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Aging, Labor Supply and Consumption - Sectoral Effects of Demographic Change in Germany

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The German population is forecast to become smaller and older over the next few decades. Population aging as a consequence of demographic change will influence the economy. This paper tries to quantify the effects in a computable general equilibrium model with 17 production sectors and heterogeneous households based on German data from 2000. It analyzes the sectoral effects of population aging stemming from two effects, namely a negative labor supply shock and a change in the composition of consumption demand. To the best of our knowledge it is the first paper to combine input-output data and matching micro level, i.e. household level data for Germany. The sector affected most in this analysis is that of 'health, education and social services'.

JEL Classification: C68, J11, O52, R15

Keywords: demographic aging, computable general equilibrium, sectoral decomposition

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1 Introduction

As many other OECD countries Germany experiences a shift in its population composition. Life expectancy rises, birth rates rather decline. Especially with the so called Baby Boomers retiring and following generations considerably smaller in size population aging is becoming a topic debated lively. According to United Nations (2002) the elderly dependency ratio in Germany will rise from 24.1 in 2000 to 54.7 in 2050, thus more than double. Quantifying the possible effects of these changes is the aim of this paper. In the literature, demographic change used to be associated with population growth, a topic mainly linked to developing countries. Thus, several studies deal with topics related to economic development which is not the focus of this study.[1] It is more the wide-ranging impact on the Euro area economy[2] and especially the central economic and social challenges for Germany and industrialized countries in general as referred to in the European Central Bank's monthly bulletin for October 2006 and in Deutsche Bundesbank (2004). Aside from effects on pension schemes, especially pay-as-you-go systems, which are well dealt with in the literature already, there arise important structural changes on product markets, labor markets and financial markets from population aging.

Leaving aside financial markets this study focuses on product and labor markets. Here two aspects are of importance. First, population aging produces a negative labor supply shock via workforce aging. Second, population aging comes with a perceptible structural change of household composition and with it final demand. The relative scarcity of workers will exert pressure on labor markets. The changed composition of household types will have an impact on final demand. The economy's (final) demand changes with a modified population composition as the proportion of the elderly will grow relative to the younger and still labor active. Deutsches Institut für Wirtschaftsforschung (2007) and Schaffnit-Chatterjee (2007), two rather recent studies for example, look closer at the consumption spending behavior of the elderly. Thus the first effect leads to a supply-side the second to a demand-side shock to the system. With these effects a CGE analysis becomes interesting.

The aim of this analysis is to explore the sectoral effects of population aging on Germany by taking into account both the supply-side and demand-side channels. To the best of our knowledge this is the first paper combining input-output data with household level data for Germany to study the issue of demographic change. The model distinguishes between 17 production sectors and two household types. labor supply is endogenous as agents are endowed with time and can freely choose whether to use it for leisure or for labor which means goods consumption. Similar studies can only be found in different areas, e.g. Boeters, Schnabel, and Gürtzgen (2006), an evaluation of a social welfare reform in Germany or Boeters, Böhringer, Büttner, and Kraus (2006), an evaluation of value-added tax reform in Germany. Other related studies are Denton and Spencer (1999); Börsch-Supan (2003); Batini, Callen, and McKibbin (2006); Krueger and

[1] The interested reader may refer to for example Bloom, Canning, and Malaney (1999); Bloom and Canning (2006); Kelley and Schmidt (2001); Bloom and Canning (2004); Bloom, Canning, Fink, and Finlay (2006).

[2] See European Central Bank (2006).

Ludwig (2007); Fougère, Mercener, and Mérette (2007). In these models consumption demand changes are induced by a varying age structure of consumers. However, except for Fougère, Mercener, and Mérette (2007) they only take into account very few sectors. In Krueger and Ludwig (2007) for example there is only one consumption good and a market each, one for labor services and one for capital services. A rather unsatisfactory approach if focus lies on sectoral effects of population aging.

Very similar to our study is that by Fougère, Mercener, and Mérette (2007). They set up a model with fourteen industrial sectors of production activities, three different types of labor, ten occupational groups and five levels of qualification. As these authors state: "Little previous work has considered examining the combination of supply and final-demand channel effects from population aging and using a general equilibrium framework. To the best of our knowledge, none have explored the sectoral and labor market implications of population aging at the occupational skill levels." (Fougère, Mercener, and Mérette, 2007, p. 691) Their OLG model is calibrated to Canadian data. Our study is a detailed sectoral analysis with German data and allows for endogenous labor supply. Methodologically it is built straightforward as a static model. This will in later studies allow for a comparison of outcomes with different methodologies. Insights from this study are not confined to Germany as the effect of population aging will be similar in most industrialized countries. Most industrialized countries will be affected similarly.

The paper is structured as follows. Section 2 gives a detailed description of the model. Section 3 depicts the data used including the necessary adjustments conducted. Section 4 reports and discusses the simulation results, followed by a concluding section with policy suggestions and some directions for future research.

2 Model Description

An economy-wide general equilibrium model contains all factor and commodity markets as well as all economic agents. Thus, as demand and supply depend on the relative prices of all other factor and goods markets, a CGE model is capable of taking into account all essential interactions. CGE models are often used in development economics, as they are usually calibrated to a (one point in time) social accounting matrix and thus can help overcome data problems which persist in developing countries. Germany is a country with a sound data basis. However, even for Germany it is hard to find consistent production and household consumption data. Thus, a CGE model, calibrated to a one point in time SAM in contrast to an econometric analysis is appropriate even for Germany as data requirements are more appropriate for the current data situation.

In this model consumers are utility maximizers and producers profit maximizers. Markets are assumed to be perfectly competitive and capital and labor are mobile across sectors. On the production side the economy is constructed of 17 production sectors. Production takes place using nested constant elasticity of substitution (CES) production and transformation (CET) functions with primary factors and intermediates. The Armington assumption is used for modeling international trade in a way that foreign and home production form final domestic consumption goods via a CES production function.

In a similar fashion home production produces final domestic and export products with a CET production function. Germany is modeled as a small country and is thus a price taker on world markets.

There are two types of consumers, working and non-working, i.e. active and retired households. They are endowed with capital and time. The latter they can transform into leisure or labor (which means goods consumption). Capital and labor are primary factors. There is a government which collects product taxes and a lump sum transfer from the model household type 'working'/'active'. This household type is the main actor in this model. It is endowed with most of the primary factors and makes all lump sum payments in order to close the model, i.e. concerning the balance of payments (surplus), the government deficit and investments. In the base model, the household type 'non-working'/'retired' also receives a lump sum transfer to the amount of their consumption spending (according to household spending data). Both household types are endowed with time which they can both transform into labor supply. However, the amount of time transferred into labor supply is different within these two groups, representing different preferences for leisure and the fact that the retired household type represents pensioners and retirees who normally do not work.

Time endowment is proportional to the weight of the household type in the model and it is the parameter which is used to simulate demographic change. In accordance with population projections the number of households within the two groups changes and with it the time endowment of each household type in the model. The analysis is based on comparative runs which simulate population aging by decreasing 'active' households and increasing 'retired' households in the model according to table 3.

Algebraically the model is set up in the mixed complementarity format. A CGE model as described above could be set up as a system of simultaneous linear or non-linear equations. [3] For increased readability of this paper the model equations are shown later in appendix A.

3 Data

The model is calibrated to German input output data for the year 2000. These are taken from Klose, Opitz, and Schwarz (2005). The numbers are based on the concept of national accounting not on consumer surveying like the EVS[4]. Intuitively these data fit better for analysis dealing with household consumption, but as Lehmann (2004) states there are several problems with these data which are especially prevalent if the analysis is rather concerned with statements concerning the national economy as a whole. [5]

[3] The equivalence of the formulation as a mixed complementarity problem has been shown by Mathiesen (1985). This format has the advantage of dealing easily with corner solutions. See Mathiesen (1985); Rutherford (1995) for more about the mixed complementarity format in CGE models.

[4] Erwerbs- und Verbrauchsstichprobe, data panel on private household spending collected by the Statistisches Bundesamt.

[5] Problems with the EVS in contrast to national accounting data as stated in Lehmann (2004) are for example: dealing in second-hand goods produces double counting of these goods/transactions, certain positions can only be added and adjusted on the level of national accounting, examples

As household consumption data are only available disaggregated to at most 17 sectors, the 71 available production sectors are aggregated to match those 17 sectors as can be seen in table 1.

Consumption sector aggregates	**Statistical Classification of Products by Activity in the European Economic Community**
agricultural products	agricultural products; forestry products; fish, sea foods and trapping products
mining	coal and peat products; petroleum products, ores; mining products
food, beverages, tobacco	food; beverages; tobacco
textiles, clothing, leather	textiles; clothing; leather
wood, paper, printing	lumber and wood products; wood pulp, paper and paper products; printing and publishing
petroleum and chemical products	petroleum and coal products; chemical, pharmaceuticals and chemical products
metals	primary and other metal products
machinery, vehicles, appliances	machinery and equipment; motor vehicles, other transportation equipment and parts; electrical, electronic and communication products
furniture, jewelry, musical instruments	furniture and fixtures; toys; musical instruments; secondary commodities
energy, water, construction	electricity, long-distance heating; gas; water; construction
trade services (s.)	trade services
accommodation and leisure s.	hotel and restaurant industry services
traffic and news services	transportation and information services
finance and insurance s.	finance and insurance services
real estate and business s.	real estate and business services
health, education and social s.	health services; education services; sanitation services
public administration, defence and cultural s.	public administration services; social services; cultural, sports and entertainment services; other services

Table 1: Mapping into the 17 aggregated sectors

3.1 Data Adjustments

The data compiled by Klose, Opitz, and Schwarz (2005) are adjusted to satisfy the requirements of a social accounting matrix which is a major advantage for CGE modeling as the adjustment procedure undertaken by statistical experts ensures that consumption and production data match. Nonetheless, there remain some further adjustments to be made, subject to the distinct features of this model. One is the lack of an intertemporal consumption/savings decision. In this model there is a sector 'savings' which produces the good 'savings'. This is consumed by the households (in the base model only by active

are service fees for insurances and betting and lotteries, household surveys suffer from systematic shortcomings as 'problem household' (long term care patients, socially disadvantaged, high earners) are underrepresented, self-recording in form of a book of household accounts leads to a change in behavior, underreporting of low value and non-home consumption.

households) but savings decisions have no intertemporal background. Another concerns changes in inventory stock. These are of a dynamic nature and cannot exist in a static model. For ease of calculation and since the bare numbers are comparably negligible they are added to the households' final consumption. The same applies to expenditures of private non-profit organizations which comprise almost only services.

A comparison of data for the usage of primary factors in the German input-output table with data for capital intensity from Institut der deutschen Wirtschaft Köln (2007) yields considerable differences. Due to a lack of more accurate data the study remains based on the most consistent available data taken from Klose, Opitz, and Schwarz (2005).

Consumption spending patterns

	'active'	**'old'**
agricultural products	1.4%	1.8%
mining	0.4%	0.5%
food, beverages, tobacco	8.4%	9.7%
textiles, clothing, leather	3.6%	2.7%
wood, paper, printing	2.1%	2.3%
petroleum and chemical products	3.7%	2.8%
metals	0.4%	0.5%
machinery, vehicles, appliances	7.8%	5.6%
furniture, jewelry, musical instruments	2.1%	2.1%
energy, water, construction	2.3%	3.4%
trade services	18.3%	15.2%
accommodation and leisure services	5.0%	5.8%
traffic and news services	5.3%	6.0%
finance and insurance services	6.4%	4.6%
real estate and business services	20.7%	17.7%
health, education and social services	5.5%	12.5%
public administration, defence and cultural services	6.4%	7.0%

Table 2: Consumption spending by household type and sector

On the consumption side the data comprise self-employed households (7%), working households (47%), retired and pensioner households (36%), and households of unemployed or otherwise dependent on social security payments (10%). Except for retiree and pensioner households the distribution of 1-, 2-, 3-, 4-, or 5 and more people households is very similar. Only in the afore mentioned group the 1- and 2-people households dominate. This poses an inconvenience in comparing population projections on per capita basis and on household basis but is taken into account in the aging mechanism used in this study. For the base version of the model the self-employed households and the working households have been combined and classified as 'working'/'active' while the retired and pensioner households are classified as 'non-working'/'retired'. The rest is prorated according to group size.

With this segmentation of consumption spending by household type and economic sector in this model results in what is shown in table 2. Numbers are percentage of disposable income used for consumption goods.

