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Economic Impacts of Ageing: An Interindustry Approach

Abstract:

Purpose まThe purpose of this paper is to quantify the impact of the evolution of consumption patterns associated with ageing on the relative importance of industries in Portugal.

Design/Methodology/Approach まThis paper uses data from the Family Spending Survey to disaggregate the Household column of the Portuguese Input-Output Table in different age groups, projecting their consumption, using the latest demographic projections made by Statistics Portugal (INE).

Findings まThe study identifies the industries that are likely to be stimulated by the ageing of the Portuguese populations, as well as the industries that will most likely become disadvantaged by the process.

Social implications まThe task of identification of growing and declining industries due to ageing is important to help the design of employment, environmental, and social policies.

Original/Value まThe contemporary demographic trends in western societies have added to the importance of studying the economic and social consequences of ageing. Previously, the main issues have been the labour market effects, the sustainability of social security systems, and long-term care. In this paper, we address a different research topic, quantifying the sectoral impact of the evolution of consumption patterns associated with ageing.

## 1.	Introduction

The contemporary demographic trends in western societies have increased the importance of studying the economic and social consequences of ageing. Broad demographic changes that started to take place after World War II are replacing a traditional pyramidal structure with an inverted pyramid (see Figure 1).

Take in Figure 1

The main issues have been the labour market effects, the sustainability of social security systems and long-term care of the elderly (see, e.g. Fertig and Schmidt (2004); Onofri (2004); Poole and Wheelock (2005); Martins *et. al.* (2009)).

In this paper, we address a different research topic, quantifying the sectoral impacts of the evolution of consumption patterns associated with ageing, along the lines suggested in Dewhurst (2006) and Kronenberg et al (2008).

Firstly, we use data from the Family Spending Survey of 2005/06 published by Statistics Portugal (INE) to characterise the consumption patterns of Portuguese households by age of the reference person (Section 2).

Next, we make the correspondence between household consumption by COICOP commodity groups and (domestic) consumption demand directed to each of the 55 (input-output) industries with positive production in Portugal, then disaggregating the Household column of the Portuguese Input-Output Table into two different age groups (young and old) and comparing the respective sectoral structures (Section 3).

At this stage of our research, we use the demographic projections of INE until 2060 (presented in Section 4) to highlight (and quantify) feasible changes in the relative importance of specific productive sectors (Section 5).

In a future stage of research, we plan to quantify also the energy and environmental impacts of ageing in Portugal (for an interesting application to the German case, see Kronenberg et al, 2008) and integrate some flexibility in demand and supply behaviours on the lines of the study of demographic changes in the Chicago Region made by Yoon and Hewings (2006).

2.   Consumption behaviour of households

Based on data from the Portuguese Household Budget Survey, 2005-06, Figures 2 and 3 below show the allocation of current consumption expenditure by age categories. Expenditures are aggregated into the following 12 categories (COICOP division):

01 - Food and non-alcoholic beverages
02 - Alcoholic beverages, tobacco and narcotics
03 - Clothing and footwear
04 - Housing, water, electricity, gas and other fuels
05 - Furnishings, household equipment and routine household maintenance
06 - Health
07 - Transport
08 - Communication
09 - Recreation and culture
10 - Education
11 - Restaurants and hotels
12 - Miscellaneous goods and services

Take in Figures 2 and 3

The middle-age households are those that consume more, on average. Of course, this is an average consumption per household and household composition is not independent of age. Expenditure on transport, education, recreation and culture, restaurants and hotels clearly declines with age, whereas the current older households spend a larger share of their budget on housing, water, electricity and fuel, or on health.

This paper assumes that this pattern will not change in the future a strong assumption since tastes and purchasing power of different age categories may change, but a reasonable starting point - to measure the effect of the demographic composition of population on production.

3. Conversion of household spending into (domestic) consumption demand

3.1 Correspondence COICOP – NACE/CLIO

The impact of changes in consumption resulting from the modification of the demographic composition of the population must be obtained with the help of input-output matrices. These matrices use a different classification of goods and services - CPA instead of COICOP (for a full list of these classifications, see UN, 2008).

This fact causes a problem of conversion between the two classifications. Since it has not been possible to obtain a conversion matrix from INE, we use the corresponding matrix for Germany (published by the German Federal Statistical Office - Statistisches Bundesamt - and kindly provided to us by Tobias Kronenberg). Although this is a source of inaccuracy, we expect the consumption structure by age to be reasonably close between the two countries, since both are western European, developed countries.

With the data of the Household Budget Survey (INE, 2007), we were able to calculate the expenditure by product category that was made by households whose reference person was younger than 65 years old (*young households*) and the corresponding expenditure that was made by households whose reference person was 65 or older (*old households*). The calculated proportions are to be found in the appendix to the paper, in Table A.3.1. Data was weighted using the household weights provided in the survey.

Using the correspondence matrix, we allocated this expenditure to goods and services of the NACE/CLIO notation. This allowed us to calculate the proportion of produced commodities that was consumed by young households and the proportion consumed by old households.

