1. Introduction

The development of a simplified, concise and succinct analytical tool in support of the strategic programming and monitoring of the cohesion policy and the post-“Portugal 2020” funds falls within the professional scope of the authors. This involves strengthening the analytical framework implicit to the designing, monitoring and evaluation of public policies within a perspective of contributing towards the implementation of evidence based policy making.

Thus, the primary objective of this article encapsulates describing the design process behind a conceptual diagram compatible with the problematics it aims to describe. This exercise is sustained by an apparently simple configuration that nevertheless integrates a high level of complexity. The diagram seeks to structure the different objects of analysis and specifically identify the complex problems and policy responses in order to eventually highlight failings in public policy actions. Hence, the diagram construction methodology holds the final objective of adapting the model to other populations and sectoral areas while also allowing comparability and/or interactions with other policy analysis tools.

From the methodological point of view, this exercise covers two phases: the first begins by defining a fixed structure that corresponds to an analytical framework; with the second corresponding to strategic analysis and characterising the responses proposed for the problems identified, in order to subsequently monitor and evaluate them.
Within this context, the **secondary objective** of this article derives from demonstrating the applicability of the conceptual diagram to a particular theme and the corresponding specific responses, in this case, the elderly population and the related policies ongoing in Portugal.¹

2. **The conceptual diagram**

The design of the conceptual diagram spans various moments that follow sequential and interlocking construction logic. This contains the added advantage of incorporating layers in which the subsequent stages enable the observation of each of the prior stages.

In the first phase, the analytical framework incorporates four separate moments:

1. **Definition of the axes of analysis**

   Mutually independent, they establish the leverages for the model based on which the entire “building” stands. The theme’s characterisation and the desirable scenarios’ definition, the choice of support indicators for the analytical dimensions and components, etcetera, everything stems from the options taken here.

   Following the denomination of the Cartesian axes, the diagram becomes more complex when seeking to designate the interwoven phenomena set out in the quadrants.

2. **Identification of the Quadrants**

   These depend on the typical characteristics resulting from interactions between the axes. Therefore, the **1st quadrant** assumes positive values² along the vertical and horizontal axes; the **2nd** stands out from the first for recording negative values along the horizontal axis; the **3rd quadrant** is doubly negative; the **4th** in turn differs from the first due to the negative values along the horizontal axis.

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¹Within the scope of this article, we apply the methodology to the elderly population focusing upon the analytical framework with the strategic analysis only briefly approached.

²This methodology assumes positive/negative values may be portrayed qualitatively as the presence/absence, relevance/irrelevance, strong/weak intensity...
3. Signalling the Risks and Evolving Vectors

Describes the problems and associated risks resulting from the existence of different kind of changes (the evolving vectors): i) socioeconomic and political, ii) contextual or iii) target publics' characteristics. Includes setting out any eventual dysfunctions that hinder the attaining of the desirable scenarios (e.g. improving quality of life) and signalling potential changes in profiles (inter or intra quadrant) whilst taking into consideration the political proposals. The movements driving changes in the profiles' characteristics may be shaped by means of preventive or remedial policies.

4. Characterising the axes and the quadrants

Done with qualitative or quantitative analytical instruments that seek to contemplate the established dimensions/components. The latter include, for example, the deployment of systems of indicators and/or single indicators (composite, synthetic, proxy). The selection of these indicators aims contextualising, characterising and quantifying the analysis’ framework and should also guarantee their comparability, reliability and the scope for gathering such data from across various territorial and temporal levels.

The 2nd Phase, designated strategic analysis, contains two further moments:

5. Identification of Policies and Measures

This defines the public policies as generic responses, subdivided between the preventive and the remedial, and identifies the specific policy measures, such as the more concrete interventions, adapted to each one of the quadrants (including those supported by “Portugal 2020”). It should be noted that the preventive policies may prove more able to influence one set of typical situations while the remedial policies may be more adequate to target another set with specific policies able to take on a preventive nature in some situations and remedial in others.