Population projections are usually made on per capita bases. These projections need to be modified in order to be useful for this study, as here whole households are used on the consumption side. Accounting for differences in household size and conventional population projections for Germany the development as stated in table 3 and figure 1 is calculated from Klose, Opitz, and Schwarz (2005); United Nations, Department of

	active	retired	total
scenario 1-W1	16,202.84	19,045.19	35,248.02
scenario 1-W2	17,859.63	19,840.04	37,699.67
scenario 2-W1	16,234.22	20,212.01	36,446.22
scenario 2-W2	17,894.26	21,026.38	38,920.64
scenario 3-W1	17,363.76	19,117.76	36,481.52
scenario 3-W2	19,086.78	19,915.64	39,002.42
scenario 4-W1	17,398.59	20,284.79	37,683.38
scenario 4-W2	19,120.64	21,101.82	40,222.47
scenario 5-W1	15,595.14	19,008.94	34,604.08
scenario 5-W2	17,211.12	19,802.03	37,013.15
scenario 6-W1	15,628.45	20,176.02	35,804.47
scenario 6-W2	17,246.36	20,988.47	38,234.84
year 2000	**20,155**	**17,530**	**37,685**

Table 3: number of households in population forecasts

Economic and Social Affairs, Population Division (2006); Bundesamt für Bauwesen und Raumordnung (2005) and used in this study. The base are projections by Bundesamt für Bauwesen und Raumordnung (2005) which are then distributed onto the model household types according to Klose, Opitz, and Schwarz (2005) and United Nations, Department of Economic and Social Affairs, Population Division (2006).[6] The twelve different scenarios mean:

scenario 1: constant birth rate, basic life expectancy assumption

scenario 2: constant birth rate, high life expectancy

scenario 3: slightly rising birth rate, basic life expectancy assumption

scenario 4: slightly rising birth rate, high life expectancy

scenario 5: slightly falling birth rate, basic life expectancy assumption

scenario 6: slightly falling birth rate, high life expectancy

variation W1: low immigration

variation W2: high immigration

As production data are stated at manufacturing cost, consumption data, however, at purchase prices there remained some further adjustment. The consumption data correspond to 11% taxes, 16% trade services and 73% consumption at manufacturing cost. Hence, they have been divided into trade services and and true consumption spending plus a tax on all goods.

[6] A detailed description can be found in appendix C.

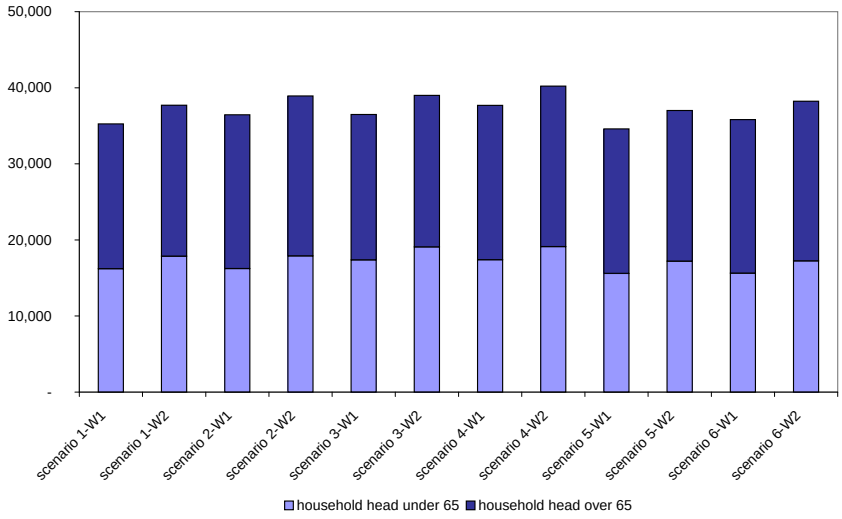

Figure 1: population forecast scenarios

4 Results

When simulating the demographic change of Germany in the model, the population experiences two different changes at the same time. One is a general fall of population size the other a change in the relative importance of household types. If not combined with any other effect this means a smaller labor supply but also a smaller number of consumers. Thus, in relative terms, everything (e.g. relative prices and relative quantities) could be the same. The other effect of demographic change is a shift from 'active' towards 'retired' households. Demographic change in Germany means that there are less 'active' people in absolute and relative terms. This holds for all twelve scenarios and can be seen in table 3. This reduction in the workforce is only one effect of demographic change. As the population composition changes gradually towards a greater share of elderly also the aggregate demand composition changes towards the preferences of 'retired' households. They form a greater part of the total population, thus aggregate demand will probably reflect their preferences more than before.

The following section shows results of the model. A sensitivity analysis was undertaken and is described in appendix D. Section 4.2 takes apart the two effects of the model, namely the age effect and the population size effect.

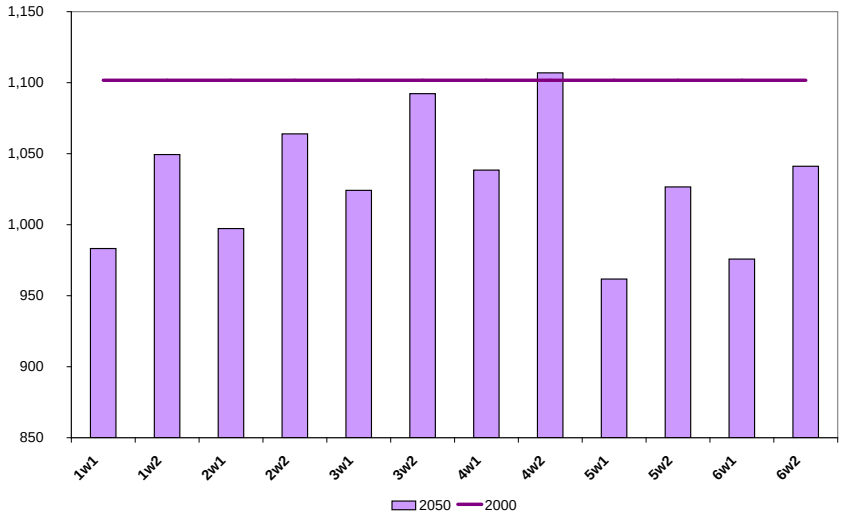

Figure 2: overall employment

4.1 Overall Model Results

As in the model labor is endogenous households can decide themselves how much of their time they use for labor and how much for leisure. Retired households are less willing to use their time for labor than active households. This way retired households stay retired and cannot go back and join the workforce again. Although active households thus bear the burden of adjustment they are modeled to be more flexible than retired households but not fully flexible - resembling the fact that there are limits to the maximum amount of hours an ordinary worker may choose to work per week. This fact is not assumed to vanish (completely) until 2050.

Therefore, it is not surprising, that figure 2 resembles in the total amount of labor employed in the economy the idfferent population sizes according to the various scenarios[7]. Nonetheless, as figures 3 and 4 show, it is mostly hte active households that bear the burden of adjustment in that they choose to work relatively more in all scenarios while the retired stay about at their benchmark level - and even choose to work less in scenario 4-W2. The ratio of labor supplied to total time endowment of the household type 'active' increases for example from 50.4% to 55.3% in scenario 2-W1. The same ratio for household type 'retired' increases only from slightly more than 4.9% to 5% in the same scenario, which is not even an increase of relative size of 2%.

[7]For ease of result interpretation it has been abstracted from increasing labor productivity but this feature can easily be incorporated into the model.

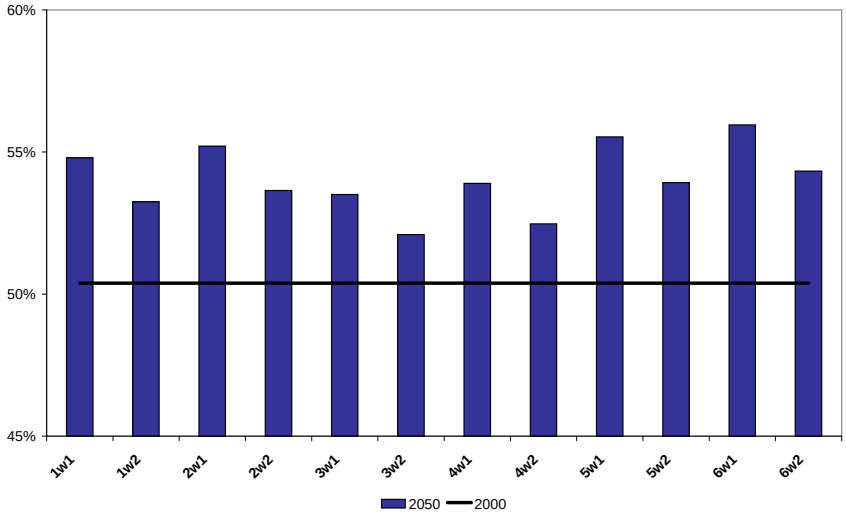

Figure 3: time w

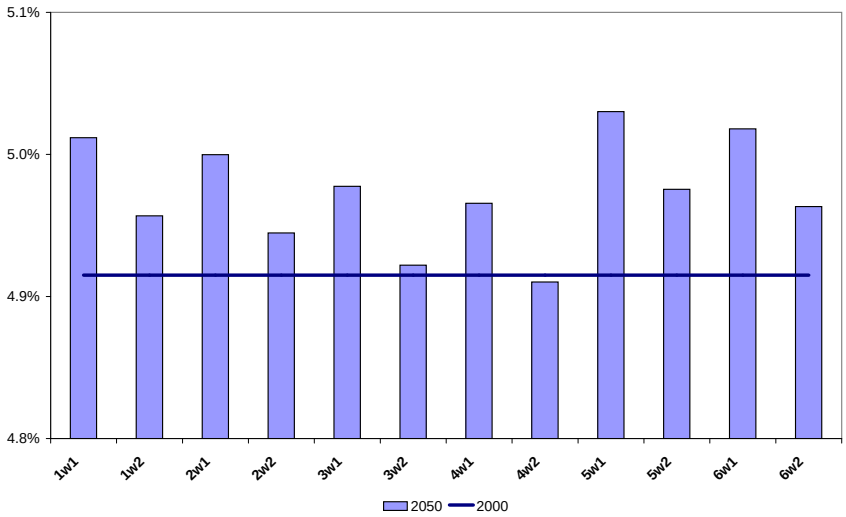

Figure 4: time n

Moving from these general model results to the more disaggregated sphere of the different sectors the development of relative prices is shown in table 4 for scenario 2-W1 which we believe to be the most probable[8].

Price change over the model horizon	
agricultural products	-5.8 %
mining	-4.1 %
food, beverages, tobacco	-5.1 %
textiles, clothing, leather	-4.0 %
wood, paper, printing	-5.0 %
petroleum and chemical products	-4.5 %
metals	-3.9 %
machinery, vehicles, appliances	-3.6 %
furniture, jewelry, musical instruments	-4.0 %
energy, water, construction	-4.6 %
trade services	-4.5 %
accommodation and leisure services	-4.6 %
traffic and news services	-5.0 %
finance and insurance services	-4.6 %
real estate and business services	-7.8 %
health, education and social services	-3.7 %
public administration, defence and cultural services	-3.9 %

Table 4: Price changes over the model horizon

As it is necessary in a CGE model to choose one good or factor price as a numeraire only relative prices can be shown. In this case the price of labor was chosen as a numeraire. As labor gets scarce relative to capital, the other factor and is thus becoming relatively more expensive it is not surprising that all goods prices fall relative to benchmark prices of 2000 as the numeraire in 2050 is the relatively most expensive factor in the model economy. Any other commodity could have been chosen as numeraire. This would certainly influence some prices to be positive and others to still be negative. This was not done here because thehuman brain would attach a different meaning to positive and negative changes although the exact distinction of which price would be shown to rise and which to fall would heavily depend on the numeraire chosen which would iself be just a arbitrary as choosing the price of labor.

What is interesting is that the health and social services sector is relatively seen the most expensive. This can be explaied by the shift in demand as well as the smaller supply of labor and this sectors high factor intensity in the factor labor. Factor intensities can be seen in table 5

The agricultural sector and the real estate services sector are capital intense while the other sectors are to varying degrees labor intensive in their production[9].

Sectoral labor usage for the health and the agricultural sectors - two rather different sectors according to factor intensities - is shown in figure 6. An overview for all sectors in scenario 2-W1 is depicted in tables 6-9.

Clearly the effect on the health sector is one of the smallest across all four tables. 'Public administration' and 'energy' are two other sectors affected in a similar fashion, while the 'textiles, clothing, leather'sector is one of the most affected sectors, something that is in accordance with the historical development.

[8]The variation of these results across the different forecast scenarios is visible in figure 5.