3.2 Adjusting total consumption spending to domestic consumption demand

The procedure described in sub-section 3.1 leaves us with a column of total (or two columns of age-specific) consumption flows at purchaser prices (see Table A.3.2). In order to obtain domestic consumption flows at basic prices, necessary to calculate the sectoral production impacts on domestic firms only, we must consider several issues, namely, imported components of consumption, margins and (net) product taxes (for a discussion of these methodological issues, see Mongelli *et al.*, 2008).

Although we have matrices for the base year ま2005 まthat allow us to make these adjustments (Dias, 2008), we opt not to do so this way, because at an early stage, we discovered (substantial) differences between actual total consumption, registered in the Total Flows Matrix at purchaser prices and estimated total consumption, using the Household Budget Survey, 2005-06.

To overcome this limitation, we apply to the actual value of domestic consumption at basic prices of 2005 the (vertical) structure of consumption (total and by age groups) calculated with the results described in sub-section 3.1.

Earlier, we made another simplifying assumption, considering null the consumption flows directed to Portuguese industries with null production in 2005 (these industries have been excluded from the analysis, as indicated in Section 5 below).

After completing these procedures, we have a column vector of estimated household domestic consumption demand by industry (at basic prices) in the base year 2005 (see Table A.3.3).

4.   Projecting domestic consumption demand

In the next step, we project private consumption from 2005 to 2060, assuming constant the patterns of consumption of the old and young households and incorporating the demographic transformations that are expected.

The recent demographic projections issued by INE provide values for the expected number of individuals by age category. For this paper, we would have liked to have a household projection, but this does not exist. Therefore, we use another working assumption: that the expected change in the composition of households is zero, that is, we do not expect households in 2060 to be either larger or smaller than today.

We consider that the expected number of young households will rise in the same proportion as the number of young individuals and that the expected number of old households will rise in the same proportion as the number of old individuals. However, there are two alternatives when we calculate the growth rate of young and of old individuals: we may calculate the proportion of individuals under 65 and the proportion of individuals aged 65+ by comparison with the number of all individuals in the two years, or by comparing with the number of individuals aged 15 and over, since there are no reference persons in the survey under 15 years old.

In the first case, the base of comparison ま the Portuguese population - is expected to decrease between 2006 and 2060; in the second case, the base of comparison ま individuals older than 14 - is expected to increase. In both cases, we multiply the base year per household expenditures by the expected number of households in each age group in 2060. This leads to two different reference values of household expenditures.

However, the consumption patterns of young and old people are the same, this difference having only a level effect, which is not relevant for calculating the sectoral impacts.

In fact, we are only interested in capturing the impact on industry outputs of changes in the demographic age structure of population (and corresponding consumption patterns of young versus old individuals). So we proceed as if the total value of domestic consumption at basic prices in 2060 is exactly the value observed in 2005, but the projected vector of domestic consumption demand by industry is very different due to the substantial increase in the relative weight of old consumers, reinforcing some industries and diminishing the importance of others. The demographic figures used in this study are presented in Table A.4.1 and the vector of domestic household consumption projected for 2060 in Table A.4.2.

5.   Sectoral impacts of demographic changes

Based on the methodologies and results described in the previous sections, we have the final demand changes presented in Table A.5.1. Our analysis embraces 55 industries, obtained after eliminating the industries with null production in 2005 (10 - Coal and lignite; peat; 11 - Crude petroleum and natural gas; 12 - Services incidental to oil and gas extraction excluding surveying; Uranium and thorium ores; 95 - Private households with employed persons).

We highlight the industries with the greatest (consumption) percentage growth and with the greatest decline in Tables 1 and 2.

Take in Tables 1 and 2

Taking into consideration the final demand changes induced by ageing trends, and using the well known output multipliers given by the Leontief inverse matrix of the base year (see Miller and Blair, 2009), we can calculate the industries' output changes between 2005 and 2060 (see Table A.5.2).

The main output percentage variations, positive and negative, are presented in Tables 3 and 4, respectively. Note that the numerical results and even the rankings of industries do not necessarily coincide with the previous ones, because of the indirect effects induced by the inter-industry linkages.

Take in Tables 3 and 4

6. Concluding remarks

In this paper, a first approach to the economic consequences of ageing in Portugal is made, with a particular incidence in multi-sectoral (or inter-industry) relationships.

After a brief description of the consumption patterns of households by age of the reference person, the separation is made between two major groups (*young*: between 15 and 64; *old*: 65 and over), the consumption structure of these groups being quantified using the Family Spending Survey of 2005/06, by commodity classification of COICOP.

Next, by applying an appropriate correspondence procedure to COICOP values, the *young* and *old* household total consumptions at purchaser prices by goods and services of the NACE-CLIO nomenclature are obtained.