6- Monitoring and evaluating policies and measures

This exercise results in a system of indicators targeting a specific field (e.g. ageing) from a strategic monitoring perspective, susceptible to returning information on the evolution of the situations identified in accordance with the results and/or forecast impacts of the policies and measure and the defined desired
scenarios. As only in this phase do any eventual gaps and mismatches between policy needs and responses emerge, this is the stage when it becomes feasible to advance with remedial initiatives.

3. Justification for the thematic opportunity

The advancing ageing of the population stems from improvements to standards of living and the progress achieved in the healthcare sector that was greatly restricted in earlier generations to but a small section of the population. In accordance with the internationally prevailing institutional consensus, the desirable scenario for the elderly population involves establishing the conditions necessary to active and healthy ageing with greater levels of autonomy and higher quality of life: a vision of ageing that challenges the political decision makers to nurture the activation of the potential of the elderly (UNECE, 2015).

The turning point in the institutional perspective on ageing took place globally in 2002 with the approval of the MIPAA (Madrid International Plan of Action on Ageing\(^3\)), which most greatly prioritises the empowerment of the elderly and ensures their participation. Ten years later, Europe returned to this field with i) the European Year of Ageing and Inter-generational Dialogue initiative (2012) itself based on three pillars: employment, participation in society and autonomous lives; and ii) the “Europe 2020” strategy that incorporates the challenge of “promoting a healthy and active elderly population that contributes towards social coherence and greater productivity” (EC, 2010, 18).

In Portugal, one out of five inhabitants is aged over 65, in a universe containing over two million persons\(^4\). In the EU context, Portugal is not only one of the most aged countries (ranked fifth highest on the ageing index\(^5\)) but also displays a considerable number of old people for every 100 persons at an active age\(^6\). In the Global AgeWatch 2015 index that evaluates the factors determining the socioeconomic wellbeing of the elderly worldwide, Portugal registers the third worst position among Western European countries. Clearly, this demographic trend has implications for socioeconomic costs of ageing\(^7\) and the elderly’s quality of life.

In conclusion, the importance (absolute and relative) attributed today to issues surrounding the elderly population underpins this option as a theme for the application of the theoretical model.

\(^3\) This Action Plan focuses on three core priorities: i) the elderly and development, ii) progress in healthcare and wellbeing in old age and iii) guaranteeing environments favourable to the elderly.

\(^4\) The elderly divide up as follows: aged between 65-74, 1 070 000; aged between 75-84, 770 000; and aged 85 and over, 260 000 (Census 2011).

\(^5\) In 2014, for every 100 persons aged under 14, there were 138 persons aged 65 or over, while this proportion was lower in 2000 (100 young persons for 98 old persons). According to Eurostat data, three out of ten Portuguese citizen will be aged 65 or over in 2050.

\(^6\) In 1970, there were 16 elderly for every 100 persons of an active age; in 2001, this ratio stood at 24 before increasing to 31 elderly for every 100 persons of an active age in 2014.

\(^7\) According to the EC, in 2013, age related public expenditure in Portugal stood at 27% of GDP (24.5% in 2007).
4. Applying the model

4.1. The axes of analysis

The elderly category would not in itself prove sufficient to explain the reality of this group in Portugal\(^8\). Hence, the choice of the axes of analysis took into account the different “social frameworks for ageing”\(^9\), identifying one axis comprising *resources* and another for *autonomy*.

The *resources* axis encompasses the dimensions that describe *own resources*, *informal networks*, *formal and/or institutional responses* and the *territorial* resources (Figure 6). There is an implicit logic that *own resources* are either the property of the elderly (e.g. incomes) or their attributes (e.g. qualifications); *informal networks* covers the interactions between the elderly and their surrounding contexts (e.g. family and neighbourhood networks); *formal and/or institutional resources* refer to services that might be mobilised by the elderly (e.g. healthcare services) and the *territorial* dimension refers to broader reaching dynamics (e.g. demographic).

In terms of the *autonomy* axis, it’s subdivided into the *physical*, *cognitive*, *social* and *decision making* dimensions (Figure 7). These regard to the ageing process, specifically with physical conditions (e.g. mobility, daily tasks) as well as to characteristics of cognitive nature and psychological wellbeing (e.g. mental health and self-esteem); also including aspects related to the existence of life projects and social participation besides with the capacity to take decisions and manage one’s own assets.