[9]The calculation of the factor intensities can be found in appendix B

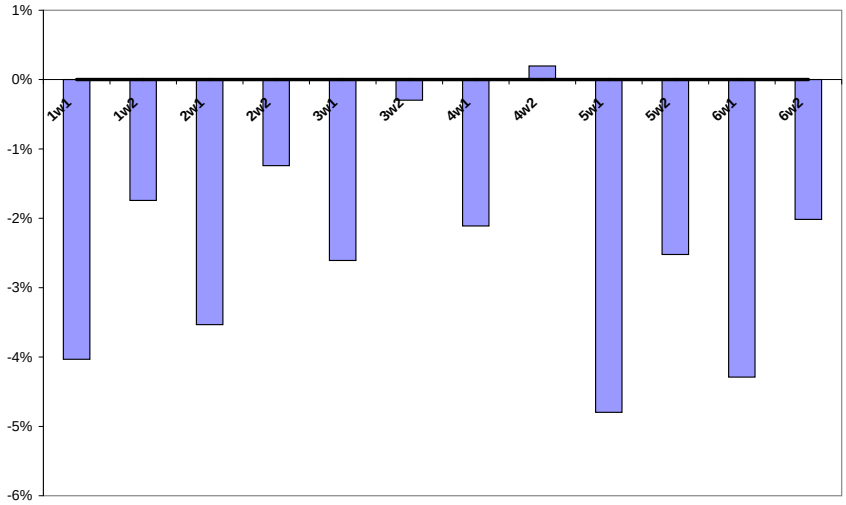

Figure 5: prices in the machinery sector across forecast scenarios

Factor intensities in the sectors

	labor	**capital**
agricultural products	0.45	0.55
mining	0.62	0.38
food, beverages, tobacco	0.54	0.46
textiles, clothing, leather	0.65	0.35
wood, paper, printing	0.56	0.44
petroleum and chemical products	0.61	0.39
metals	0.66	0.34
machinery, vehicles, appliances	0.68	0.32
furniture, jewelry, musical instruments	0.65	0.35
energy, water, construction	0.60	0.40
trade services	0.62	0.38
accommodation and leisure services	0.60	0.40
traffic and news services	0.57	0.43
finance and insurance services	0.60	0.40
real estate and business services	0.32	0.68
health, education and social services	0.68	0.32
public administration, defence and cultural services	0.67	0.33

Table 5: Factor intensities

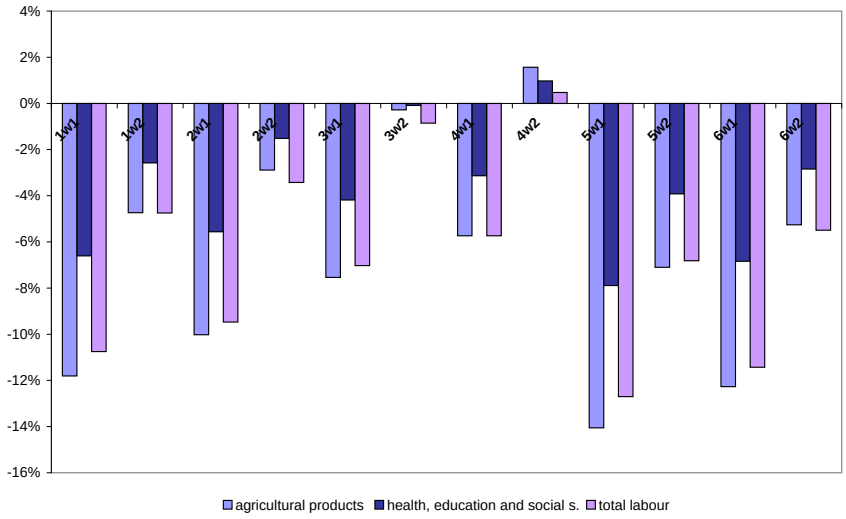

Figure 6: labor usage change in the health and agricultural sectors

	shrinking	aging	overall
agricultural products	-3.14%	-7.04%	-10.02%
mining	-1.93%	-5.30%	-7.13%
food, beverages, tobacco	-3.15%	-7.19%	-10.21%
textiles, clothing, leather	-3.70%	-11.88%	-15.26%
wood, paper, printing	-2.38%	-6.10%	-8.34%
petroleum and chemical products	-1.86%	-5.49%	-7.25%
metals	-2.68%	-7.32%	-9.80%
machinery, vehicles, appliances	-2.93%	-8.39%	-11.09%
furniture, jewelry, musical instruments	-2.77%	-7.55%	-10.16%
energy, water, construction	-1.80%	-4.46%	-6.18%
trade services (s.)	-3.09%	-9.22%	-12.08%
accommodation and leisure s.	-3.51%	-8.31%	-11.63%
traffic and news services	-3.11%	-8.21%	-11.11%
finance and insurance s.	-2.90%	-9.06%	-11.74%
real estate and business s.	-3.93%	-10.29%	-13.83%
health, education and social s.	-1.76%	-3.85%	-5.56%
public administration, defence and cultural s.	-1.89%	-4.87%	-6.66%

Table 6: Separated Effects - labor-2-W1

	shrinking	aging	overall
agricultural products	-1.18%	-1.88%	-3.11%
mining	-0.89%	-2.54%	-3.41%
food, beverages, tobacco	-2.11%	-4.47%	-6.59%
textiles, clothing, leather	-3.00%	-10.12%	-12.93%
wood, paper, printing	-1.15%	-2.86%	-3.98%
petroleum and chemical products	-1.00%	-3.23%	-4.20%
metals	-1.90%	-5.28%	-7.08%
machinery, vehicles, appliances	-2.47%	-7.20%	-9.50%
furniture, jewelry, musical instruments	-2.09%	-5.78%	-7.80%
energy, water, construction	-0.68%	-1.47%	-2.14%
trade services (s.)	-2.13%	-6.77%	-8.81%
accommodation and leisure s.	-2.56%	-5.84%	-8.35%
traffic and news services	-1.88%	-5.02%	-6.86%
finance and insurance s.	-2.07%	-6.94%	-8.92%
real estate and business s.	-1.63%	-4.36%	-5.94%
health, education and social s.	-0.94%	-1.64%	-2.57%
public administration, defence and cultural s.	-0.97%	-2.43%	-3.37%

Table 7: Separated Effects - production-2-W1

	shrinking	aging	overall
agricultural products	0.67%	3.23%	3.86%
mining	-0.57%	-1.66%	-2.22%
food, beverages, tobacco	-1.20%	-2.02%	-3.28%
textiles, clothing, leather	-3.05%	-10.23%	-13.09%
wood, paper, printing	-0.32%	-0.61%	-0.93%
petroleum and chemical products	-0.63%	-2.22%	-2.84%
metals	-1.98%	-5.46%	-7.32%
machinery, vehicles, appliances	-2.78%	-7.97%	-10.55%
furniture, jewelry, musical instruments	-2.08%	-5.73%	-7.75%
energy, water, construction	-0.17%	-0.07%	-0.24%
trade services (s.)	-1.78%	-5.83%	-7.55%
accommodation and leisure s.	-2.09%	-4.57%	-6.67%
traffic and news services	-1.09%	-2.90%	-4.01%
finance and insurance s.	-1.57%	-5.62%	-7.17%
real estate and business s.	1.59%	4.40%	6.04%
health, education and social s.	0.00%	0.00%	0.00%
public administration, defence and cultural s.	-1.09%	-2.71%	-3.77%

Table 8: Separated Effects - exports-2-W1

	shrinking	aging	overall
agricultural products	-3.45%	-7.93%	-11.21%
mining	-1.31%	-3.71%	-4.99%
food, beverages, tobacco	-3.40%	-7.92%	-11.17%
textiles, clothing, leather	-2.67%	-9.43%	-11.95%
wood, paper, printing	-2.48%	-6.43%	-8.79%
petroleum and chemical products	-1.82%	-5.46%	-7.18%
metals	-1.76%	-4.97%	-6.62%
machinery, vehicles, appliances	-1.31%	-4.28%	-5.51%
furniture, jewelry, musical instruments	-2.10%	-5.87%	-7.89%
energy, water, construction	-1.19%	-2.87%	-4.02%
trade services (s.)	-2.56%	-7.91%	-10.32%
accommodation and leisure s.	-3.09%	-7.24%	-10.21%
traffic and news services	-2.88%	-7.66%	-10.37%
finance and insurance s.	-2.62%	-8.38%	-10.81%
real estate and business s.	-4.97%	-12.96%	-17.34%
health, education and social s.	-0.65%	-0.92%	-1.58%
public administration, defence and cultural s.	-0.85%	-2.13%	-2.96%

Table 9: Separated Effects - imports-2-W1

Germany's most prominent export sector, 'machinery, vehicles and appliances' will lose ground. The second largest export sector, 'petroleum and chemical products' not to the same amount. Both are demanded less by the 'retired'. This alone is no explanation. The 'machinery' sector is slightly more labor intensive. As labor becomes scarce and thus more expensive and final demand differences of the retired regarding those two sectors not that weightily the relative price of 'petroleum and chemical products' falls to a greater extent.

In table 9 the sectoral development of imports is shown. Certainly incredible is the 0 % change in the health and education sector. This is due to the fact that the tradability of health services is very limited. In the benchmark data there was no export of health services and the assumption of no trade in health services is maintained throughout the model. The tradability might increase within the next decades, still it will probably stay on an extremely low level. The 0 % here should still be a close approximation.

4.2 Separated effects

For clarification of the effect's origin a separate look at the two main driving forces of this model is helpful. Comparative runs of modified versions of the model were undertaken in order to single out the effect of a change in population size and the effect of a change in age proportions. Thus, one modified model looked only at changes in population size while holding the proportion of 'active' and 'retired' households fixed. In another model modification only the transition from 'active' to 'retired' households was considered but overall population size kept constant. Tables 6-9 have been used above already for the overall effects but should be considered again here for the separated effects. Exemplarily, for separability across the different population forecasts figures 7-10 show the change of labor usage in the agricultural sector, production in the food, beverages and tobacco sector, exports in he public administration sector and in imports in the meals sector. A complete list of tables can be found in appendix E. Also price changes are shown in separation in table 10. It emerges that the age effect dominates the size effect.

***Price changes* over the model horizon**

	original	age	size
agricultural products	-5.8%	-4.3%	-1.8%
mining	-4.1%	-3.0%	-1.3%
food, beverages, tobacco	-5.1%	-3.8%	-1.6%
textiles, clothing, leather	-4.0%	-2.9%	-1.3%
wood, paper, printing	-5.0%	-3.7%	-1.6%
petroleum and chemical products	-4.5%	-3.3%	-1.4%
metals	-3.9%	-2.9%	-1.2%
machinery, vehicles, appliances	-3.6%	-2.6%	-1.1%
furniture, jewelry, musical instruments	-4.0%	-3.0%	-1.3%
energy, water, construction	-4.6%	-3.4%	-1.5%
trade services	-4.5%	-3.3%	-1.4%
accommodation and leisure services	-4.6%	-3.4%	-1.4%
traffic and news services	-5.0%	-3.7%	-1.6%
finance and insurance services	-4.6%	-3.4%	-1.5%
real estate and business services	-7.8%	-5.8%	-2.5%
health, education and social services	-3.7%	-2.7%	-1.2%
public administration, defence and cultural services	-3.9%	-2.9%	-1.2%