After making some inevitable simplifying assumptions to deal with the problems of imported consumption, margins and commodity taxes, the structures of household domestic final demand directed at industries is calculated and used to generate base year (2005) sectoral productions. Supposing that these structures remain unchanged between 2005 and 2060, but considering the effects of demographic changes (the process of significant ageing of the Portuguese population visible in the demographic projections conducted by INE), we quantify final demand and productions in 2060 and the corresponding (significant) percentage changes in this long period of time, even if the values of global domestic consumption are the same in both of the limiting years.

As would be expected, some sectors gain importance in an ageing society (Medical instruments; Chemical products まpharmaceuticals; Health services; Electricity, gas and water, etc.), while other sectors suffer a relative decline (Public administration and defence services, compulsory social security services; Education services; Office machinery and computers; Radio, television and communication equipment and apparatus; Tobacco products; Other transport equipment; etc.).

Input-output analysis is a convenient methodology to quantify these changes, because it gives not only the direct effects on demands and outputs but also the indirect and induced effects via multipliers and sectoral linkages.

However, the results of this type of study provide only approximate and very crude trend indications, since they are based on strong assumptions (constant consumption behaviour of each age group; fixed technologies; unchanged relative prices of goods, services and factors; etc.). This is why the extrapolations made in this paper are not predictions for the future. Nevertheless, they indicate the change in the relative importance of sectors resulting from the expected change in the population decomposition into *young* and *old*,

using the available information that may be of use in devising economic, social and environmental policies in an ageing society.

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FIGURES:

Figure1: Age pyramids, Portugal, 2008 and 2060
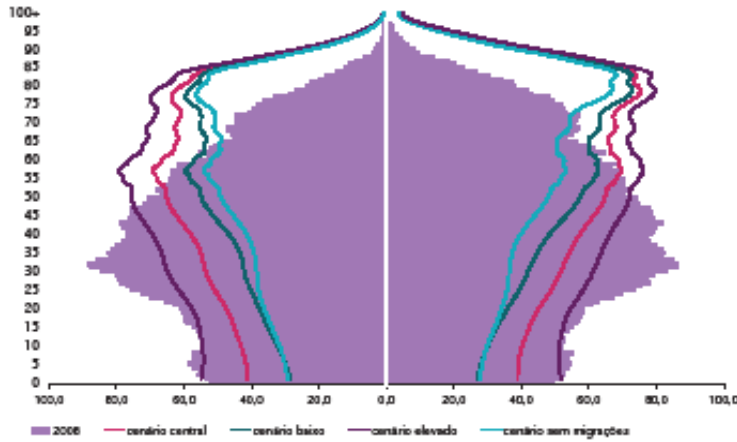
Source: INE, 2009, Projecções de População Residente em Portugal: 2008-2060
Note: Different lines correspond to different scenarios.

Figure 2: Consumption expenditures by age categories
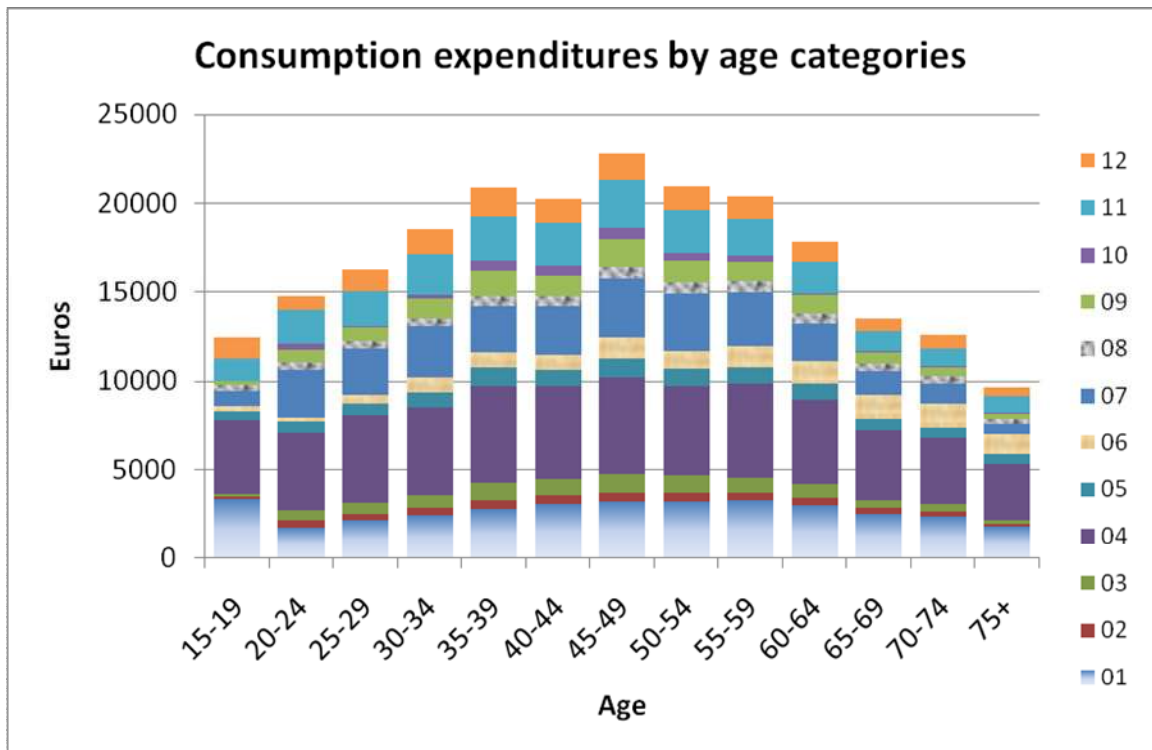
Figure 3: Structure of houshold expenditures

