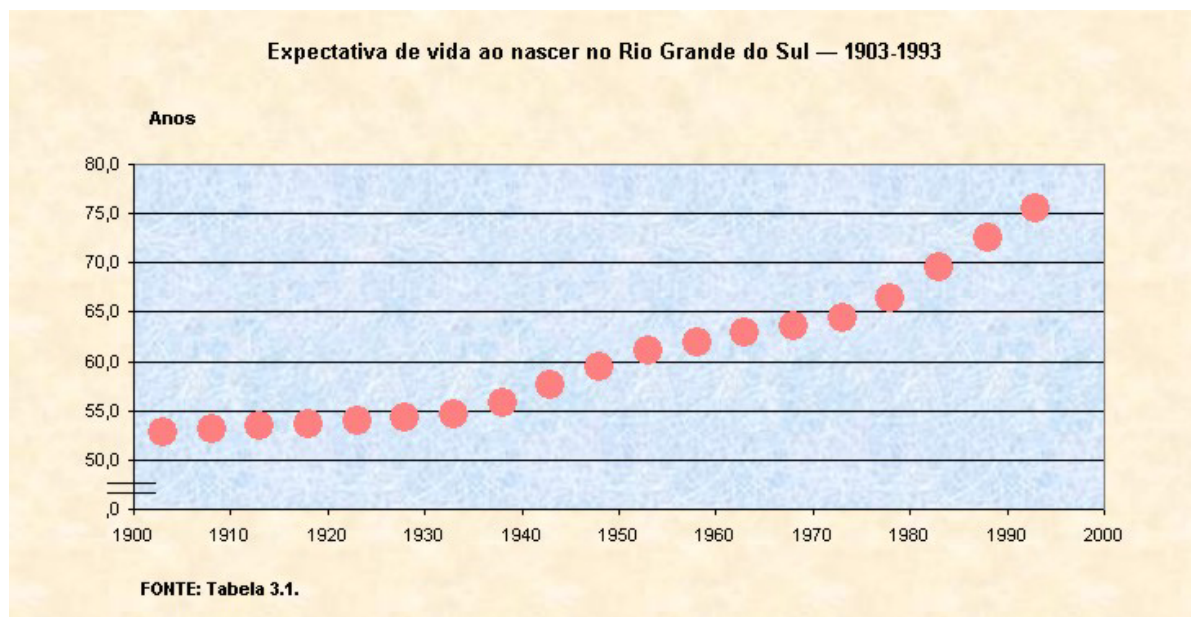
Table 4. Gini Index, Brazil, RS (General, urban and rural)

Year	Gini Brazil*	Rio Grande do Sul Overall*	Rio Grande do Sul Urban**	Rio Grande do Sul Rural**
1984	0,632	0,627	0,5913	0,4977
1985	0,639	0,636	0,6126	0,5362
1986	0,620	0,617	0,6254	0,5648
1990	0,642	0,628	0,6054	0,5418
1992	0,652	0,636	0,5378	0,5089
1993	0,673	0,652	0,5757	0,5322
1995	0,658	0,643	0,5600	0,5181
1996	0,653	0,636	0,5512	0,4886
1997	0,654	0,629	0,5515	0,4865
1998	0,654	0,633	0,5519	0,4844
1999	0,651	0,627	0,5418	0,4997
2001	0,607	0,637		

* FEE ** Waquil e Mattos (2002)