Table 10: Price changes over the model horizon - separate effects

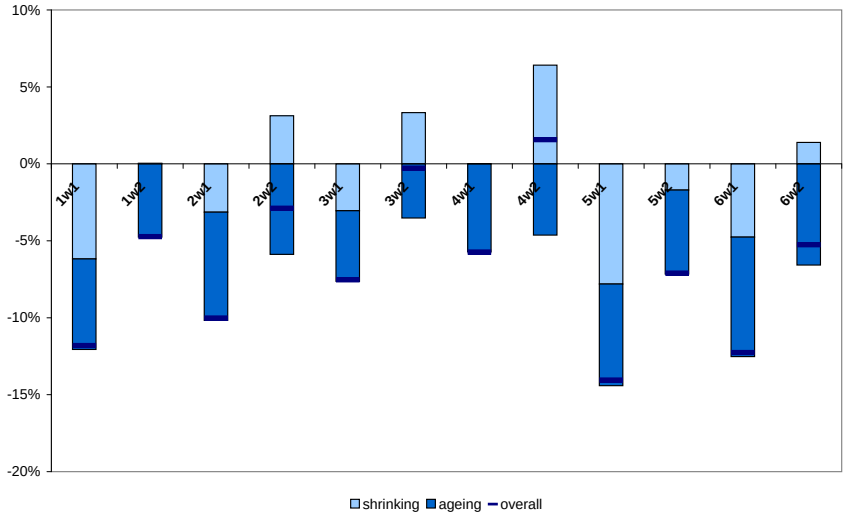

Figure 7: labor usage in the agricultural sector - different scenarios

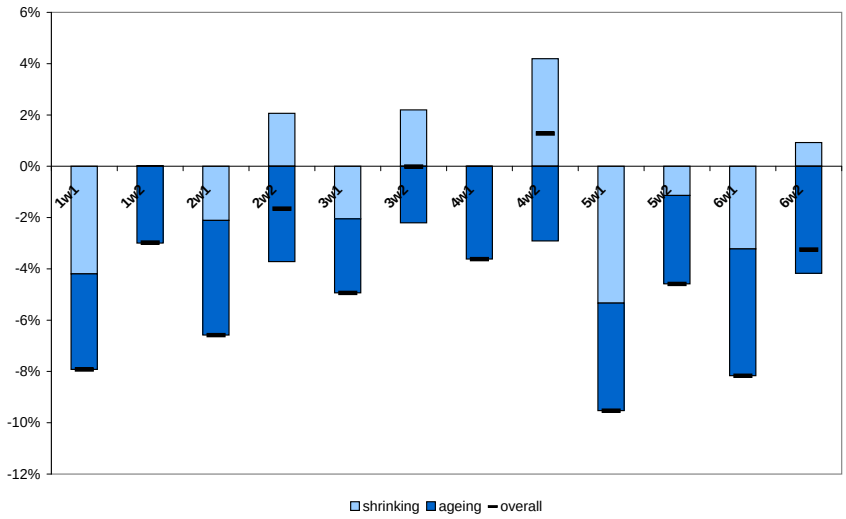

Figure 8: production in the food, beverages and tobacco sector

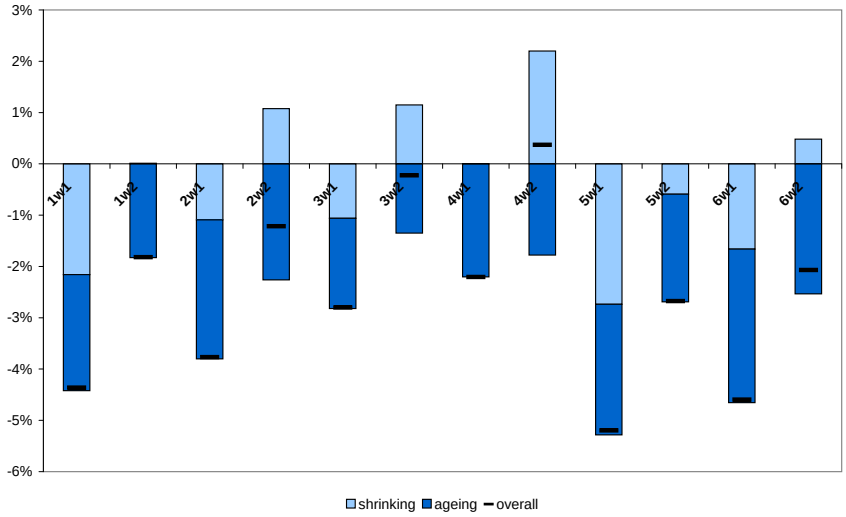

Figure 9: exports in the public administration sector

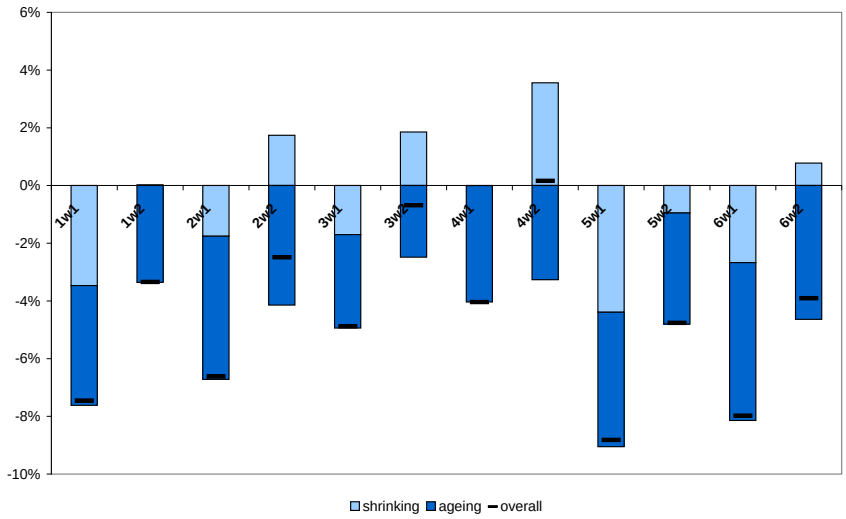

Figure 10: imports in the metals sector

5 Conclusion

In contrast to many public finance papers, this paper has analyzed the sectoral effects of the projected demographic change in Germany using a computable general equilibrium model calibrated to data for Germany with 17 production sectors and two household types. It is based on the idea that the two main driving forces are a labor supply shortage accompanied by consumption demand changes both due to pronounced population aging. The analysis is based on a static model with counterfactual runs for different population forecasts. Thus there is leeway for further, dynamic research. Although frugal on dynamic complications and only including two household types the model is very detailed on the sectoral decomposition of the German economy. As there is a great degree of interconnection between the sectors of an economy the consequences of an external shock to the system cannot easily be predicted as there are too many forces interacting to allow a precise prediction of the outcome. Thus, the consequences for production and consumption in the economy are worthwhile to be examined and found to be small but non-negligible.

As is shown in section 4.1 the two changing factors, labor supply shortage and changing aggregate demand, affect the several sectors of the economy differently. Labor becomes comparably more expensive as the household type 'active' loses in number relatively. The sector reducing employment least is that of 'health and education'.

Furthermore the 'active' households devote more and more of their disposable time to labor. At the same time 'retired' households hold their amount of time devoted to labor about constant.

All simulation results presented here are based on the assumption that aside from advanced population shrinking and aging there are no other changes in preferences, production technology or several shocks to the economy. This is certainly not a very realistic assumption but a model never makes the claim of reproducing every facet of reality. It even seems advantageous to highlight only certain aspects and thus be able to identify the effects more clearly.

Policy recommendations arising from these results might be a rise in legal retirement age, which would increase the pool of 'working' households and thus ease the pressure from labor supply shortage and at the same time probably also slow down the switch in demand preferences as it seems plausible that people change their demand depending on whether they work and receive a normal wage or whether they are retired and receive less money but at the same time have to meet different demands while in and out of working life. It seems not so much dependent on the actual age. (This assumes that the raise in retirement age is not too drastic.) One variant to a strict raise in legal retirement age could also be the introduction of part time retirement, leading to a 'phasing out' - however, it needs to start at a later age than what is currently exercised. It might also be an indication for a necessary rethinking of the 'pay-as-you-go' system prevailing in Germany. An overall reduction of the utility level of the retired might be thinkable, though, for many not only non-desirable but also infeasible as it seems rather a long run solution.

Investing in education thereby increasing the productivity of labor especially in those

sectors that will have a higher demand for labor due to the expected effects of population aging can also be a beneficial policy. It is clear that demographic change will affect the German economy. Whether the effects will be severe and harmful to at least some groups of the economy or not crucially depends on the policy environment.

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A Model Equations

A.1 model equations

In the complementarity format there are three essential types of equations: zero profit equations, market clearance equations and income constraints.

A.1.1 zero profit equations

Zero profit for sector labor supply working

$$L_w \, p_{lei_w} \geq L_w \, w \tag{1}$$

Zero profit for sector labor supply non-working

$$L_n \, p_{lei_n} \geq L_n \, w \tag{2}$$

Zero profit for sector y_i

$$\left((L_i + K_i) \; w^{\frac{L_i}{L_i + K_i}} \; r^{\frac{K_i}{L_i + K_i}} + \sum_j p_j^a \; intmed_{ji} \right) \geq (tax_i^y + 1) \; \left(\frac{e_i \, p_i^{x \, \theta y_{cet}+1}}{e_i + x_{dom_i}} + \frac{x_{dom_i} \, p_i^{dom \, \theta y_{cet}+1}}{e_i + x_{dom_i}} \right)^{\frac{1}{\theta y_{cet}+1}} \; \left(e_i + x_{dom_i} \right) \tag{3}$$

Zero profit for sector a_i

$$\left(\frac{m_i \, p_i^{fx \, 1-\sigma_a}}{m_i + x_{dom_i}} + \frac{x_{dom_i} \, p_i^{dom \, 1-\sigma_a}}{m_i + x_{dom_i}} \right)^{\frac{1}{1-\sigma_a}} \; \left(m_i + x_{dom_i} \right) \geq a_i \, p_i^a \; (tax_i^a + 1) \tag{4}$$

Zero profit for sector cow (welfare working)

$$\left(\left(\frac{\sum_i C_i^w \; p_i^{a \, 1-\sigma_{cow}}}{C^w} \right)^{\frac{1}{1-\sigma_{cow}}} \right)^{\frac{C^w}{leisw+C^w}} \; p_w^{leis \, \frac{leisw}{leisw+C^w}} \; (leisw + C^w) \geq p^{cw} \; (leisw + C^w) \tag{5}$$

Zero profit for sector con (welfare non-working)

$$\left(\frac{leisn\, p_n^{leis\,1-\theta_{con}}}{leisn + C^n} + \frac{C^n \left(\left(\frac{\sum_i C_i^n\, pa_i^{\,1-\sigma_{con}}}{C^n} \right)^{\frac{1}{1-\sigma_{con}}} \right)^{1-\theta_{con}}}{leisn + C^n} \right)^{\frac{1}{1-\theta_{con}}} \quad (leisn + C^n) \geq p^{cn}\ (leisn + C^n) \tag{6}$$

Zero profit for sector go

$$g0 \prod_i pa_i^{\,\frac{gd0_i}{g0}} \geq p^g\, g0 \tag{7}$$

Zero profit for sector in

$$i0 \prod_i p_i^{a\,\frac{id0_i}{i0}} \geq p^{inv}\, i0 \tag{8}$$

Zero profit for sector ex_i

$$p_i^x\, e_i \geq p^{fx}\, e_i \tag{9}$$

A.1.2 market clearance equations

market clearance conditions

Supply-demand balance for time - labor/leisure

$$timew + timen \geq cow * \frac{\left(\left(\frac{\sum_i C_i^w \; pa(i)^{1-\sigma_{cow}}}{C^w}\right)^{\frac{1}{1-\sigma_{cow}}}\right)^{\frac{C^w}{leisw+C^w}} \; leisw \; {p_{lei}}_w^{\frac{leisw}{leisw+C^w}-1}}{leisw + C^w} + tw * L_w$$

$$+tn * L_n + con * \frac{leisn \left(\frac{leisn \; {p_{lei}}_n^{1-\theta_{con}}}{leisn+C^n} + \frac{C^n \left(\left(\frac{\sum_i C_i^n \; pa(i)^{1-\sigma_{con}}}{C^n}\right)^{\frac{1}{1-\sigma_{con}}}\right)^{1-\theta_{con}}}{leisn+C^n} \right)^{\frac{1}{1-\theta_{con}}-1}}{(leisn + C^n) \; {p_{lei}}_n^{\theta_{con}}} \tag{10}$$

Supply-demand balance for commodity x_i

$$y_i * \frac{e_i \; p_i^{x\,\theta_{y_{cet}}+1} \; (tax_i^y + 1) \left(\frac{e_i \; p_i^{x\,\theta_{y_{cet}}+1}}{e_i+x_{dom_i}} + \frac{x_{dom_i} \; p_i^{dom\,\theta_{y_{cet}}+1}}{e_i+x_{dom_i}}\right)^{\frac{1}{\theta_{y_{cet}}+1}-1}}{e_i + x_{dom_i}} \geq e_i * 1 \tag{11}$$

Supply-demand balance for commodity d_i

$$y_i * \frac{x_{dom_i} \; p_i^{dom\,\theta_{y_{cet}}} \; (tax_i^y + 1) \left(\frac{e_i \; p_i^{x\,\theta_{y_{cet}}+1}}{e_i+x_{dom_i}} + \frac{x_{dom_i} \; p_i^{dom\,\theta_{y_{cet}}+1}}{e_i+x_{dom_i}}\right)^{\frac{1}{\theta_{y_{cet}}+1}-1}}{e_i + x_{dom_i}} \geq a_i * \frac{x_{dom_i} \left(\frac{m_i \; pfx^{1-\sigma_a}}{m_i+x_{dom_i}} + \frac{x_{dom_i} \; p_i^{dom\,1-\sigma_a}}{m_i+x_{dom_i}}\right)^{\frac{1}{1-\sigma_a}-1}}{\left(m_i + x_{dom_i}\right) \; p_i^{dom\,\sigma_a}} \tag{12}$$

Supply-demand balance for demand of cw

$$cow * 1 \geq leisw + C^w \tag{13}$$

Supply-demand balance for demand of cn

$$con * 1 \geq leisn + C^n \tag{14}$$

Supply-demand balance for demand of g

$$go * 1 \geq g0 \tag{15}$$

Supply-demand balance for inv

$$in * 1 \geq i0 \tag{16}$$

Supply-demand balance for ex_i

$$e_i * 1 \geq a_i * \frac{m_i \left(\frac{m_i \, pfx^{1-\sigma_a}}{m_i + x_{dom_i}} + \frac{x_{dom_i} \, p_i^{dom\,1-\sigma_a}}{m_i + x_{dom_i}} \right)^{\frac{1}{1-\sigma_a}-1}}{\left(m_i + x_{dom_i} \right) pfx^{\sigma_a}} \tag{17}$$

Supply-demand balance for primary factor L

$$tw * L_w + tn * L_n \geq y_i * \frac{L_i \, w^{\frac{L_i}{L_i+K_i}-1} \, r^{\frac{K_i}{L_i+K_i}}}{\left(\sum_j intmed_{ji} \right) + L_i + K_i} \tag{18}$$

Supply-demand balance for primary factor K

$$supply \geq y_i * \frac{K_i \, w^{\frac{L_i}{L_i+K_i}} \, r^{\frac{K_i}{L_i+K_i}-1}}{\left(\sum_j intmed_{ji} \right) + L_i + K_i} \tag{19}$$