Composition structure of household expenditures by age
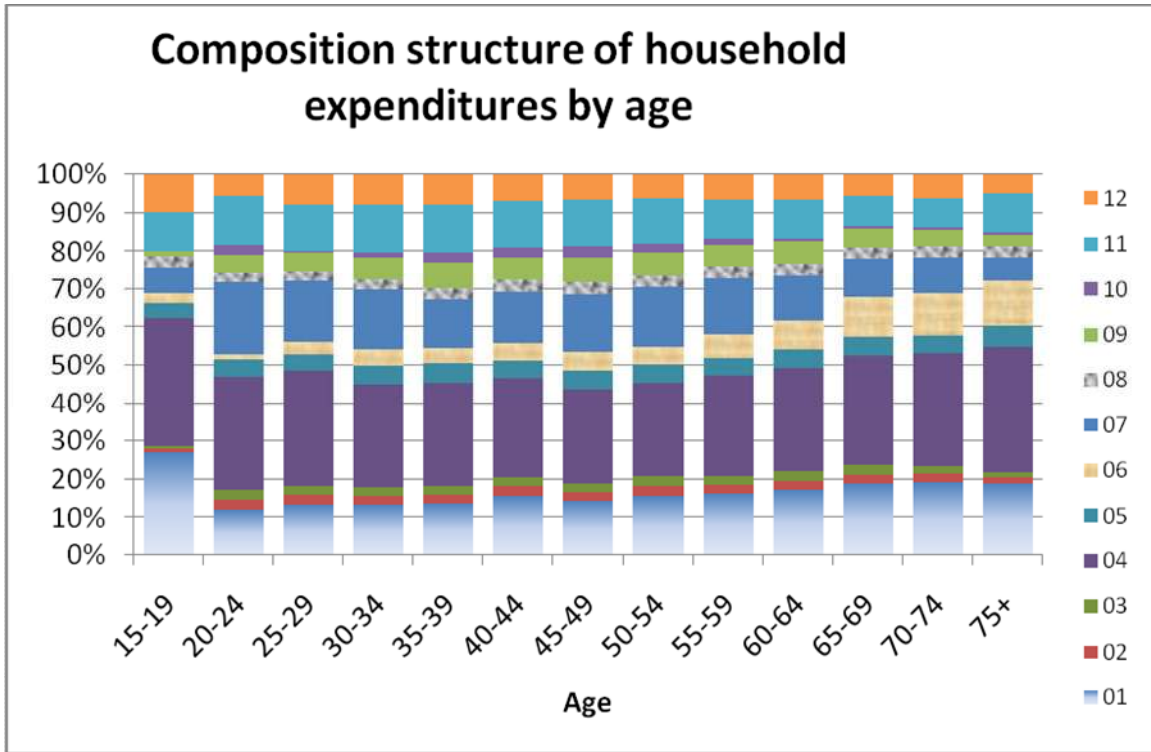
TABLES

Table 1: Main Positive Consumption Impacts of Ageing (% changes)

33	Medical, precision and optical instruments, watches and clocks	18,47
24	Chemicals, chemical products and man-made fibres	13,66
45	Construction work	7,50
40	Electrical energy, gas, steam and hot water	5,30
05	Fish and other fishing products; services incidental of fishing	4,72
85	Health and social work services	4,09
14	Other mining and quarrying products	4,06

Table 2: Main Negative Consumption Impacts of Ageing (% changes)

75	Public administration and defence services; compulsory social∧	-13,29
80	Education services	-11,67
30	Office machinery and computers	-8,92
32	Radio, television and communication equipment and apparatus	-8,53
65	Financial intermediation services, except insurance and pension∧	-8,35
67	Services auxiliary to financial intermediation	-8,35
34	Motor vehicles, trailers and semi-trailers	-8,07
91	Membership organisation services n.e.c.	-7,86
22	Printed matter and recorded media	-7,69
50	Trade, maintenance and repair services of motor vehicles∧	-6,34
92	Recreational, cultural and sporting services	-5,99
16	Tobacco products	-5,89
71	Renting services of machinery and equipment without operator∧	-5,82
52	Retail trade services, exc. of motor vehicles and motorcy∧	-5,80
35	Other transport equipment	-5,72
72	Computer and related services	-5,50
31	Electrical machinery and apparatus n.e.c.	-5,35