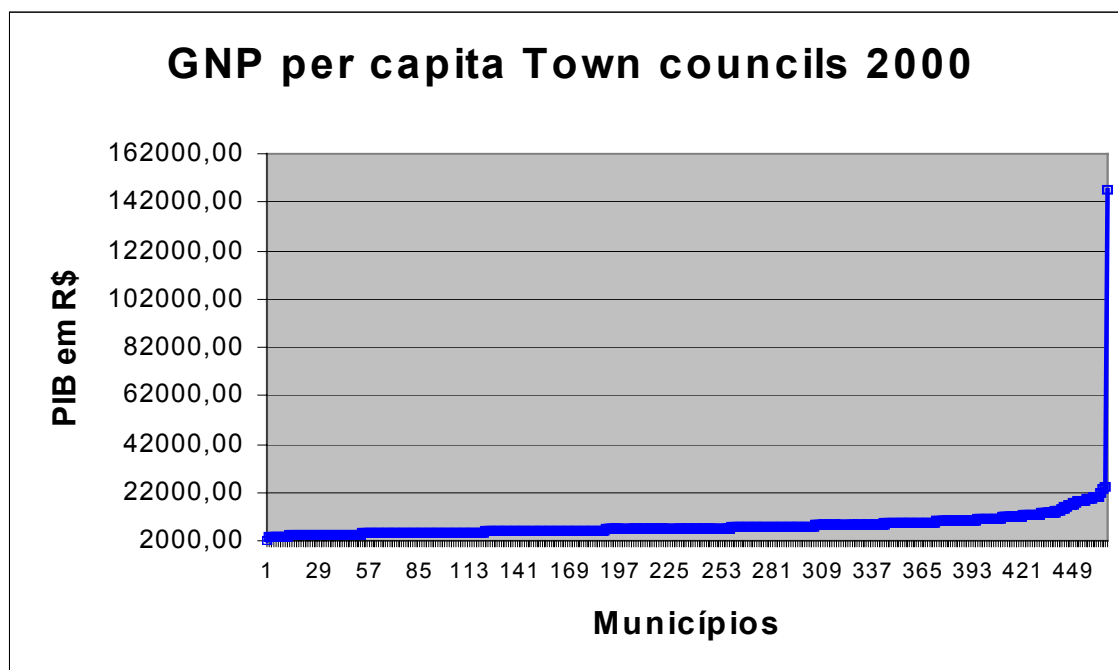
An overall comparison among different indicators would not provide a clear trend in terms of well-being of the population of Rio Grande do Sul, since efficiency and distributive aspects have not evolved similarly over a wide range of indicators. For example, we can analyse data on life expectancy, education and infant mortality. We can see in Graph 2 and (Table 1 – annex) that from the beginning of the last century to the end, life expectancy increased from 52,74 years in 1903 to 75,45 in 1993 (FEE).

Graph 2. Life expectancy in Rio Grande do Sul – 1903-1993



The infant mortality rate stayed almost the same with 6,5% per thousand (Table 2 – annex). In the following graph we can see that the GNP has not been homogeneous among town councils. Using data from 2000 we can see that the average GNP of the state is about R\$ 8356,81 (U\$ 2.785,00). In 312 (66,8%) Town Councils the GNP is lower than the state average.

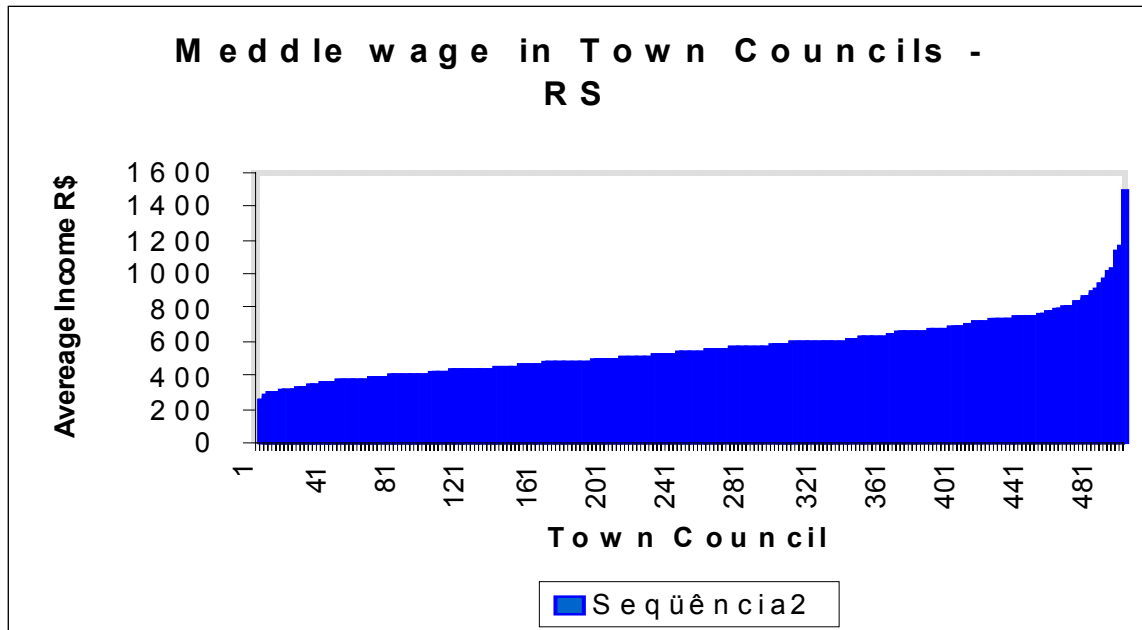
Graph 3. GNP distribution among Town Councils in Rio Grande do Sul



Source: FEE Macroeconomic information department – 2003

On the other hand, if we take just the income related to formal employment, the inequalities seem to be lower. Graph 4 shows wages distribution among town councils in minimal wages. We can see that the average income earned is about R\$ 557 (US\$ 185,00).