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\(^8\) Sónia Cardoso et al (2012, pp. 610), “Retirement is therefore no longer a unifying principle that provides a homogeneous meaning and identity to the “third phase” of life (identified as old age and the right to retirement or leaving labour related activities (...). The social non-determination of the group of more elderly persons only worsens whenever definitive inactivity, old age and retirement no longer overlap.”

\(^9\) Casanova et al., 2001 quoted by Machado (2012). Or as Machado (2012: p. 19) says: “there is not one but various old ages (...). While there are common parameters to ageing and old age, there are also significant variations in the social means and family frameworks for the social networks, free-time activities, states of health and, very importantly, in the socioeconomic conditions of the elderly.”

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4.2. The quadrants

The combination of the various axis dimensions are reflected in the four basic profiles, organised in four quadrants depicting in a simple way the aforementioned “ageing frameworks”. Hence, each quadrant on the diagram corresponds to the elderly profile types described below: the dynamic elderly, the dependent elderly, the unprotected elderly and the disadvantaged elderly.

The first quadrant conveys the Dynamic elderly that configure the profile type for active ageing: the elderly with higher levels of income and/or living in well-equipped territories; skilled and qualified; with autonomous access to goods and services; life projects; self-esteem; active roles in their social context (perhaps supporting dependents as carers and/or active members in the family and neighbourhood networks…), willing to participate socially, including volunteering. May also still be in the labour market and even contribute to the social security system.

The second quadrant corresponds to the Dependent with a profile featuring those elderly with a level of resources that places them in situations of relative comfort but that experience limitations in their autonomy levels (e.g. reduced mobility) thus needing institutional and/or family member support to meet their daily needs. Access to such support structure may result from the mobilising their own means or formal and/or institutional means. This includes both those living in residential homes as well as those receiving support in their own homes.

The third quadrant, the Unprotected, concerns to the harshest scenario within this set of profiles. These elderly are neither able to undertake daily tasks or make decisions over matters relating themselves, nor do they benefit from any support. If they do, this may be severely lacking in scope, as they also lack the necessary means (e.g. low levels of income) to make use of those services or they live in areas not provided with enough public services\textsuperscript{10}. In this group, there are situations in which basic needs go barely met and in addition to various other shortcomings, violence, maltreatment\textsuperscript{11}, as well as severe issues with accessibility (territorial, habitational …).

The fourth quadrant, the Disadvantaged, once again describes a profile type in which the elderly remain autonomous. They are, on occasion, the support for other members of the family experiencing unemployment and over-indebtedness\textsuperscript{12}. These elderly generally hold low levels of qualifications and tend to lack own resources or live in contexts that don’t provide goods and services in case of material deprivation (e.g. habitation, transport). This may include those who, out of a need for resources, stay on in the labour market, postponing their retirement or that combine low pension levels with other types of earnings.

\textsuperscript{10} In 2013, some non-governmental organisations, such as Médicos do Mundo, warned against the increasing vulnerability of the elderly population in a period of crisis that reflected in greater difficulties in meeting basic food and healthcare requirements.

\textsuperscript{11} According to APAV – the Portuguese Association for Victim Support, cases of violence targeting elderly persons are on the rise. In 2012, 809 elderly persons were victims of crime (9% of the total of 8,945 victims directly registered by this association).

\textsuperscript{12} In 2012, Deco – a consumers association – highlighted that an important share of the mortgage guarantors are aged over 65. They were being called upon to help their descendants paying the loans taken out by their offspring. This situation reveals the vulnerability of many families experiencing economic difficulties, and the financial support rendered by many retirees to them.
In conclusion, when analysing the axes by the dimensions and their respective components, we are able to characterize the elderly, enabling their classification by quadrant. For example, whenever a person has their own means of transport, she falls into the upper section of the resource axis but having functional restrictions, places the person on the left hand side on the autonomy axis. People classified as Dependent are at the intersection of these two axes.