A.1.3 income constraints

income constraints Income definition for household 'working'/'young'

$$cow = p_w^{leis}\, time_w + r\, cap_w + p^{fx}\, bopdef + p^{cw}\, govdef + p^{inv}\, i0 - p^{cn}\, lump\_trans \tag{20}$$

Income definition for household 'non-working'/'old'

$$con = p_n^{leis}\, time_n + r\, cap_n + p^{cn}\, lump\_trans \tag{21}$$

Income definition for government

$$go = (tax_i^a + 1)\ a0_i + y_i\ (ed0_i + d0_i)\ \left(\frac{ed0_i\ p_i^{x\,theta\_y+1}}{ed0_i + d0_i} + \frac{d0_i\ p_i^{d\,theta\_y+1}}{ed0_i + d0_i} \right)^{\frac{1}{theta\_y+1}} \tag{22}$$

A Model Equations

Variable definition

name	**definition**
$a0_i$	initial Armington aggregate of sector i
a_i	Armington aggregate of sector i
$bopdef$	balance of payments deficit
C_i^n	'non-working' household type's sector i consumption
C_i^w	'working' household type's sector i consumption
C_n	total consumption of household 'non-working'
C_w	total consumption of household 'working'
con	consumption of household 'non-working'
cow	consumption of household 'working'
$d0_i$	initial home market final demand of sector i
e_i	export of sector i
$ed0_i$	initial export of sector i
$g0$	initial total government demand
$gd0_i$	initial government demand of sector i
go	government demand
$govdef$	government deficit
$i0$	total investment
$id0_i$	investment sector i
in	investment
$intmed_{ji}$	Armington aggregate of sector j used in sector i as intermediate
K_i	capital used in sector i
$leisn$	leisure consumed by household 'old'/'non-working'
$leisw$	leisure consumed by household 'young'/'working'
L_i	labor used in sector i
L_n	labor supplied by 'old' household
L_w	labor supplied by 'young' household
m_i	import of sector i (to go into Armington)
r	return on capital
$lump\_trans$	lump sum transfer from working to non-working
$time_n$	initial time endowment 'non-working'/'old' household
$time_w$	initial time endowment 'working'/'young' household
tn	time endowment 'non-working'/'old' household
tw	time endowment 'working'/'young' household
w	wage / return on labor
x_{dom_i}	production of sector i used for domestic demand
y_i	production of sector i

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Variable definition name	definition
p^g	price of government consumption
p_i^a	price of (intermediate) Armington good of sector i
p_j^a	price of (intermediate) Armington good of sector j
p^{cn}	price of 'non-working' household's consumption
p^{cw}	price of 'working' household's consumption
p_i^{dom}	price of good from sector i on domestic market
p_i^x	price of good from sector i on foreign market
p_i^{fx}	foreign price of import to sector i
p^{inv}	price of investment
p_n^{leis}	price of leisure for household 'old'/'non-working'
p_w^{leis}	price of leisure for household 'young'/'working'
p_i^x	price of good x_i
tax_i^a	tax on Armington good
tax_i^y	tax on y_i
θ_{con}	elasticity between leisure and goods consumption of household 'old'
$\theta_{y_{cet}}$	elasticity of transformation on production process of y_i
σ_a	elasticity of Armington aggregate
σ_{con}	elasticity of household 'non-working'/'old' in goods consumption
σ_{cow}	elasticity of household 'working'/'young' in goods consumption

B Factor Intensities

The calculation of the factor intensities for the individual sector follows the straight forward matrix algebra explained in this section. The calculations themselves were done with a mathematical software package. Let I_{nter} be the matrix of intermediate inputs (everything as price $*$ quantities), S_{ectors} the vector of goods names, F_{actors} the matrix of factors, $F_{actornames}$ the vector of factor names and O_{ut} the vector of outputs. With this, the following system can be set up to describe home production:

$$I_{ntermediates} * S_{ectors} + F_{actors} * F_{actornames} = O_{ut} * S_{ectors}$$

Subtracting the right hand side and multiplying everything with the inverse of $(I_{ntermediates} - O_{ut})$ are the calculations needed to receive the result:

$$S_{ectors} = -\left(I_{ntermediates} - O_{ut}\right)^{-1} * F_{actors} * F_{actornames}$$

B Factor Intensities

Giving the resulting matrix from the final calculation $-(I_{ntermediates} - O_{ut})^{-1} * F_{actors}$ the name $I_{ntensities}$ all relevant matrices are:

$$S^{-1}_{ectors} = \begin{pmatrix} x1 & x2 & x3 & x4 & x5 & x6 & x7 & x8 & x9 & x10 & x11 & x12 & x13 & x14 & x15 & x16 & x17 \end{pmatrix}$$

$$F^{-1}_{actornames} = \begin{pmatrix} L & K \end{pmatrix}$$

$$I_{ntensities} = \begin{pmatrix} 0.45167 & 0.54833 \\ 0.61523 & 0.38477 \\ 0.54064 & 0.45936 \\ 0.65925 & 0.34075 \\ 0.56484 & 0.43516 \\ 0.60965 & 0.39035 \\ 0.66015 & 0.33985 \\ 0.68293 & 0.31707 \\ 0.65197 & 0.34803 \\ 0.59807 & 0.40193 \\ 0.61575 & 0.38425 \\ 0.59834 & 0.40166 \\ 0.56909 & 0.43091 \\ 0.59906 & 0.40094 \\ 0.31559 & 0.68441 \\ 0.68278 & 0.31722 \\ 0.66613 & 0.33387 \end{pmatrix} \qquad F_{actors} = \begin{pmatrix} 8941 & 15115 \\ 5998 & 2990 \\ 21811 & 11005 \\ 6800 & 2030 \\ 23698 & 15438 \\ 49801 & 18852 \\ 40845 & 13779 \\ 142192 & 25279 \\ 9689 & 2723 \\ 80983 & 44998 \\ 151477 & 67914 \\ 21124 & 9422 \\ 59468 & 38987 \\ 52677 & 19169 \\ 116132 & 336614 \\ 166601 & 59759 \\ 143423 & 59716 \end{pmatrix}$$

$$
I_{intermediates} = \begin{pmatrix}
4760 & 485 & 4057 & 113 & 174 & 4245 & 401 & 855 & 3 & 1130 & 2803 & 16 & 322 & 974 & 4546 & 1034 & 275 \\
26 & 2332 & 0 & 12 & 181 & 450 & 596 & 1045 & 2 & 1064 & 531 & 33 & 748 & 154 & 1751 & 266 & 230 \\
32754 & 481 & 22280 & 39 & 3087 & 3991 & 1520 & 993 & 6 & 2501 & 9056 & 125 & 3996 & 1245 & 13956 & 780 & 1140 \\
370 & 60 & 105 & 9981 & 614 & 3569 & 170 & 332 & 103 & 705 & 2810 & 50 & 300 & 168 & 1328 & 88 & 111 \\
1892 & 435 & 0 & 38 & 31992 & 6022 & 535 & 778 & 375 & 2447 & 4140 & 251 & 3439 & 1216 & 10546 & 768 & 3277 \\
291 & 28804 & 1031 & 705 & 3221 & 106638 & 3387 & 3800 & 306 & 6204 & 9314 & 455 & 7644 & 2454 & 27932 & 1832 & 1631 \\
0 & 3300 & 0 & 123 & 1191 & 7540 & 73031 & 4682 & 970 & 4795 & 9299 & 309 & 3971 & 1257 & 8989 & 898 & 640 \\
0 & 370 & 0 & 1018 & 5459 & 27826 & 54438 & 192387 & 2086 & 5222 & 24822 & 1244 & 16182 & 4524 & 52542 & 1393 & 2746 \\
25 & 50 & 0 & 1046 & 3332 & 2188 & 1862 & 764 & 4098 & 402 & 3580 & 48 & 908 & 307 & 3014 & 97 & 201 \\
0 & 7226 & 7 & 490 & 7794 & 36689 & 13871 & 16765 & 45 & 15738 & 13221 & 508 & 3208 & 5197 & 31368 & 915 & 5786 \\
11 & 266 & 6 & 311 & 6927 & 4196 & 1509 & 4266 & 95 & 4376 & 18749 & 1774 & 38894 & 5834 & 48840 & 2655 & 2522 \\
1057 & 100 & 11589 & 159 & 756 & 514 & 103 & 401 & 72 & 1748 & 4137 & 237 & 1051 & 1335 & 8083 & 557 & 2026 \\
61 & 42 & 94 & 92 & 2171 & 7328 & 778 & 7605 & 24 & 3854 & 6260 & 1993 & 65922 & 4673 & 21928 & 803 & 2054 \\
6 & 50 & 0 & 28 & 1268 & 140 & 29 & 436 & 27 & 1342 & 431 & 1506 & 4299 & 51897 & 34027 & 513 & 1350 \\
610 & 93 & 14 & 55 & 7570 & 2297 & 372 & 3133 & 63 & 23790 & 2284 & 1043 & 4559 & 24490 & 106831 & 5054 & 14553 \\
657 & 301 & 4581 & 550 & 2469 & 6611 & 1364 & 5392 & 673 & 7473 & 6941 & 544 & 3892 & 4056 & 22856 & 10124 & 3935 \\
926 & 427 & 859 & 338 & 3077 & 2203 & 593 & 5969 & 193 & 5151 & 3218 & 2027 & 6616 & 8078 & 16096 & 2625 & 25420
\end{pmatrix}
$$

$$
O_{ut} = \begin{pmatrix}
50249 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 18409 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 130766 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 29694 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 107287 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 274302 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 175619 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 559730 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 34334 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 284809 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 360622 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 64471 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 224137 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 169195 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 649557 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 308779 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 286955
\end{pmatrix}
$$

C Household Projection for the year 2050

Official projections from the Statistisches Bundesamt for the number of households in Germany in the future according to age group and household type are only available until the year 2025. Therefore own calculations were necessary to obtain projections for the year 2050. Population projections for the year 2050 from Statistisches Bundesamt (2006) shown here in table 11 were combined with household members' quotas for 2006 to 2025 from Statistisches Bundesamt (2007). These quotas are shown in table 12.

German population in 2006 and 2050

	age from ... to under ...									
	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50
2006	3498	3909	4039	4765	4841	4922	4793	6402	7215	6534
2050 variant 1-W1	2428	2500	2612	2825	3163	3502	3680	3720	3758	4012
2050 variant 1-W2	2703	2757	2862	3083	3486	3892	4093	4133	4168	4431
2050 variant 2-W1	2429	2500	2614	2825	3163	3503	3680	3721	3758	4012

	age from ... to under ...									
	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95+
2006	5703	5110	4308	5459	3968	3063	2168	1075	411	116
2050 variant 1-W1	4351	4406	4933	4634	4257	3926	4389	3419	1642	593
2050 variant 1-W2	4773	4813	5282	4880	4422	4032	4451	3450	1654	594
2050 variant 2-W1	4352	4413	4952	4679	4346	4091	4741	3916	2067	888

source: Statistisches Bundesamt (2006)

Table 11: Population projection for Germany for the year 2050

Population by age and household size

age group	0-20					20-40				
household size	1	2	3	4	5+	1	2	3	4	5+
proportion individuals acc. to...	0.007	0.066	0.250	0.422	0.255	0.227	0.239	0.233	0.213	0.087
...variant 1-W1	72.6	684.1	2591.3	4374.0	2643.1	3192.8	3361.5	3277.2	2995.8	1223.7
...variant 1-W2	79.8	752.7	2851.3	4812.9	2908.3	3542.1	3729.4	3635.7	3323.7	1357.5
...variant 2-W1	72.6	684.3	2592.0	4375.3	2643.8	3193.2	3362.0	3277.6	2996.3	1223.8

age group	40-60					60+				
household size	1	2	3	4	5+	1	2	3	4	5+
proportion individuals acc. to...	0.159	0.353	0.232	0.186	0.070	0.301	0.606	0.066	0.016	0.010
...variant 1-W1	2627.8	5834.0	3834.3	3074.0	1156.9	8365.7	16842.6	1834.3	444.7	277.9
...variant 1-W2	2891.4	6419.3	4218.9	3382.4	1273.0	8658.3	17431.6	1898.5	460.2	287.7
...variant 2-W1	2629.1	5836.9	3836.1	3075.5	1157.5	8933.7	17986.1	1958.9	474.9	296.8

source: Statistisches Bundesamt (2007) and own calculations

Table 12: Household member projection for Germany for the year 2050

The quotas were taken from the status quo approach in the household members' quota approach and used for own projections for the year 2050. Then, individuals were grouped into households and households segmented according to 'head of household'. This results in the numbers presented in table 13.

Projected household division			
	working age	retired	total
1-W1	16,202.84	19,045.19	35,248.02
1-W2	17,859.63	19,840.04	37,699.67
2-W1	16,234.22	20,212.01	36,446.22

Table 13: Projected household division

D Sensitivity Analysis

The discretionary choice that remains in the calibration process concerning parameter choice calls for a critical examination. A comparison of the model as chosen and model outcomes given a different choice of parameters is necessary. This sensitivity analysis is undertaken to show that arbitrariness of results is excluded. This analysis is undertaken to test the results of the base model for robustness. The influence of the chosen parameters is evaluated via a systematic variation of the elasticities chosen. For all resulting combinations of different parameter values the model is evaluated and the results examined.