Graph 4 – Income earn average in Town Council of Rio Grande do Sul - 2000



Source: Rais and CAGED data (2000)

A study done by Waquil and Schneider (2002) using cluster analysis classified the town council into five groups (Map 1 in the annex). Their classification gives the following characteristics to the town councils. Group A is constituted of 227 (48,71%) town councils which are small, poor and predominantly rural; Group B, with 95 (20,38%) towns, are large, poor and predominantly urban; Group C, with 123 (26,39%), are small, developed and relatively rural; Group D, with 20 (4,3%) town councils, are large, developed and predominantly urban and Group E is just Porto Alegre (state capital), small, developed and essentially urban.

3 Economic Growth and poverty reduction

3.1 Evidence from literature

The debate on the impact of economic growth effects on poverty is far from being settled. As Fields (2001: 3) has noted “the debate between “trickle-down” adherents on the one hand and “immiserizing growth” advocates on the other persist for quite some time”. The first of these views puts forward the idea that economic growth effects are almost exclusively positive. This would mean that when economic growth occurs everybody would linearly enjoy its benefits. The second view is that

economic growth can make the poor even poorer. The argument is that economic growth may produce some inequalities by not being shared by all people.

Part of the literature based on cross-section studies (e.g. Ahluwalia (1976), Chen, Datt, and Ravallion (1993) and Lipton (1998)) provides evidence for the “trickle-down” view. These studies showed that countries with higher per capita income or consumption have less poverty. This literature also conducted several empirical applications for time-series data. The large majority of these studies were based on Kuznets’s arguments for the inverted-U hypothesis. Kuznets (1955, 1956) argued that economic inequalities increase in the beginning of the economic growth, reverting to lower levels after achieving a middle level of income when the inequality would start to fall. Summarising thirteen studies, Fields (1980) showed that ten of them found a negative correlation between economic growth and poverty and just three found different results.

Ravallion and Datt (1995) used a time series of 20 household surveys for rural India from 1958-1995. They examined the effects of agricultural growth on rural poverty. Their results showed that the poor have participated in the recent agricultural growth in India. Differently, Ravallion and Chen (1997) employed different procedures to classify the analysed data and found that economic growth and poverty have a negative correlation.

There is some evidence that the same rate of growth could have very different impacts on absolute consumption poverty (Ravallion, 1997). Differences in the growth elasticity’s of absolute poverty appear to rise in large part from initial inequalities in incomes, education attainments and other dimensions. Indeed, there is evidence that initial inequality is too high in some countries to assure poverty-reducing growth even when the fundamentals are conducive to growth.

The 1998 UNDP Poverty Report investigated the relationship between growth and the proportion of people living in poverty in 38 countries. They found that recession was always accompanied by an increase in poverty. On the other side, economic growth was not a guarantee of poverty reduction.

Ravallion and Chen (2000) pointed out two main approximate causes of the disappointing rate of consumption poverty reduction between 1987-98 in the world. Among the causes discussed by them we found low levels of economic growth in many of the poorer countries and persistent inequalities that inhibited the poor from participating in the growth that did occur. Dollar and Kraay (2000) got a positive effect from economic growth to poverty reduction.

The 2000-2001 World Development Report shows that in most of the countries the link between economic growth and income and non-income dimensions of poverty is strong. At the same time cross-country analysis cannot be generalised to individual countries since the report recognises the existence of substantial deviations from these general relationships across countries. India's experience suggests that the results depend on how the distribution of income changes with overall growth and growth's impact on inequalities in income, assets, and access to opportunities which allow inclusive growth.