4.3. Signalling the Risks and Evolving Vectors

There are risks linked to each quadrant that, should such eventualities take place, would result in changes to the elderly profiles. The impact that ageing processes hold as an evolving vector proves very clear to the extent that increases in age assume both losses of autonomy and decreases in earnings. Risks are identified according to the different elderly profiles-type. As regards to the example above - an old person with their own means of transport but not being able to drive (Dependent, with resources and without autonomy) -, the difficulty may stem from higher levels of isolation with possible consequences in lack of medical supervision and potential psychological effects.

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13 This reduction in earnings occurs due to the association between older pensioners and smaller contributory careers, to the reduction of pensions within a context of higher inflation or by increases in costs incurred in expenditure on medication or on greater support needs.
4.4 Characteristics of the axes and the quadrants

The intersections between the IPOLIS\textsuperscript{14} (Integrated Poverty and Living Conditions Indicator System) pilot project components and those from the present research result in the allocation of some of the IPOLIS indicators to the \textit{resources} and \textit{autonomy} axes. Hence, and for each axis, we were able to get the \textbf{relative position of Portugal within the European context} (regarding the European average and each member state) and also assessed the developments of the Portuguese old people in recent years – see the next page.

With reference to the \textit{resources} axis, some of the IPOLIS “material living conditions” component indicators were mobilised, in particular those dealing with monetary earnings, risk of poverty, social exclusion as well as housing conditions. On to the \textit{autonomy} axis, indicators related with years of healthy life expectancy, the proportion of persons living alone as well as indicators for participation in the labour market, in education and training and civic participation in addition to ICT competences, were brought to this analysis. This also extends to other indicators of a more subjective nature relating to health and functional limitations.

The \textbf{infra-national analysis} followed different methodological options: the identification and quantification of the profile types displayed in the quadrants from a territorial based perspectives, enabling the portrayal of the geographic incidence of these profiles. For this objective a single indicator based on the 2011 Population and Housing Census was chosen\textsuperscript{15}.

The advantages of this approach includes: i) providing credible and disaggregated information presented at territorial (municipalities) and at demographic level (elderly age sub-segments - see annex 1); ii) enabling the quantification of the number of people assigned to each axis (\textit{resources} or \textit{autonomy}), guaranteeing an accurate universe and correspondingly avoiding double counting issues. The information availability at fine levels of territorial detail enables identifying territorially based patterns.

\textsuperscript{14} The IPOLIS primarily draws upon the European Statistical System (Survey of Health, Ageing and Retirement, Labour Force Survey, Statistics on Income and Living Conditions, European Quality of Life Survey, European Social Survey, European Health Interview Survey, Adult Education Survey, ICT Survey, Eurobarometer, Gender and Generation Survey). As a core feature, this approaches standards of living, poverty and social exclusion in particular and seeks to provide a methodological and statistical infrastructure able to monitor the situation of the most vulnerable groups studied and the general way in which the community of stakeholders deals with such matters.

\textsuperscript{15} This is the indicator “Population resident aged 15 or over with at least one difficulty by location of residence (according to Census 2011 data), gender, age group and main means of income” (with the information relative to the population not experiencing difficulties obtained based upon the indicator that aggregates the total population: “Population resident aged 15 or over (…) by main means of income”).
On the **resources axis** and in the context of the European Union averages, Portugal attains a weak performance regarding material living condition indicators, but the poor are not so far from the poverty line as the Portuguese score (84) for the **relative median at risk of poverty gap** indicator, 16 points below the EU. Housing indicators perform better when overcrowding and housing cost are concerned but there is a not negligible share of elderly suffering from housing deprivation i.e. with poor amenities registered by a member state and it scores below the medium point (50%, in the second chart). In the last 10 years or less, the Portuguese evolution has been positive in material living conditions indicators as they report lower values than some years ago (see third chart).