Table 3: Main Positive Output Impacts of Ageing (% changes)

33	Medical, precision and optical instruments, watches and clocks	18,01
24	Chemicals, chemical products and man-made fibres	11,59
85	Health and social work services	4,02
15	Food products and beverages	3,14
40	Electrical energy, gas, steam and hot water	3,03

Table 4: Main Negative Output Impacts of Ageing (% changes)

75	Public administration and defence services; compulsory social⌄	-13,29
80	Education services	-10,82
30	Office machinery and computers	-8,78
34	Motor vehicles, trailers and semi-trailers	-8,05
32	Radio, television and communication equipment and apparatus	-6,88
16	Tobacco products	-5,89
35	Other transport equipment	-5,49
91	Membership organisation services n.e.c.	-5,15
92	Recreational, cultural and sporting services	-4,85
19	Leather and leather products	-4,74
18	Wearing apparel; furs	-4,68
36	Furniture; other manufactured goods n.e.c.	-4,39
93	Other services	-4,21

APPENDIX:

Table A.3.1 まProportion of expenditures of Young Househlds and of Old Households by COICOP, 2005-2006

	Young	Old
01.1- Food	0,760431	0,239569
01.2- Non-alcoholic beverages	0,809002	0,190998
02.1- Alcoholic beverages	0,759006	0,240994
02.2- Tobacco	0,864942	0,135058
03.1- Clothing	0,853778	0,146222
03.2- Footwear	0,869289	0,130711
04.1- Actual rentals for housing	0,863511	0,136489
04.2- Imputed rentals for housing	0,774395	0,225605
04.3- Maintenance and repair of the dwelling	0,703192	0,296808
04.4- Water supply and miscel. services relating to the dwelling	0,783679	0,216321
04.5- Electricity, gas and other fuels	0,754783	0,245217
05.1- Furniture and furnish., carpets and other floor coverings	0,872516	0,127484
05.2- Household textiles	0,803302	0,196698
05.3- Household appliances	0,815517	0,184483
05.4- Glassware, tableware and household utensils	0,839053	0,160947
05.5- Tools and equipment for house and garden	0,84367	0,15633
05.6- Goods and services for routine household maintenance	0,75104	0,24896
06.1- Medical products, appliances and equipment	0,587612	0,412388
06.2- Outpatient services	0,748662	0,251338
06.3- Hospital services	0,616789	0,383211
07.1- Purchase of vehicles	0,887235	0,112765
07.2- Operation of personal transport equipment	0,86933	0,13067
07.3- Transport services	0,821588	0,178412
08.1- Postal services	0,58374	0,41626
08.2- Telephone and telefax equipment	0,880019	0,119981
08.3- Telephone and telefax services	0,798629	0,201371
09.1- Audio-visual, photogr. and information processing equipment	0,89472	0,10528
09.2- Other major durables for recreation and culture	0,976655	0,023345
09.3- Other recreational items, equipm., gardens and pets	0,820419	0,179581
09.4- Recreational and cultural	0,866109	0,133891

services		
09.5- Newspapers, books and stationery	0,878456	0,121544
09.6- Package holidays	0,839501	0,160499
10 - Education	0,930354	0,069646
11.1- Catering services	0,843602	0,156398
11.2- Accommodation services	0,898677	0,101323
12.1- Personal care	0,829926	0,170074
12.3- Personal effects n.e.c	0,820438	0,179562
12.4- Social protection	0,871008	0,128992
12.5- Insurance	0,86093	0,13907
12.6- Financial services n.e.c.	0,889157	0,110843
12.2+12.7- Other services	0,995947	0,004053

Table A.3.2 まHousehold expenditures by NACE/CLIO category, 2005-06

Cod.	Young	Old	Total	Total %
01	1006674867	301476654,4	1308151522	1,94%
02	26961964,57	8027976,218	34989940,79	0,05%
05	26668530,63	8401743,142	35070273,77	0,05%
10	18169387,16	5650438,265	23819825,42	0,04%
11	579334263,6	188216728,4	767550992,1	1,14%
12	0	0	0	0,00%
13	0	0	0	0,00%
14	6276655,987	1906880,498	8183536,486	0,01%
15	8242377785	2473758460	10716136245	15,89%
16	886279767,1	138389955,6	1024669723	1,52%
17	518582635,9	103701386,2	622284022,1	0,92%
18	1471572827	252095964,4	1723668792	2,56%
19	650757199,6	111346059,9	762103259,5	1,13%
20	28208897,28	8282056,057	36490953,34	0,05%
21	288791348,7	67921189,03	356712537,7	0,53%
22	603604547,3	80236862,55	683841409,9	1,01%
23	2661999050	479839549,4	3141838599	4,66%
24	1863667482	907631934	2771299416	4,11%
25	329701357,3	81491040,03	411192397,3	0,61%
26	89099441,3	25585107,9	114684549,2	0,17%
27	0	0	0	0,00%