Ravallion (2001) reviews the empirical evidence and concludes that the poor in developing countries do share the gains and losses of economic growth. But how much the poor people share of overall economic growth would depend on specific cases. He uses data on poverty and inequality obtained from household surveys over time for about 50 developing countries, mostly in the 1990s. He found that the correlation coefficient between the annualised change in log Gini-index and the annualised change in the log of the survey mean was $-0,09$. This implies that the share of the poorest quintile is uncorrelated with the log of GDP per capita. This also means that, given the existing levels of inequality, the income gains to the rich from distribution-neutral growth will of course be greater than the gains to the poor. For example, the income gains to the richest decile in India would be about four times higher than the equivalent gain to the poorest quintile. Therefore, the rich will tend to capture a disproportionately larger share of the increment in average living standards than the poor.

The immiserizing growth theorists have also some important hypotheses worth considering. The six reasons³ given by Lewis (1983) for negative consequences of economic growth might prove useful to explain what happened in RS. Lewis' argument is that the development of enclaves may lower incomes in the traditional sectors. At the same time the evidences above are taking in account just absolute poverty measured by income or consumption.

The impact of economic growth was one of the main issues of debate in Brazil during the 1970s. Discussions in those days were focused in the aggregate effects of economic growth on income distribution. This debate generally considered only aggregate data and overall country results (e.g. see Langoni (1973), Malan and Wells (1974) Paes de Barros (1997) and others).

3.2 Empirical results

In order to identify the income poverty elasticity we estimate a panel data model. This model allow us to decompose the average state's elasticity into the between town council elasticity and the within elasticity in each own council. The database used includes poverty indexes and GNP per head for all RS town councils during the period 1996 to 2001. The model is:

$$\ln PO_{it} = \alpha_i + \beta \ln Ypc_{it} + \varepsilon_{it}$$

where:

PO = the poverty index (got using the poverty line of 2 minimal wages). The data comes from Rais and Caged.;

Ypc = the GNP per head from FEE;

³ The reasons are: 1) The development enclave may be predatory on the traditional sectors; 2) products of the enclaves may compete with and destroy traditional trades; 3) the wage level of the enclave may be high that it destroys employment in other sectors; 4) the development of the enclave may result in geographical polarisation; 5) development of the enclave may lead to generalised improvements in public health and therefore lower death rates;6) development of the enclave may stimulate excessive migration from the country side.

α_i = the non-observable effect in association with each town council. This effects can be randomly, fix or simple, when the difference between the α_i is not significant statistically.

ε_{it} = a randomly term with mean zero and variance constant.

The econometric package used was dpd.ox

The results of panel data estimation show that income-poverty elasticity is negative and it is significant at the level of 5%. In spite of that, the determination coefficient is very low, which means that its explanation power is weak. It can be suggested that there are other important factors that need to be considered to understand poverty. In this sense it is in according to our hypothesis that poverty is a multidimensional concept and so, that it can not be measured just by income.

**Table 5: Estimated Coeficientes for the period from 1996 to 2001 (OLS).
Dependent variable P0 (% of people receiving less than 2 minimal wage)**

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statist</i>
Constant	5.2441	0.1760	29.8*
GNP	-0.1797	0.01984	-9.06*
R ²	0.031		
Observations n ^o	2522		

Source: Estimation Regression by the authors.

* significance level a 5%

Table 6 shows the results for the between estimators that provide us with a quantification of the contribution of economic growth to poverty reduction between town councils. This coefficient shows that as economic growth increases, the poverty percentage is reduced among town councils. In other words, economic growth is useful to reduce poverty in average terms.

Table 6: Estimated Coefficient by between estimator. Period from 1996 to 2001

	<i>Coefficiente</i>	<i>Std. Error</i>	<i>t-Statist</i>
Constant	6,2995	0,3929	16,0

GNP	-0,2989	0,04430	-6,75
R ²	0,096	-	-
Nº observações	428	-	-

Source: Estimation Regression by the authors.

* significance level a 5%

Alternatively, the results for the within estimators provide us with an idea of the evolution of poverty inside the town councils. These results can be explained by the different stages of development in each we find different town councils.

Tabela 6: Estimated Coefficient by within estimator. Period from 1996 to 2001

	<i>Coeficiente</i>	<i>Std. Error</i>	<i>t-Statist</i>
GNP	0,4661	0,02564	18,2
R ²	0,1365	-	-
Nº observações	2521	-	-

Source: Estimation Regression by the authors.