In general, most of the **autonomy indicators** score badly when contrasted with the European average except for **Healthy life years for women after 65**, but regarding other member states Portugal achieves no more than average performance rates even if the improvement has been quite strong (annual average growth rate of 8% between 2005 and 2013). The employment rate for people aged between 70 and 74 (and from 65 to 69) proves quite high in Portugal when compared with the EU, but it is not the highest of the 28 member states. Although the share of older workers is relevant, this might not be a good sign as it may reveal a major need for extra resources. In the last decade, there has been a drop in this indicator but old age employment still remains true for more than 1 out of 10 seniors.
As with every methodological option, this approach also contains shortcomings, namely not using the most up-to-date information or providing but a single indicator, leaving to one side the task of quantifying other axis components.

In the case of autonomy, only the most functional, physical and cognitive, components are considered, assessed through the subjective perspective of individuals regarding their limitations in performing daily tasks. This results in some rigidity in positioning individuals on the axes, which limits to some extent the analysis’ scope. In the case of resources, only the ‘earnings’ component is considered. From this moment on, the exercise became more complex given that it seeks to associate categories of ‘main source of income’ with differentiated situations: ‘With resources’, ‘Intermediate situations’ and ‘Without resources’ (Table 1).

Table 1 – Methodological options in allocating “main source of income” categories to income levels

<table>
<thead>
<tr>
<th>With resources</th>
<th>Intermediate situations</th>
<th>Without resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) With private income (for all municipalities)</td>
<td>1) Benefit (sickness, temporary, unemployment)</td>
<td>1) In the care of their family</td>
</tr>
<tr>
<td>2) With a pension:</td>
<td>2) With social support</td>
<td>2) RSI – Minimum Social Income</td>
</tr>
<tr>
<td>-42% of the respective population in the case of municipalities with higher average pensions; -29% of the population in the case of municipalities with intermediate pension levels; -15% of the population in the case of municipalities with lower average pensions.</td>
<td>3) With a pension:</td>
<td>3) Other</td>
</tr>
<tr>
<td>3) The same breakdown scheme was applied to “In employment” category</td>
<td>-45% of the respective population in the case of municipalities with higher average pensions; -58% of the population in the case of municipalities with intermediate average pensions; -72% of the population in the case of municipalities with lower average pensions.</td>
<td>4) With a pension:</td>
</tr>
<tr>
<td></td>
<td>4) The same breakdown scheme was applied to “In employment” category</td>
<td>-13% of the population whatever the municipality was.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5) The same breakdown scheme was applied to “In employment” category</td>
</tr>
</tbody>
</table>

In categories with great disparities (pensions and wages), we set out an allocation key for this distribution, in accordance with the three distribution structures for the elderly based upon the average value of pensions in each municipality (lower, intermediate or higher).
The draft results achieved with this methodological approach may be displayed on a set of maps with the elderly population incidence for each profile type (Dynamic, Dependent, Unprotected and Disadvantaged) throughout the Portuguese territory by municipality.

Figure 12: Incidence of Dependents
Figure 13: Incidence of Dynamic
Figure 14: Incidence of Unprotected
Figure 15: Incidence of Disadvantaged

Regarding high-level resources, the two profile types shown on the top - Dynamic and Dependent – are concentrated on the coast. This configuration results from the combined effect of a greater incidence of the young elderly (65-74 years old) with longer contributory careers to the social security system, the prevalence of higher levels of qualifications and a greater representation of high earnings in coastal areas. Between
these two quadrants (Dependent and Dynamic), the differentiations do not generically alter the overall patterns but do highlight certain areas in accordance with different autonomy levels. There is also a clear concentration of Dependents in the area around the confluence between Alto Alentejo and Beira Interior Sul and Médio Tejo (where the share of the population aged over 85 is high) and as well as some clusters in the Oeste Region, in Coimbra and Baixo Tâmega e Sousa for reasons our data doesn’t disclose.

The distribution proves different to the profile types in which earnings are lowest and where the autonomy axis generates the greatest level of differentiation. The map detailing the incidence of Unprotected reflects the geographic distribution for the elderly experiencing one or more difficulties (see annex 1). In the north and centre part of the country, there is a relevant expanse of this profile, except for Spain border areas. As regards to the Disadvantaged, it’s a high incidence of persons with autonomy that darkens the map.