This has been done for the base model and results have been found to be fairly robust. The 'free' parameters [10] are the following elasticities of the model:

$\theta_{y_{cet}}$	elasticity of transformation in production of y_i
$\theta_{y_{ces}}$	elasticity of substitution in production of y_i
θ_{KL}	elasticity of primary factors in production of y_i
σ_a	Armington elasticity
θ_{cow}	elasticity of household 'working'/'young' between leisure and goods consumption
σ_{cow}	elasticity of household 'working'/'young' in goods consumption
θ_{con}	elasticity of household 'non-working'/'old' between leisure and goods consumption
σ_{con}	elasticity of household 'non-working'/'old' in goods consumption

These parameters where changed to adopt values ranging from 0 to 8. In order to display this vast amount of data the results are shown for four parameters of the mode, namely labor used in the sectors, capital used in the sectors, production of each sector and the behavior of prices. For each of those parameters results have been grouped according to the elasticities involved in the production process. Most representative for all results is in each of the following tables the colum named '1, 1, 1' and it can be seen, that the results of this paper's model are well within the bounds of these fluctuations.[11]

[10] 'Free' because these parameters are not given by the social accounting matrix.

[11] The values in the table mean that for the elasticities chosen in value as the name of the column indicates, i.e. '1, 1, 1' standing for $\theta_{y_{cet}} = 1$, $\theta_{y_{ces}} = 1$ and $\theta_{KL} = 1$ the remaining elasticities were allowed to vary between 0 and 8 in all possible combinations and the resulting model outcomes were in the range of the two values stated in the column.

deviation from benchmark: labor

	model	selected sensitivity runs				
		8, 8, 8	3, 3, 3	1, 1, 1	0.1, 0.1, 0.1	8, 3, 0
AGF	**-9.8%**	-9.7% -14.4%	-5.7% -14.3%	-0.8% -13.7%	27.3% -14.0%	7.7% -1.9%
MST	**-7.0%**	-8.4% -8.4%	-5.5% -11.6%	-3.3% -12.1%	-0.7% -13.9%	-4.2% -16.6%
FOP	**-10.0%**	-10.7% -14.8%	-7.0% -13.0%	-2.6% -14.7%	2.8% -17.9%	-4.3% -18.9%
TXL	**-15.2%**	-13.8% -18.2%	-10.7% -19.6%	-6.9% -22.9%	-2.6% -35.4%	-9.1% -27.4%
PAP	**-8.3%**	-8.8% -12.1%	-6.1% -12.0%	-2.5% -11.9%	1.8% -11.8%	-2.0% -10.3%
MIC	**-7.1%**	-8.5% -11.4%	-6.3% -11.5%	-3.5% -11.9%	1.2% -11.1%	-5.1% -16.4%
MET	**-9.8%**	-7.3% -10.1%	-5.4% -10.8%	-3.0% -12.6%	-0.8% -23.6%	-4.6% -16.7%
MAC	**-11.1%**	-8.7% -8.7%	-7.3% -9.4%	-3.6% -15.5%	-1.3% -34.0%	-7.3% -24.0%
FUR	**-10.0%**	-9.8% -13.2%	-7.1% -13.7%	-3.9% -16.0%	-0.8% -20.9%	-6.5% -21.5%
EWC	**-6.2%**	-5.8% -7.9%	-4.0% -7.8%	-1.9% -7.5%	0.1% -5.7%	-2.1% -8.1%
TRD	**-12.0%**	-11.3% -14.6%	-8.5% -14.9%	-5.2% -14.9%	-1.8% -17.8%	-6.1% -17.5%
HRI	**-11.5%**	-10.8% -14.8%	-7.5% -12.7%	-3.4% -16.4%	0.6% -17.4%	-4.8% -18.8%
TRT	**-11.0%**	-10.1% -13.3%	-7.6% -9.6%	-3.8% -13.4%	-0.5% -12.6%	-3.8% -10.7%
BIN	**-11.7%**	-12.1% -15.4%	-9.2% -15.3%	-5.7% -15.2%	-2.1% -13.9%	-8.9% -21.4%
LIS	**-14.4%**	-9.9% -14.1%	-6.3% -14.0%	-2.2% -12.0%	1.6% -5.9%	13.0% 5.0%
HEA	**-4.3%**	-5.1% -7.3%	-3.9% -5.0%	-1.3% -8.1%	0.2% -9.8%	-3.0% -8.6%
PBS	**-6.7%**	-6.3% -8.5%	-4.4% -8.6%	-2.3% -8.9%	-0.2% -7.4%	-3.5% -9.9%

Table 14: Sensitivity analysis (selected results for labor used)

deviation from benchmark: capital

	model	selected sensitivity runs				
		8, 8, 8	3, 3, 3	1, 1, 1	0.1, 0.1, 0.1	8, 3, 0
AGF	**1.6%**	-0.5% -2.4%	1.1% -2.7%	5.4% -3.6%	36.2% -10.2%	8.8% -1.0%
MST	**4.8%**	1.2% 0.4%	2.5% -0.4%	2.6% -3.0%	7.5% -12.2%	-3.7% -15.8%
FOP	**1.4%**	-1.5% -3.2%	-1.0% -2.1%	1.1% -5.6%	9.4% -14.9%	-4.0% -18.0%
TXL	**-4.4%**	-4.8% -7.2%	-4.1% -9.7%	-3.2% -15.5%	-1.6% -33.7%	-8.7% -26.7%
PAP	**3.4%**	0.7% 0.0%	1.0% -0.5%	3.0% -2.4%	6.0% -9.0%	-1.6% -9.5%
MIC	**4.7%**	1.5% 0.3%	1.3% -0.5%	3.0% -2.7%	6.5% -10.0%	-4.7% -15.5%
MET	**1.7%**	3.2% 1.4%	3.2% -0.1%	2.9% -4.2%	0.3% -18.3%	-4.2% -15.8%
MAC	**0.2%**	2.6% 0.5%	-1.3% -1.3%	1.8% -7.2%	-0.5% -29.5%	-6.9% -23.2%
FUR	**1.4%**	-0.3% -1.6%	-0.3% -3.4%	-0.3% -7.7%	-0.3% -21.2%	-6.2% -20.8%
EWC	**5.7%**	3.7% 3.7%	5.1% 2.5%	4.9% 1.3%	4.9% -1.7%	-1.7% -7.0%
TRD	**-0.8%**	-2.0% -3.2%	-1.8% -4.5%	-1.4% -7.6%	-0.8% -15.3%	-5.6% -16.7%
HRI	**-0.3%**	-1.5% -3.3%	-1.5% -2.0%	0.2% -7.7%	1.5% -9.4%	-4.4% -18.1%
TRT	**0.3%**	-0.8% -1.6%	-1.3% -1.3%	-0.3% -3.0%	0.0% -2.5%	-3.5% -9.9%
BIN	**-0.5%**	-3.0% -3.8%	-2.6% -4.5%	-3.3% -3.3%	-1.1% -11.9%	-8.6% -20.8%
LIS	**-3.6%**	-0.8% -1.9%	0.1% -1.9%	1.7% -1.3%	11.9% 0.0%	13.7% 5.3%
HEA	**7.9%**	6.0% 4.2%	2.6% 2.6%	5.1% 0.9%	-0.6% -7.7%	-1.7% -8.7%
PBS	**5.2%**	4.6% 3.0%	4.6% 1.7%	4.1% 0.1%	3.5% -4.8%	-2.4% -9.1%

Table 15: Sensitivity analysis (selected results for capital used)

deviation from benchmark: sectoral production

	model	selected sensitivity runs				
		8, 8, 8	3, 3, 3	1, 1, 1	0.1, 0.1, 0.1	8, 3, 0
AGF	**-2.8%**	-4.8% -7.9%	-2.1% -7.9%	0.8% -7.9%	31.4% -12.0%	2.3% -6.7%
MST	**-3.3%**	-4.9% -6.9%	-2.9% -7.4%	-2.1% -8.8%	-0.6% -9.2%	-1.8% -12.8%
FOP	**-6.3%**	-6.6% -9.6%	-4.2% -9.8%	-1.1% -10.7%	3.7% -11.4%	-1.6% -10.7%
TXL	**-12.8%**	-10.7% -14.5%	-8.7% -15.9%	-5.8% -20.4%	-2.3% -30.9%	-6.1% -20.1%
PAP	**-3.8%**	-4.7% -6.9%	-3.4% -7.1%	-0.9% -7.7%	0.0% -10.5%	-0.9% -6.5%
MIC	**-4.0%**	-4.9% -6.8%	-3.5% -7.3%	-2.8% -6.7%	-1.7% -10.8%	-2.4% -7.8%
MET	**-7.0%**	-4.1% -6.0%	-3.0% -7.2%	-1.8% -9.8%	-0.6% -15.0%	-2.0% -9.9%
MAC	**-9.5%**	-5.2% -5.8%	-4.9% -6.7%	-2.5% -12.3%	-4.6% -19.1%	-3.6% -12.1%
FUR	**-7.7%**	-6.5% -9.2%	-4.8% -10.3%	-2.7% -13.1%	-0.7% -14.7%	-2.9% -12.9%
EWC	**-2.1%**	-2.0% -2.7%	-1.3% -2.8%	-0.5% -2.9%	0.4% -3.4%	-0.6% -3.2%
TRD	**-8.7%**	-7.8% -10.2%	-6.0% -10.9%	-3.8% -10.6%	-1.6% -13.1%	-4.1% -9.0%
HRI	**-8.2%**	-7.2% -9.9%	-4.8% -8.5%	-2.0% -11.9%	0.9% -15.3%	-2.9% -11.5%
TRT	**-6.7%**	-6.1% -8.3%	-4.9% -5.9%	-3.2% -3.7%	-1.9% -1.9%	-2.7% -7.1%
BIN	**-8.9%**	-8.5% -10.7%	-6.6% -10.8%	-5.1% -5.8%	-1.7% -14.2%	-5.5% -11.8%
LIS	**-6.5%**	-3.7% -5.8%	-2.0% -5.8%	0.0% -5.7%	4.2% -1.9%	9.9% 2.5%
HEA	**-1.2%**	-2.0% -3.4%	-1.9% -2.1%	-0.6% -4.8%	-0.9% -7.4%	-1.0% -4.5%
PBS	**-3.3%**	-3.0% -4.3%	-2.1% -4.8%	-1.1% -5.8%	-1.4% -2.5%	-1.5% -6.0%

Table 16: Sensitivity analysis (selected results for production)

deviation from benchmark: prices

	model	selected sensitivity runs				
		8, 8, 8	3, 3, 3	1, 1, 1	0.1, 0.1, 0.1	8, 3, 0
AGF	**-5.8%**	-0.6%	-1.1%	-1.6%	-2.0%	-1.6%
		-0.8%	-2.2%	-6.2%	-32.9%	-5.5%
MST	**-4.1%**	-0.4%	-0.8%	-1.1%	-1.1%	-0.9%
		-0.6%	-1.6%	-4.4%	-23.0%	-3.9%
FOP	**-5.1%**	-0.5%	-1.0%	-1.4%	-1.8%	-1.4%
		-0.7%	-1.9%	-5.5%	-29.0%	-4.8%
TXL	**-4.0%**	-0.4%	-0.8%	-1.1%	-1.2%	-1.0%
		-0.6%	-1.5%	-4.3%	-22.3%	-3.8%
PAP	**-5.0%**	-0.5%	-1.0%	-1.4%	-1.8%	-1.4%
		-0.7%	-1.9%	-5.4%	-29.0%	-4.8%
MIC	**-4.5%**	-0.5%	-0.9%	-1.3%	-1.6%	-1.2%
		-0.7%	-1.7%	-4.9%	-25.8%	-4.3%
MET	**-3.9%**	-0.4%	-0.7%	-1.1%	-1.4%	-1.1%
		-0.6%	-1.5%	-4.3%	-22.8%	-3.8%
MAC	**-3.6%**	-0.4%	-0.7%	-1.0%	-1.3%	-1.0%
		-0.5%	-1.4%	-3.9%	-21.4%	-3.8%
FUR	**-4.0%**	-0.4%	-0.8%	-1.1%	-1.4%	-1.1%
		-0.6%	-1.5%	-4.4%	-23.1%	-3.9%
EWC	**-4.6%**	-0.5%	-0.9%	-1.3%	-1.7%	-1.3%
		-0.7%	-1.8%	-5.0%	-26.7%	-4.5%
TRD	**-4.5%**	-0.5%	-0.9%	-1.3%	-1.6%	-1.2%
		-0.7%	-1.7%	-4.9%	-26.3%	-4.4%
HRI	**-4.6%**	-0.5%	-0.9%	-1.3%	-1.7%	-1.3%
		-0.7%	-1.8%	-5.0%	-26.3%	-4.4%
TRT	**-5.0%**	-0.5%	-1.0%	-1.4%	-1.8%	0.0%
		-0.7%	-1.9%	-5.4%	-28.9%	-1.4%
BIN	**-4.6%**	-0.5%	-0.9%	-1.3%	-1.7%	-1.3%
		-0.7%	-1.8%	-5.0%	-26.8%	-4.5%
LIS	**-7.8%**	-0.8%	-1.5%	-2.2%	-2.9%	-2.2%
		-1.1%	-3.0%	-8.4%	-45.2%	-7.5%
HEA	**-3.7%**	-0.4%	-0.7%	-1.0%	-1.3%	-1.0%
		-0.5%	-1.4%	-4.0%	-21.3%	-3.5%
PBS	**-3.9%**	-0.4%	-0.7%	-1.1%	-1.4%	-1.1%
		-0.6%	-1.5%	-4.2%	-22.4%	-3.7%