* significance level a 5%

This decomposition of effects reveals that internal inequalities within each town council would not fully explain their levels of poverty. The average behaviour is therefore a very poor proxy for describing their levels of poverty. In other words, we can say that economic growth can be increasing without achieving poverty reduction to in all Town councils. Within this context, we might inquiry about the importance of diversities and heterogeneities as part of the explanation of these differences and about the relevance of framing poverty as capability deprivation.

4 Economic Growth and capabilities promotion

The previous analysis was based on the conventional concept of poverty that classify as poor everybody that earn less than an specified value like a 1 or 2 U\$/day. Sometimes people are considered poor if they receive less resources than what would be considered minimum to buy a basket of primary goods. Whereas it has been widely acknowledged that poverty should not be restricted to its economic dimension, notions of income-poverty continue to be largely used.

According to Sen (1985, 1987, 1992, 1999) poverty should be defined as the privation of basic capabilities. This concept of poverty differs from the poverty line approach in many aspects. Sen (1999) argued that the perspective of poverty as capability privation does not imply a rejection that low income is also an important dimension of poverty. Indeed, the lack of income can be the departure point of a process of poverty and social exclusion of a person. This means that we should keep a place for economic growth in the promotion of basic capabilities. But economic growth should not be seen as the unique element in the informational space that will be used to assess the well-being of poor people. In other words, it is a tenet of the capability approach that resources are just means to reduce poverty, and that in order to achieve these capability improvements we would need a set of integrated actions that is more complex than the simple promotion of economic growth.

The capability approach to poverty measurement is useful for the following reasons: 1) capabilities have an intrinsic importance instead of just the instrumental importance given by income; 2) There are other factors that are important to generate capabilities beyond income; 3) The instrumental relationship between low income and capabilities is sensitive according to some characteristics like personal skills, households size, environmental conditions and others (Sen, 1999). The measurement of poverty by just using income or primary goods would consist in a limited analysis because of the conversion problem. Sen (1985) argues that the converting function play an important role where $f_i(.)$, which makes the transformation of commodities into functionings depend on the characteristic's of person i . There are some personal, social and environmental aspects in each people that can differ from each other. These human particularities can be internal or external and they have strong influence in a conversion process. Sen (1992: 20) argues that “ a disable person cannot function in the same way an able-bodied person can, even if both have exactly the same income.”

With these arguments in mind, we carried out an empirical exercise on poverty measurement that tried to use a wider informational base in order to capture some important features on the way people are living in Brazil. By doing so we are following Sen's (1999) view that we should start a empirical application of the

capability approach by using whatever information is available. Our analysis will follow this argument and will use the available data to discuss the RS development process. We will start by examining the official indicators that are available (and used) in Rio Grande do Sul, like the Human Development Index (HDI), the Development Socio-economical Index (IDESE) and estimating their elasticity to the health, education, income and sanitation index.

It is important to verify the qualitative aspects of economic growth because by doing so we can assess the degree of correlation between resources and well-being. We can then evaluate whether economic growth has promoted an improvement in human well-being measured by basic capabilities. Ultimately, we would like to verify whether people have benefited from these economic processes.

The Human Development Index published by UNDP, put RS among the developed states in the country. In 1991 de HDI was 0,757 and in 2000 the index reached 0,809. Using the same variables IPEA calculate the Human Development index to the town councils. It is important to see that in 2000 the results for RS show a small variation between town councils. The highest HDI-M was 0,874 and the lowest was 0,666. Looking toward this index the variance is small and it might suggest that the states' development has been homogeneous and high. Using the Socio-economic development index (IDESE), calculated by FEE -that uses a larger number of indicators- we get a different picture. The index is composed of four groups of variables: 1) Housing and sanitation⁴; 2) Education⁵; 3) Health⁶; 4) Income⁷. Using this broader indicator we can see some disparities that there are among the towns. Table 3 in annex shows the best and worse classified town councils in this ranking. We can see that there are wide disparities between groups and in some areas people do not have access to basic goods like clean water or proper housing.

⁴ Include de proportion of Municipal with clean water (with 0,5 of weight), proportion of Municipal with drain (weight 0,4), average of people per household (weight 0,1).

⁵ Illiteracy rate among people with more than 15 (weight 0,35), percentage of students that give up school (0,25), percentage of failure at fundamental school (weight 0,20) and percentage of middle level capacity (0,20).