28	158237257,6	40766704,19	199003961,8	0,30%
29	409975851	94795045,63	504770896,6	0,75%
30	149677800,3	17612310,5	167290110,8	0,25%
31	59754367,79	9756857,287	69511225,07	0,10%
32	268426437,3	32878055,46	301304492,8	0,45%
33	426388573,1	255699478	682088051,1	1,01%
34	2892180336	370733216,1	3262913552	4,84%
35	189887161,1	30081997,27	219969158,4	0,33%
36	817119761	145175892,7	962295653,7	1,43%
37	0	0	0	0,00%
40	1083729373	352086886,5	1435816260	2,13%
41	141103293,4	38949178,89	180052472,3	0,27%
45	70160516,74	25551248,39	95711765,13	0,14%
50	989824974,6	148782381,4	1138607356	1,69%
51	0	0	0	0,00%
52	134927112,7	21233835,22	156160947,9	0,23%
55	5549443085	1003442626	6552885711	9,72%
60	403146707	87545478,85	490692185,9	0,73%
61	27484272,39	5968357,785	33452630,17	0,05%
62	255550878,9	55494249,78	311045128,6	0,46%
63	495514041,2	94048920,59	589562961,8	0,87%
64	1615617155	400653947,6	2016271103	2,99%
65	15611368,03	1946118,976	17557487,01	0,03%
66	1420024631	241506658,7	1661531290	2,46%
67	272514,4905	33971,75828	306486,2488	0,00%
70	11034916596	3048280866	14083197462	20,89%
71	166607224,2	26180086,5	192787310,7	0,29%
72	25533447,71	4119744,287	29653192	0,04%
73	0	0	0	0,00%
74	286523240	58185682,27	344708922,3	0,51%
75	109502972,4	7261514,94	116764487,4	0,17%
80	1198485793	101686571,7	1300172364	1,93%
85	1755933418	534561097,3	2290494515	3,40%
90	380198982,1	104947502	485146484,1	0,72%
91	105488640,4	13796161,23	119284801,6	0,18%
92	926815169,3	143486198,6	1070301368	1,59%
93	1025085223	183497369,8	1208582593	1,79%
95	443860854,6	147134376,6	590995231,2	0,88%
Total	**54331737036**	**13091840575**	**67423577611**	100,00%

Table A.3.3 まEstimated domestic consumption demand at basic prices, 2005

Cod	TC (coicop/io)	TC vert. strct.	DC (io/coicop)
01	1308151522	1,98%	1910392901
02	34989940,79	0,05%	51098465
05	35070273,77	0,05%	51215781
13	0	0,00%	0
14	8183536,486	0,01%	11951039
15	10716136245	16,23%	15649586663
16	1024669723	1,55%	1496402926
17	622284022,1	0,94%	908768563
18	1723668792	2,61%	2517204291
19	762103259,5	1,15%	1112957201
20	36490953,34	0,06%	53290507
21	356712537,7	0,54%	520934378
22	683841409,9	1,04%	998665486
23	3141838599	4,76%	4588265240
24	2771299416	4,20%	4047138762
25	411192397,3	0,62%	600495450
26	114684549,2	0,17%	167482547
27	0	0,00%	0
28	199003961,8	0,30%	290620581
29	504770896,6	0,76%	737155231
30	167290110,8	0,25%	244306439
31	69511225,07	0,11%	101512515
32	301304492,8	0,46%	440017807
33	682088051,1	1,03%	996104923
34	3262913552	4,94%	4765080178
35	219969158,4	0,33%	321237648
36	962295653,7	1,46%	1405313341
37	0	0,00%	0
40	1435816260	2,17%	2096831402
41	180052472,3	0,27%	262944284
45	95711765,13	0,14%	139775151
50	1138607356	1,72%	1662794694
51	0	0,00%	0
52	156160947,9	0,24%	228053678
55	6552885711	9,92%	9569676093
60	490692185,9	0,74%	716595022
61	33452630,17	0,05%	48853413
62	311045128,6	0,47%	454242797
63	589562961,8	0,89%	860983516

64	2016271103	3,05%	2944513642
65	17557487,01	0,03%	25640530
66	1661531290	2,52%	2426460183
67	306486,2488	0,00%	447585
70	14083197462	21,32%	20566761577
71	192787310,7	0,29%	281541934
72	29653192	0,04%	43304806
73	0	0,00%	0
74	344708922,3	0,52%	503404588
75	116764487,4	0,18%	170520038
80	1300172364	1,97%	1898740332
85	2290494515	3,47%	3344982893
90	485146484,1	0,73%	708496213
91	119284801,6	0,18%	174200644
92	1070301368	1,62%	1563042279
93	1208582593	1,83%	1764984841
Tot	**66041211562**	**100,00%**	**96444991000**