Table 17: Sensitivity analysis (selected results for prices)

E Separate Effects of aging and Population Size Variation

	shrinking	aging	overall
agricultural products	-0.04%	1.11%	0.96%
mining	2.48%	2.68%	5.22%
food, beverages, tobacco	-0.07%	0.98%	0.74%
textiles, clothing, leather	-1.22%	-3.26%	-4.65%
wood, paper, printing	1.55%	1.95%	3.52%
petroleum and chemical products	2.63%	2.50%	5.20%
metals	0.92%	0.85%	1.79%
machinery, vehicles, appliances	0.40%	-0.12%	0.26%
furniture, jewelry, musical instruments	0.73%	0.65%	1.29%
energy, water, construction	2.75%	3.43%	6.29%
trade services (s.)	0.06%	-0.87%	-0.89%
accommodation and leisure s.	-0.82%	-0.03%	-1.04%
traffic and news services	0.02%	0.05%	-0.01%
finance and insurance s.	0.46%	-0.71%	-0.34%
real estate and business s.	-1.65%	-1.85%	-3.49%
health, education and social s.	2.83%	3.98%	6.91%
public administration, defence and cultural s.	2.57%	3.07%	5.72%

Table 18: Separated Effects - capital-1-W1

	shrinking	**aging**	**overall**
agricultural products	0.00%	0.90%	0.90%
mining	-0.01%	2.15%	2.14%
food, beverages, tobacco	0.00%	0.80%	0.80%
textiles, clothing, leather	0.01%	-2.61%	-2.60%
wood, paper, printing	-0.01%	1.57%	1.56%
petroleum and chemical products	-0.02%	2.01%	2.00%
metals	-0.01%	0.68%	0.68%
machinery, vehicles, appliances	0.00%	-0.09%	-0.10%
furniture, jewelry, musical instruments	0.00%	0.53%	0.53%
energy, water, construction	-0.02%	2.76%	2.74%
trade services (s.)	0.00%	-0.69%	-0.69%
accommodation and leisure s.	0.00%	-0.02%	-0.01%
traffic and news services	0.00%	0.05%	0.05%
finance and insurance s.	0.00%	-0.56%	-0.56%
real estate and business s.	0.01%	-1.49%	-1.48%
health, education and social s.	-0.02%	3.20%	3.18%
public administration, defence and cultural s.	-0.01%	2.46%	2.45%

Table 19: Separated Effects - capital-1-W2

	shrinking	**aging**	**overall**
agricultural products	-0.01%	1.32%	1.24%
mining	1.24%	3.22%	4.50%
food, beverages, tobacco	-0.02%	1.16%	1.04%
textiles, clothing, leather	-0.59%	-3.95%	-4.64%
wood, paper, printing	0.77%	2.35%	3.13%
petroleum and chemical products	1.31%	3.01%	4.36%
metals	0.46%	1.02%	1.49%
machinery, vehicles, appliances	0.20%	-0.15%	0.04%
furniture, jewelry, musical instruments	0.38%	0.77%	1.09%
energy, water, construction	1.37%	4.14%	5.57%
trade services (s.)	0.04%	-1.06%	-1.07%
accommodation and leisure s.	-0.39%	-0.06%	-0.56%
traffic and news services	0.02%	0.05%	0.02%
finance and insurance s.	0.24%	-0.87%	-0.69%
real estate and business s.	-0.83%	-2.22%	-3.04%
health, education and social s.	1.41%	4.80%	6.26%
public administration, defence and cultural s.	1.28%	3.69%	5.03%

Table 20: Separated Effects - capital-2-W1

	shrinking	aging	overall
agricultural products	-0.01%	1.11%	1.15%
mining	-1.19%	2.68%	1.46%
food, beverages, tobacco	-0.01%	0.98%	1.04%
textiles, clothing, leather	0.54%	-3.26%	-2.64%
wood, paper, printing	-0.75%	1.95%	1.19%
petroleum and chemical products	-1.26%	2.50%	1.21%
metals	-0.44%	0.85%	0.39%
machinery, vehicles, appliances	-0.20%	-0.12%	-0.32%
furniture, jewelry, musical instruments	-0.38%	0.65%	0.31%
energy, water, construction	-1.31%	3.43%	2.07%
trade services (s.)	-0.06%	-0.86%	-0.88%
accommodation and leisure s.	0.35%	-0.03%	0.40%
traffic and news services	-0.04%	0.05%	0.05%
finance and insurance s.	-0.26%	-0.71%	-0.92%
real estate and business s.	0.80%	-1.84%	-1.04%
health, education and social s.	-1.35%	3.97%	2.58%
public administration, defence and cultural s.	-1.22%	3.06%	1.80%

Table 21: Separated Effects - capital-2-W2

	shrinking	aging	overall
agricultural products	-0.01%	0.87%	0.82%
mining	1.20%	2.07%	3.30%
food, beverages, tobacco	-0.02%	0.77%	0.69%
textiles, clothing, leather	-0.58%	-2.50%	-3.14%
wood, paper, printing	0.75%	1.51%	2.27%
petroleum and chemical products	1.27%	1.94%	3.24%
metals	0.45%	0.65%	1.11%
machinery, vehicles, appliances	0.20%	-0.09%	0.10%
furniture, jewelry, musical instruments	0.36%	0.52%	0.85%
energy, water, construction	1.33%	2.65%	4.02%
trade services (s.)	0.04%	-0.66%	-0.65%
accommodation and leisure s.	-0.38%	-0.01%	-0.46%
traffic and news services	0.02%	0.05%	0.04%
finance and insurance s.	0.23%	-0.54%	-0.34%
real estate and business s.	-0.80%	-1.43%	-2.23%
health, education and social s.	1.37%	3.07%	4.48%
public administration, defence and cultural s.	1.24%	2.37%	3.64%

Table 22: Separated Effects - capital-3-W1

	shrinking	**aging**	**overall**
agricultural products	-0.02%	0.67%	0.69%
mining	-1.26%	1.58%	0.30%
food, beverages, tobacco	-0.01%	0.60%	0.63%
textiles, clothing, leather	0.57%	-1.90%	-1.28%
wood, paper, printing	-0.80%	1.16%	0.35%
petroleum and chemical products	-1.34%	1.48%	0.12%
metals	-0.47%	0.50%	0.02%
machinery, vehicles, appliances	-0.22%	-0.07%	-0.28%
furniture, jewelry, musical instruments	-0.41%	0.40%	0.02%
energy, water, construction	-1.39%	2.02%	0.60%
trade services (s.)	-0.06%	-0.50%	-0.54%
accommodation and leisure s.	0.37%	0.00%	0.42%
traffic and news services	-0.04%	0.04%	0.03%
finance and insurance s.	-0.27%	-0.40%	-0.65%
real estate and business s.	0.85%	-1.10%	-0.24%
health, education and social s.	-1.43%	2.35%	0.88%
public administration, defence and cultural s.	-1.30%	1.81%	0.48%

Table 23: Separated Effects - capital-3-W2

	shrinking	**aging**	**overall**
agricultural products	0.00%	1.08%	1.08%
mining	0.00%	2.60%	2.60%
food, beverages, tobacco	0.00%	0.95%	0.95%
textiles, clothing, leather	0.00%	-3.17%	-3.17%
wood, paper, printing	0.00%	1.90%	1.90%
petroleum and chemical products	0.00%	2.43%	2.43%
metals	0.00%	0.82%	0.82%
machinery, vehicles, appliances	0.00%	-0.12%	-0.12%
furniture, jewelry, musical instruments	0.00%	0.64%	0.64%
energy, water, construction	0.00%	3.33%	3.34%
trade services (s.)	0.00%	-0.84%	-0.84%
accommodation and leisure s.	0.00%	-0.03%	-0.03%
traffic and news services	0.00%	0.05%	0.05%
finance and insurance s.	0.00%	-0.69%	-0.69%
real estate and business s.	0.00%	-1.79%	-1.79%
health, education and social s.	0.00%	3.87%	3.87%
public administration, defence and cultural s.	0.00%	2.98%	2.98%

Table 24: Separated Effects - capital-4-W1

	shrinking	aging	overall
agricultural products	-0.05%	0.87%	0.91%
mining	-2.39%	2.09%	-0.35%
food, beverages, tobacco	-0.05%	0.78%	0.84%
textiles, clothing, leather	1.05%	-2.53%	-1.35%
wood, paper, printing	-1.51%	1.53%	0.00%
petroleum and chemical products	-2.54%	1.96%	-0.64%
metals	-0.90%	0.66%	-0.25%
machinery, vehicles, appliances	-0.42%	-0.09%	-0.49%
furniture, jewelry, musical instruments	-0.79%	0.52%	-0.21%
energy, water, construction	-2.63%	2.68%	-0.03%
trade services (s.)	-0.14%	-0.67%	-0.74%
accommodation and leisure s.	0.68%	-0.01%	0.79%
traffic and news services	-0.09%	0.05%	0.02%
finance and insurance s.	-0.54%	-0.54%	-1.02%
real estate and business s.	1.62%	-1.45%	0.18%
health, education and social s.	-2.71%	3.11%	0.32%
public administration, defence and cultural s.	-2.46%	2.39%	-0.14%

Table 25: Separated Effects - capital-4-W2

	shrinking	aging	overall
agricultural products	-0.06%	1.24%	1.01%
mining	3.17%	3.02%	6.28%
food, beverages, tobacco	-0.12%	1.09%	0.73%
textiles, clothing, leather	-1.59%	-3.69%	-5.53%
wood, paper, printing	1.97%	2.20%	4.20%
petroleum and chemical products	3.36%	2.82%	6.28%
metals	1.18%	0.95%	2.16%
machinery, vehicles, appliances	0.51%	-0.14%	0.34%
furniture, jewelry, musical instruments	0.92%	0.73%	1.51%
energy, water, construction	3.52%	3.88%	7.55%
trade services (s.)	0.06%	-0.98%	-1.05%
accommodation and leisure s.	-1.07%	-0.05%	-1.38%
traffic and news services	0.02%	0.05%	-0.05%
finance and insurance s.	0.57%	-0.81%	-0.38%
real estate and business s.	-2.10%	-2.08%	-4.18%
health, education and social s.	3.62%	4.49%	8.26%
public administration, defence and cultural s.	3.28%	3.46%	6.87%

Table 26: Separated Effects - capital-5-W1

	shrinking	aging	overall
agricultural products	0.00%	1.03%	1.00%
mining	0.66%	2.48%	3.16%
food, beverages, tobacco	-0.01%	0.91%	0.86%
textiles, clothing, leather	-0.31%	-3.01%	-3.37%
wood, paper, printing	0.42%	1.81%	2.23%
petroleum and chemical products	0.70%	2.32%	3.04%
metals	0.25%	0.78%	1.04%
machinery, vehicles, appliances	0.11%	-0.11%	0.00%
furniture, jewelry, musical instruments	0.20%	0.61%	0.79%
energy, water, construction	0.73%	3.17%	3.94%
trade services (s.)	0.02%	-0.80%	-0.79%
accommodation and leisure s.	-0.21%	-0.03%	-0.28%
traffic and news services	0.01%	0.05%	0.04%
finance and insurance s.	0.13%	-0.65%	-0.54%
real estate and business s.	-0.44%	-1.71%	-2.15%
health, education and social s.	0.76%	3.68%	4.46%
public administration, defence and cultural s.	0.69%	2.84%	3.54%

Table 27: Separated Effects - capital-5-W2

	shrinking	aging	overall
agricultural products	-0.02%	1.46%	1.32%
mining	1.90%	3.57%	5.53%
food, beverages, tobacco	-0.05%	1.27%	1.05%
textiles, clothing, leather	-0.92%	-4.39%	-5.49%
wood, paper, printing	1.19%	2.60%	3.80%
petroleum and chemical products	2.01%	3.33%	5.41%
metals	0.71%	1.13%	1.86%
machinery, vehicles, appliances	0.31%	-0.17%	0.12%
furniture, jewelry, musical instruments	0.57%	0.84%	1.32%
energy, water, construction	2.10%	4.59%	6.80%
trade services (s.)	0.05%	-1.18%	-1.21%
accommodation and leisure s.	-0.62%	-0.08%	-0.88%
traffic and news services	0.02%	0.05%	-0.01%
finance and insurance s.	0.36%	-0.98%	-0.71%
real estate and business s.	-1.26%	-2.45%	-3.72%
health, education and social s.	2.16%	5.32%	7.58%
public administration, defence and cultural s.	1.96%	4.10%	6.15%