⁶ Percentage of children born with less than normal weight, rate of infant mortality among children with less than 5 years and life expectancy. Each variable with 1/3 of weight.

⁷ GNP per head, accommodation and nourishment with 0,5 each.

With the aim to see if the economic growth helped to improve basic capabilities, we estimated a cross section model using Idese⁸ (2000). We then calculated the elasticity of education, sanitation, health and of an income index in relation to poverty.

First, we can see in table 7 that the correlation between poverty rates and GNP per capita is negative and statistically significant.

**Table 7: Poverty elasticity in relation to GNP per capita (year 2002) (OLS).
Dependent variable P0 (% of people receiving less than 2 minimal wage)**

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>
Constant	5,4692	0,3785	14,3677
GNP	-0,1944	0,0423	-4,5902
R ²	0,049		
N°	406		
Observations			

Source: Estimation Regression by the authors.

* significance level a 5%

Secondly, Table 8 presents the estimated model using poverty as the dependent variable and income, sanitation, health and education indexes as dependent variables. The coefficients of health and education were found to have the expected signal but were not statistically significant. The sanitation index also shows a signal that is not statically significant. Only the variable income seems to have the right signal and appears to be useful to explain poverty reduction.

Table 8 - Elasticity of poverty in relation to income, education, sanitation, Health index. Dependent variable P0 (% of people receiving less than 2 minimal wage)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>
Constant	3,51	0,099	35,16
Income index	-0,3790	0,1515	-2,5008
Sanitation index	0,0058	0,0290	0,2015
Health index	-0,0031	0,5735	-0,0054

⁸ Socio-economic development index town council of Rio Grande do Sul. This measure is calculated by Economic and Statistician Foundation (FEE) and take in account variables about education, sanitation, health and income.

Education index	-0,1441	0,4446	-0,3241
N° Observations	406		

Source: Estimation Regression by the authors.

* significance level a 5%

The important result to be noted is that poverty rates are not strongly correlated with these multidimensional aspects of development. These results provide evidence for the hypothesis that resources are imperfect indicators of well-being. In other words, income might not be enough to explain capability deprivation. Town Councils that have inhabitants with high levels of education can also present low income average. We can also find in some town councils a high income average being accompanied by high capability inequalities.

Conclusion

Economic growth seems to reduce poverty only if we consider average results. In the moment that we disaggregate those results, we found that the evolution of GNP per capita in the southernmost state of Brazil was accompanied by the difficulty of provision of basic capabilities for a wide spectrum of groups of population. Perhaps, as a result, income-relative poverty has also been increasing. The analysis with the development indexes stresses the high levels of inequality in the different town councils that have been generated by economic growth in Brazil

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Annex 1. Graph 1. Rural and urban population in Rio Grande do Sul