Table A.4.1 – Demographic Projections, Portugal - 2060

	2006	Projection - 2060	Projection - 2060
Resident Population	10599095	10364157	
Population 65+	1828617	3351045	
Population < 65	8770478	7013112	
Population >14 and <65	7132841	5774802	
Population >15	8961458	9125847	
Weight of Pop. 65+ in Pop. 15+	**0,204**	**0,367**	
		A. 1 - Tot Pop. dimin.	A. 2 - Pop 15+ augm.
Nº of Families (Survey)	10403	10172	10594
Nº of *Young* Families (Survey)	8280	6437	6704
Nº of *Old* Families (Survey)	2123	3735	3890
Nº of Families (Total)	3829464	3744581	3899712
Nº of *Young* Families (Total)	3048048	2369557	2467723
Nº of *Old* Families (Total)	781416	1375024	1431989

Table A.4.2 まProjected domestic consumption demand at basic prices, 2060

Cod	TC (coicop/io)	TC vert. strct.	DN (io/coicop)
01	1313086035	2,06%	1982938108
02	35086756	0,05%	52985763
05	35516342	0,06%	53634496
13	0	0,00%	0
14	8234937	0,01%	12435873
15	10760603068	16,85%	16249970922
16	932513965	1,46%	1408222637
17	585625741	0,92%	884374343
18	1587605186	2,49%	2397499281
19	701830424	1,10%	1059859183
20	36503216	0,06%	55124810
21	344024804	0,54%	519524141
22	610432353	0,96%	921835693
23	2913794794	4,56%	4400225561
24	3045938988	4,77%	4599781227
25	399706589	0,63%	603611193
26	114287051	0,18%	172588956
27	0	0,00%	0
28	194749290	0,30%	294097856
29	485522578	0,76%	733204982
30	147351349	0,23%	222520534
31	63621850	0,10%	96077628
32	266529176	0,42%	402495226
33	781418574	1,22%	1180048090
34	2900748217	4,54%	4380523459
35	200552538	0,31%	302861549
36	890689816	1,39%	1345062494
37	0	0,00%	0
40	1462044990	2,29%	2207886345
41	178231102	0,28%	269153151
45	99504326	0,16%	150265035
50	1031297253	1,61%	1557398806
51	0	0,00%	0
52	142256790	0,22%	214827058
55	6079859633	9,52%	9181413126
60	467456837	0,73%	705923261
61	31868575	0,05%	48125873
62	296316461	0,46%	447478069

63	550707151	0,86%	831642533
64	1960996629	3,07%	2961371031
65	15560801	0,02%	23498921
66	1528898000	2,39%	2308843462
67	271632	0,00%	410201
70	13942489055	21,83%	21055050567
71	175588658	0,27%	265162702
72	27099074	0,04%	40923280
73	0	0,00%	0
74	325130414	0,51%	490991047
75	97905530	0,15%	147850637
80	1110637933	1,74%	1677214000
85	2305709418	3,61%	3481934122
90	480238851	0,75%	725225837
91	106283524	0,17%	160502545
92	972993882	1,52%	1469352804
93	1119795112	1,75%	1691042582
Tot	**63865115268**	**100,00%**	**96444991000**

Table A.5.1 まDomestic Final Demand differences by industry (2005 ま2060)

cod.	Industries	Changes	Changes %
01	Products of agriculture, hunting and related services	72545207	3,80
02	Products of forestry, logging and related services	1887298	3,69
05	Fish and other fishing products; services incidental of fishing	2418714	4,72
13	Metal ores	0	0,00
14	Other mining and quarrying products	484834	4,06
15	Food products and beverages	600384258	3,84
16	Tobacco products	-88180289	-5,89
17	Textiles	-24394220	-2,68
18	Wearing apparel; furs	-119705010	-4,76
19	Leather and leather products	-53098019	-4,77
20	Wood and products of wood and cork (except furniture)へ	1834303	3,44
21	Pulp, paper and paper products	-1410238	-0,27
22	Printed matter and recorded media	-76829792	-7,69
23	Coke, refined petroleum products and nuclear fuels	-188039679	-4,10
24	Chemicals, chemical products and man-made fibres	552642465	13,66
25	Rubber and plastic products	3115743	0,52