There is a heavy weighting of this profile towards the metropolitan areas of Lisbon, Oporto and the Algarve, accompanied by territories commonly perceived as poorer and distant from services such as the inland band running from Beira Interior and Serra da Estrela to Beira Interior Sul. It should be highlighted that these metropolitan areas and the Algarve contain major contrasts: from the point of view of earnings and autonomy, the prevalence of more favourable situations coexists with unfavourable positions.

Figure 16 features the geographical distribution based on the profiles with the highest population weights (last quartile of the distribution of the population weight in each profile). Intermediate and other less clear situations where there’s no prevailing profile or more than one stands out were deliberately left blank.

5. Public policies

The description of the policies alongside any specific existing (or formerly existing) measures follows the diagnosis of these situations. In this case, differentiation between preventive and remedial policies needs to be made, taking into account that some hold a greater influence than others over the typical situations. The desirable impact of policies assumes they should produce results such as the most adverse situations progress towards more favourable quadrants. Returning to the given example for the Dependent profile, the public policy response falls in the transport sector and involves the creation of means of accessing services and equipment. To this end, some municipalities have been advancing with pilot projects focusing on
“flexible public transport” that are run in accordance with the explicit demand of users and may include using information and communication technologies\textsuperscript{21}.

6. Final considerations

Under the auspices of producing “evidence based policies”, one of the challenges faced by scientific community and the “research infrastructure” derives from providing effective instruments. These should enable informed policy options, taking priority over the other factors conditioning decision making (political convictions, personal beliefs, previous experiences, interest group pressures,...) (Szekér & Gyes: 2015, p. 5).

The conceptual diagram presented here stands as an instrument for diagnosis, anticipating scenarios and identifying “tailored” policies susceptible of attaining a simultaneously wide reaching and deep vision that underpins the formulation, implementation and monitoring of policies.

As regards to old people analysis, the statistical information about active ageing raises questions of representativeness, relevance, access and actuality. These questions show the need for a trade-off between characterising the elderly based on a greater plurality in dimensions’ choice and quantifying the elderly by profile type and by territorial unit.

Nevertheless, one approach has already been developed at the European level, specifically the IPOLIS pilot project, with its theoretical and methodological structure providing for the characterisation of the ageing panorama in each EU28 member state on a comparative basis. The IPOLIS information is structured into a tree of domains, components and sub-components, which endow this exercise with robust, wide reaching and multidimensional perspectives and equally supplying a set of indicators insufficiently covered by the Portuguese statistical system (e.g. levels of wellbeing, sociability in informal networks, environmental factors, voluntary participation and citizenship).

However, the disaggregated knowledge on the elderly profile types and their territorial distribution requires the gathering of information on this universe which raises implementation issues partly solved in this work.

To conclude, this article stems from an ongoing working project that may evolve in different directions:

i) deepening the model presented here through to the monitoring and policy evaluation phases;

ii) diversifying, updating and improving analysis of the available information on the elderly population whether using microdata or administrative sources;

iii) developing a system of national indicators that transpose the contents of the IPOLIS pilot project;

iv) devising a system of indicators of output and results indicators that ensure monitoring and policy impact evaluation objectives;

v) transposing this analysis framework to other populations and sectoral areas, preferably under the auspices of the “Europe 2020” inclusive growth strategy.

\textsuperscript{21}For example: FLexiBus (in Almada). Electric minibuses that attribute priority to the senior and junior populations in the historical neighbourhoods of Cacilhas and Almada. The service seeks to boost access to social equipment and facilities, commercial outlets, schools, car parks and other means of public transport. The disembarking of passengers takes place on request. Passengers are picked up from duly signposted “meeting points”. The interval between buses stands at an estimated 20 minutes. FLexiBus circulates from Monday to Friday between 7am and 7pm and on Saturday morning between 8am and 1pm. The buses follow a route running in a single direction of approximately 5.5 km (http://www.m-almada.pt/flexibus).
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Other documents:

Annex 1

The Greyish

The Seniors

The Forth agers

Incidence of the elderly with autonomy