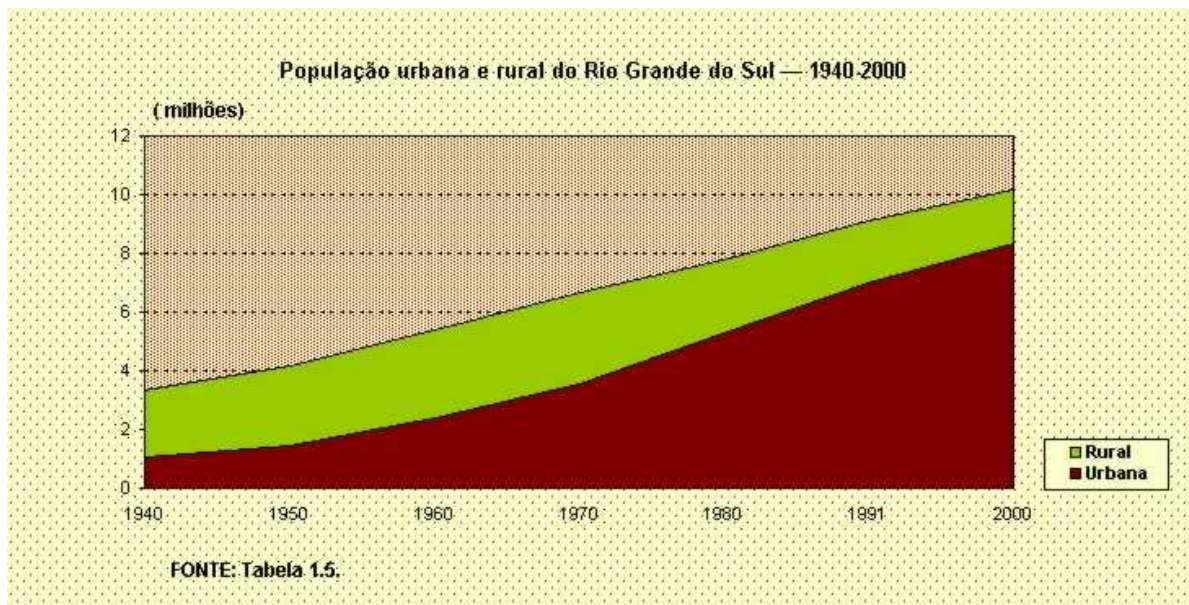


Table 1: Rate of fecundity and life expectancy in Rio Grande do Sul - 1903-1993

ANOS	TAXA DE FECUNDIDADE TOTAL (1)	EXPECTATIVA DE VIDA AO NASCER (2)
1903	6.78	52.74
1908	6.80	53.06
1913	6.72	53.38
1918	6.54	53.70
1923	6.29	54.02
1928	6.01	54.34
1933	5.72	54.66
1938	5.42	55.85
1943	5.13	57.65
1948	4.98	59.42
1953	4.84	61.01
1958	4.91	61.86
1963	4.90	62.90
1968	4.28	63.56
1973	3.67	64.35
1978	3.20	66.48
1983	2.73	69.54
1988	2.43	72.48
1993	2.44	75.45

FONTE: FEE/Núcleo de Indicadores Sociais

Table 2: Rate of born and deaf in Rio Grande do Sul — 1974-96

ANOS	TAXAS BRUTAS (1 000 hab.)	
	Natalidade (1)	Mortalidade (2)
1974	19.35	6.85
1975	19.14	6.68
1976	20.03	7.10
1977	20.59	6.57
1978	21.73	6.52
1979	22.24	6.42
1980	22.51	6.68
1981	23.90	6.35
1982	23.90	6.25
1983	22.51	6.40
1984	20.88	6.56
1985	20.81	6.31
1986	20.18	6.33
1987	19.50	6.42
1988	19.97	6.63
1989	18.97	6.40
1990	20.30	6.56
1991	17.54	6.28
1992	16.31	6.45
1993	16.84	6.84
1994	17.14	6.69
1995	16.59	6.87
1996	14.97	6.84

Annex 3. Graph 3 Homogeneous groups of Town Councils according to Waquil and Shinneider (2002) .