26	Other non-metallic mineral products	5106409	3,05
27	Basic metals	0	0,00
28	Fabricated metal products, except machinery and equipment	3477275	1,20
29	Machinery and equipment n.e.c.	-3950249	-0,54
30	Office machinery and computers	-21785905	-8,92
31	Electrical machinery and apparatus n.e.c.	-5434887	-5,35
32	Radio, television and communication equipment and apparatus	-37522581	-8,53
33	Medical, precision and optical instruments, watches and clocks	183943167	18,47
34	Motor vehicles, trailers and semi-trailers	-384556718	-8,07
35	Other transport equipment	-18376100	-5,72
36	Furniture; other manufactured goods n.e.c.	-60250847	-4,29
37	Secondary raw materials	0	0,00
40	Electrical energy, gas, steam and hot water	111054943	5,30
41	Collected and purified water, distribution services of water	6208867	2,36
45	Construction work	10489884	7,50
50	Trade, maintenance and repair services of motor vehicles∧	-105395888	-6,34
51	Wholesale trade and commission trade services∧	0	0,00
52	Retail trade services, exc. of motor vehicles and motorcy∧	-13226620	-5,80
55	Hotel and restaurant services	-388262966	-4,06
60	Land transport; transport via pipeline services	-10671761	-1,49
61	Water transport services	-727541	-1,49
62	Air transport services	-6764728	-1,49
63	Supporting and auxiliary transport services; travel agency∧	-29340983	-3,41
64	Post and telecommunication services	16857390	0,57
65	Financial intermediation services, except insurance and pension∧	-2141610	-8,35
66	Insurance and pension funding services, except compulsory ∧	-117616721	-4,85
67	Services auxiliary to financial intermediation	-37384	-8,35
70	Real estate services	488288990	2,37
71	Renting services of machinery and equipment without operator∧	-16379232	-5,82
72	Computer and related services	-2381526	-5,50
73	Research and development services	0	0,00
74	Other business services	-12413541	-2,47
75	Public administration and defence services; compulsory social∧	-22669401	-13,29
80	Education services	-221526332	-11,67

cod.	Industries	Changes	Changes %
85	Health and social work services	136951229	4,09
90	Sewage and refuse disposal services, sanitation and similar services	16729624	2,36
91	Membership organisation services n.e.c.	-13698100	-7,86
92	Recreational, cultural and sporting services	-93689475	-5,99
93	Other services	-73942258	-4,19

Table A.5.2 まIndustry Output differences (2005 ま2060)

cod.	Industries	Changes	Changes %
01	Products of agriculture, hunting and related services	239417055	3,03
02	Products of forestry, logging and related services	1961960	0,89
05	Fish and other fishing products; services incidental of fishing	1146831	0,64
13	Metal ores	0	0,00
14	Other mining and quarrying products	3162461	1,96
15	Food products and beverages	666717403	3,14
16	Tobacco products	-94315962	-5,89
17	Textiles	-64886346	-3,26
18	Wearing apparel; furs	-140464611	-4,68
19	Leather and leather products	-65376649	-4,74
20	Wood and products of wood and cork (except furniture)へ	-3565789	-0,62
21	Pulp, paper and paper products	5190219	0,50
22	Printed matter and recorded media	-84194567	-3,83
23	Coke, refined petroleum products and nuclear fuels	-162512222	-2,74
24	Chemicals, chemical products and man-made fibres	637906719	11,59
25	Rubber and plastic products	26242361	1,91
26	Other non-metallic mineral products	11451956	1,22
27	Basic metals	-14952493	-3,57
28	Fabricated metal products, except machinery and equipment	-2589297	-0,20
29	Machinery and equipment n.e.c.	-6154855	-0,63
30	Office machinery and computers	-22395412	-8,78
31	Electrical machinery and apparatus n.e.c.	-14470984	-3,81
32	Radio, television and communication equipment and apparatus	-38420724	-6,88
33	Medical, precision and optical instruments, watches and clocks	188300820	18,01
34	Motor vehicles, trailers and semi-trailers	-403689377	-8,05
35	Other transport equipment	-18722154	-5,49
36	Furniture; other manufactured goods n.e.c.	-78275454	-4,39
37	Secondary raw materials	-325748	-0,35
40	Electrical energy, gas, steam and hot water	192849443	3,03

41	Collected and purified water, distribution services of water	6150601	1,29
45	Construction work	59590733	1,70
50	Trade, maintenance and repair services of motor vehicles∧	-100274363	-3,66
51	Wholesale trade and commission trade services∧	8372956	0,22
52	Retail trade services, exc. of motor vehicles and motorcy∧	-12958720	-1,76
55	Hotel and restaurant services	-388152947	-3,69
60	Land transport; transport via pipeline services	7984522	0,36
61	Water transport services	-332908	-0,29
62	Air transport services	-7970913	-1,37
63	Supporting and auxiliary transport services; travel agency∧	-33113905	-2,21
64	Post and telecommunication services	10385142	0,20
65	Financial intermediation services, except insurance and pension∧	57673699	1,20
66	Insurance and pension funding services, except compulsory ∧	-113643821	-3,90
67	Services auxiliary to financial intermediation	-15332239	-2,04
70	Real estate services	484224588	2,22
71	Renting services of machinery and equipment without operator∧	-18209795	-2,52
72	Computer and related services	-793585	-0,16
73	Research and development services	3954040	2,29
74	Other business services	32926858	0,34
75	Public administration and defence services; compulsory social∧	-22669401	-13,29
80	Education services	-223145464	-10,82
85	Health and social work services	150582288	4,02
90	Sewage and refuse disposal services, sanitation and similar services	19785990	1,97
91	Membership organisation services n.e.c.	-13145305	-5,15
92	Recreational, cultural and sporting services	-101162912	-4,85
93	Other services	-78042330	-4,21