Mapa 1: Grupos homogêneos

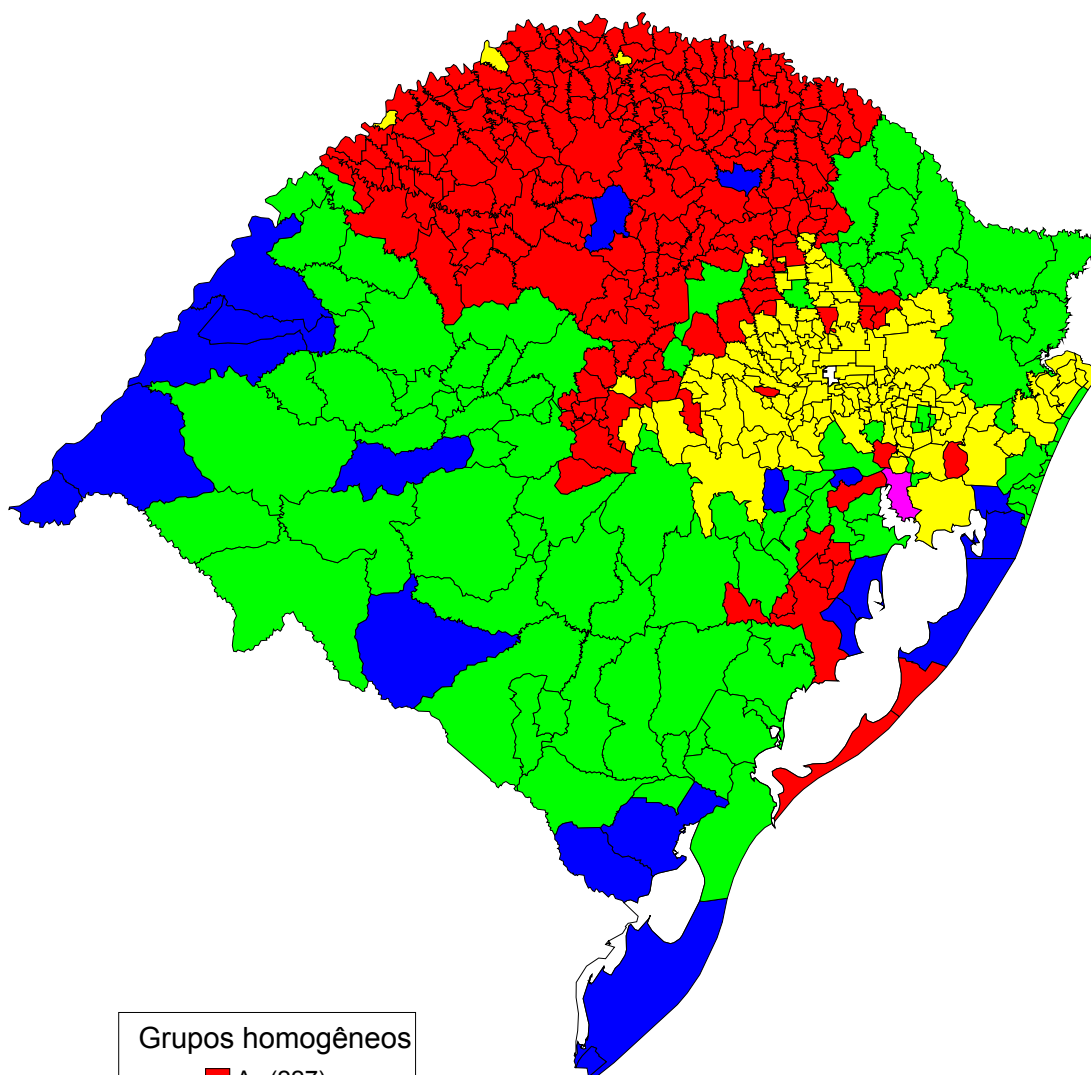


Table 3 . Development Socio-economic index (idese) at the ten better and ten worse Town Concils

State and Town Councils	Order	IDESE Índex	Education		Income		Household and sanitation		health	
			Índex	Order	Índex	Ordr	Índex	Order	Índex	Order
Total do Estado	-	0,751	0,834	-	0,757	-	0,562	-	0,853	-
Caxias do Sul	1	0,831	0,853	97	0,813	11	0,814	1	0,843	365
Canoas	2	0,822	0,839	163	0,943	1	0,656	18	0,849	339
Esteio	3	0,816	0,871	40	0,898	3	0,625	30	0,872	192
Porto Alegre	4	0,812	0,858	84	0,808	15	0,742	3	0,840	373
Bento Gonçalves	5	0,807	0,854	95	0,782	41	0,696	7	0,897	44
Campo Bom	6	0,807	0,829	214	0,852	5	0,676	12	0,871	195
Ivoti	7	0,806	0,862	67	0,899	2	0,553	67	0,910	20
Vacaria	8	0,803	0,826	228	0,730	89	0,799	2	0,858	276
Garibaldi	9	0,793	0,863	63	0,802	20	0,613	37	0,896	49
Erechim	10	0,789	0,865	58	0,775	44	0,660	15	0,857	285
Gramado dos Loureiros	458	0,543	0,784	392	0,433	460	0,099	416	0,855	291
Muliterno	459	0,542	0,793	364	0,474	446	0,075	424	0,825	431
Cerro Grande	460	0,541	0,793	361	0,494	439	0,050	458	0,825	429
Caraá	461	0,540	0,790	376	0,427	462	0,060	432	0,885	106
Barão do Triunfo	462	0,538	0,731	462	0,466	451	0,087	419	0,867	215
Chувиска	463	0,534	0,806	315	0,409	463	0,047	465	0,873	184
Esperança do Sul	464	0,529	0,861	75	0,367	467	0,054	442	0,835	404
Monte Alegre dos Campos	465	0,528	0,785	390	0,392	465	0,107	414	0,829	417
Lajeado do Bugre	466	0,512	0,720	465	0,452	456	0,051	451	0,825	428
Benjamin Constant do Sul	467	0,496	0,760	437	0,368	466	0,038	467	0,818	445
Source: FEE/CIE										