Table 28: Separated Effects - capital-6-W1

	shrinking	**aging**	**overall**
agricultural products	0.00%	1.24%	1.26%
mining	-0.53%	3.01%	2.46%
food, beverages, tobacco	0.00%	1.09%	1.13%
textiles, clothing, leather	0.25%	-3.67%	-3.39%
wood, paper, printing	-0.34%	2.19%	1.85%
petroleum and chemical products	-0.57%	2.81%	2.22%
metals	-0.20%	0.95%	0.74%
machinery, vehicles, appliances	-0.09%	-0.14%	-0.23%
furniture, jewelry, musical instruments	-0.17%	0.73%	0.58%
energy, water, construction	-0.59%	3.86%	3.24%
trade services (s.)	-0.02%	-0.98%	-0.98%
accommodation and leisure s.	0.16%	-0.05%	0.15%
traffic and news services	-0.01%	0.05%	0.06%
finance and insurance s.	-0.11%	-0.81%	-0.90%
real estate and business s.	0.36%	-2.07%	-1.71%
health, education and social s.	-0.61%	4.47%	3.84%
public administration, defence and cultural s.	-0.55%	3.44%	2.87%

Table 29: Separated Effects - capital-6-W2

	shrinking	aging	overall
agricultural products	1.32%	2.69%	3.93%
mining	-1.13%	-1.38%	-2.50%
food, beverages, tobacco	-2.41%	-1.67%	-4.19%
textiles, clothing, leather	-6.04%	-8.56%	-14.28%
wood, paper, printing	-0.64%	-0.51%	-1.15%
petroleum and chemical products	-1.25%	-1.85%	-3.09%
metals	-3.90%	-4.57%	-8.28%
machinery, vehicles, appliances	-5.47%	-6.68%	-11.82%
furniture, jewelry, musical instruments	-4.12%	-4.79%	-8.80%
energy, water, construction	-0.34%	-0.06%	-0.39%
trade services (s.)	-3.54%	-4.86%	-8.31%
accommodation and leisure s.	-4.16%	-3.81%	-7.98%
traffic and news services	-2.18%	-2.42%	-4.62%
finance and insurance s.	-3.13%	-4.69%	-7.77%
real estate and business s.	3.18%	3.66%	6.92%
public administration, defence and cultural s.	-2.16%	-2.27%	-4.36%

Table 30: Separated Effects - exports-1-W1

	shrinking	aging	overall
agricultural products	-0.01%	2.17%	2.16%
mining	0.01%	-1.11%	-1.11%
food, beverages, tobacco	0.01%	-1.34%	-1.32%
textiles, clothing, leather	0.04%	-6.93%	-6.89%
wood, paper, printing	0.00%	-0.41%	-0.40%
petroleum and chemical products	0.01%	-1.49%	-1.48%
metals	0.02%	-3.69%	-3.67%
machinery, vehicles, appliances	0.03%	-5.41%	-5.38%
furniture, jewelry, musical instruments	0.02%	-3.87%	-3.84%
energy, water, construction	0.00%	-0.05%	-0.04%
trade services (s.)	0.02%	-3.93%	-3.91%
accommodation and leisure s.	0.02%	-3.07%	-3.04%
traffic and news services	0.01%	-1.94%	-1.93%
finance and insurance s.	0.02%	-3.78%	-3.76%
real estate and business s.	-0.02%	2.94%	2.92%
public administration, defence and cultural s.	0.01%	-1.83%	-1.82%

Table 31: Separated Effects - exports-1-W2

	shrinking	aging	overall
agricultural products	0.67%	3.23%	3.86%
mining	-0.57%	-1.66%	-2.22%
food, beverages, tobacco	-1.20%	-2.02%	-3.28%
textiles, clothing, leather	-3.05%	-10.23%	-13.09%
wood, paper, printing	-0.32%	-0.61%	-0.93%
petroleum and chemical products	-0.63%	-2.22%	-2.84%
metals	-1.98%	-5.46%	-7.32%
machinery, vehicles, appliances	-2.78%	-7.97%	-10.55%
furniture, jewelry, musical instruments	-2.08%	-5.73%	-7.75%
energy, water, construction	-0.17%	-0.07%	-0.24%
trade services (s.)	-1.78%	-5.83%	-7.55%
accommodation and leisure s.	-2.09%	-4.57%	-6.67%
traffic and news services	-1.09%	-2.90%	-4.01%
finance and insurance s.	-1.57%	-5.62%	-7.17%
real estate and business s.	1.59%	4.40%	6.04%
public administration, defence and cultural s.	-1.09%	-2.71%	-3.77%

Table 32: Separated Effects - exports-2-W1

	shrinking	aging	overall
agricultural products	-0.67%	2.69%	2.06%
mining	0.56%	-1.38%	-0.83%
food, beverages, tobacco	1.16%	-1.67%	-0.46%
textiles, clothing, leather	3.02%	-8.55%	-5.69%
wood, paper, printing	0.32%	-0.51%	-0.19%
petroleum and chemical products	0.61%	-1.85%	-1.24%
metals	1.96%	-4.56%	-2.69%
machinery, vehicles, appliances	2.76%	-6.67%	-4.07%
furniture, jewelry, musical instruments	2.04%	-4.78%	-2.79%
energy, water, construction	0.17%	-0.06%	0.11%
trade services (s.)	1.74%	-4.86%	-3.16%
accommodation and leisure s.	2.04%	-3.80%	-1.76%
traffic and news services	1.06%	-2.41%	-1.34%
finance and insurance s.	1.52%	-4.68%	-3.18%
real estate and business s.	-1.53%	3.65%	2.09%
public administration, defence and cultural s.	1.08%	-2.26%	-1.22%

Table 33: Separated Effects - exports-2-W2

	shrinking	aging	overall
agricultural products	0.65%	2.09%	2.71%
mining	-0.55%	-1.07%	-1.62%
food, beverages, tobacco	-1.17%	-1.29%	-2.49%
textiles, clothing, leather	-2.97%	-6.67%	-9.51%
wood, paper, printing	-0.31%	-0.39%	-0.71%
petroleum and chemical products	-0.61%	-1.44%	-2.04%
metals	-1.92%	-3.56%	-5.41%
machinery, vehicles, appliances	-2.70%	-5.21%	-7.78%
furniture, jewelry, musical instruments	-2.02%	-3.72%	-5.70%
energy, water, construction	-0.17%	-0.05%	-0.21%
trade services (s.)	-1.73%	-3.78%	-5.47%
accommodation and leisure s.	-2.03%	-2.95%	-4.99%
traffic and news services	-1.06%	-1.87%	-2.94%
finance and insurance s.	-1.52%	-3.64%	-5.15%
real estate and business s.	1.54%	2.83%	4.40%
public administration, defence and cultural s.	-1.06%	-1.76%	-2.80%

Table 34: Separated Effects - exports-3-W1

	shrinking	aging	overall
agricultural products	-0.71%	1.60%	0.91%
mining	0.59%	-0.82%	-0.23%
food, beverages, tobacco	1.23%	-0.98%	0.28%
textiles, clothing, leather	3.22%	-5.13%	-2.01%
wood, paper, printing	0.34%	-0.30%	0.04%
petroleum and chemical products	0.65%	-1.10%	-0.45%
metals	2.09%	-2.74%	-0.70%
machinery, vehicles, appliances	2.95%	-4.01%	-1.17%
furniture, jewelry, musical instruments	2.17%	-2.86%	-0.71%
energy, water, construction	0.19%	-0.04%	0.15%
trade services (s.)	1.86%	-2.90%	-1.07%
accommodation and leisure s.	2.17%	-2.26%	-0.08%
traffic and news services	1.13%	-1.43%	-0.30%
finance and insurance s.	1.62%	-2.79%	-1.18%
real estate and business s.	-1.62%	2.16%	0.51%
public administration, defence and cultural s.	1.15%	-1.35%	-0.22%

Table 35: Separated Effects - exports-3-W2

	shrinking	aging	overall
agricultural products	0.00%	2.62%	2.62%
mining	0.00%	-1.34%	-1.34%
food, beverages, tobacco	0.00%	-1.62%	-1.62%
textiles, clothing, leather	0.00%	-8.32%	-8.33%
wood, paper, printing	0.00%	-0.49%	-0.49%
petroleum and chemical products	0.00%	-1.80%	-1.80%
metals	0.00%	-4.44%	-4.44%
machinery, vehicles, appliances	0.00%	-6.50%	-6.50%
furniture, jewelry, musical instruments	0.00%	-4.65%	-4.66%
energy, water, construction	0.00%	-0.06%	-0.06%
trade services (s.)	0.00%	-4.73%	-4.73%
accommodation and leisure s.	0.00%	-3.70%	-3.70%
traffic and news services	0.00%	-2.35%	-2.35%
finance and insurance s.	0.00%	-4.56%	-4.56%
real estate and business s.	0.00%	3.55%	3.56%
public administration, defence and cultural s.	0.00%	-2.20%	-2.20%

Table 36: Separated Effects - exports-4-W1

	shrinking	aging	overall
agricultural products	-1.37%	2.11%	0.79%
mining	1.13%	-1.08%	0.04%
food, beverages, tobacco	2.33%	-1.30%	1.11%
textiles, clothing, leather	6.17%	-6.74%	-0.83%
wood, paper, printing	0.65%	-0.40%	0.25%
petroleum and chemical products	1.24%	-1.45%	-0.22%
metals	4.01%	-3.59%	0.28%
machinery, vehicles, appliances	5.67%	-5.26%	0.15%
furniture, jewelry, musical instruments	4.16%	-3.76%	0.32%
energy, water, construction	0.36%	-0.05%	0.31%
trade services (s.)	3.54%	-3.82%	-0.35%
accommodation and leisure s.	4.14%	-2.98%	1.17%
traffic and news services	2.15%	-1.89%	0.27%
finance and insurance s.	3.08%	-3.68%	-0.63%
real estate and business s.	-3.07%	2.86%	-0.28%
public administration, defence and cultural s.	2.20%	-1.78%	0.37%

Table 37: Separated Effects - exports-4-W2

	shrinking	aging	overall
agricultural products	1.67%	3.03%	4.58%
mining	-1.44%	-1.55%	-2.98%
food, beverages, tobacco	-3.09%	-1.89%	-5.13%
textiles, clothing, leather	-7.65%	-9.62%	-16.81%
wood, paper, printing	-0.82%	-0.57%	-1.39%
petroleum and chemical products	-1.59%	-2.08%	-3.65%
metals	-4.93%	-5.13%	-9.80%
machinery, vehicles, appliances	-6.92%	-7.50%	-13.95%
furniture, jewelry, musical instruments	-5.23%	-5.38%	-10.47%
energy, water, construction	-0.43%	-0.06%	-0.48%
trade services (s.)	-4.50%	-5.47%	-9.84%
accommodation and leisure s.	-5.29%	-4.29%	-9.59%
traffic and news services	-2.78%	-2.72%	-5.53%
finance and insurance s.	-3.98%	-5.28%	-9.20%
real estate and business s.	4.07%	4.13%	8.31%
public administration, defence and cultural s.	-2.74%	-2.55%	-5.20%

Table 38: Separated Effects - exports-5-W1

	shrinking	aging	overall
agricultural products	0.36%	2.50%	2.84%
mining	-0.31%	-1.28%	-1.58%
food, beverages, tobacco	-0.65%	-1.54%	-2.22%
textiles, clothing, leather	-1.65%	-7.94%	-9.51%
wood, paper, printing	-0.18%	-0.47%	-0.64%
petroleum and chemical products	-0.34%	-1.71%	-2.05%
metals	-1.07%	-4.23%	-5.26%
machinery, vehicles, appliances	-1.51%	-6.20%	-7.62%
furniture, jewelry, musical instruments	-1.12%	-4.44%	-5.53%
energy, water, construction	-0.09%	-0.05%	-0.15%
trade services (s.)	-0.96%	-4.51%	-5.45%
accommodation and leisure s.	-1.13%	-3.53%	-4.66%
traffic and news services	-0.59%	-2.24%	-2.83%
finance and insurance s.	-0.85%	-4.34%	-5.18%
real estate and business s.	0.85%	3.38%	4.26%
public administration, defence and cultural s.	-0.59%	-2.10%	-2.68%

Table 39: Separated Effects - exports-5-W2

	shrinking	aging	overall
agricultural products	1.02%	3.57%	4.51%
mining	-0.87%	-1.83%	-2.69%
food, beverages, tobacco	-1.85%	-2.24%	-4.19%
textiles, clothing, leather	-4.65%	-11.29%	-15.61%
wood, paper, printing	-0.49%	-0.67%	-1.17%
petroleum and chemical products	-0.96%	-2.46%	-3.40%
metals	-3.00%	-6.02%	-8.84%
machinery, vehicles, appliances	-4.22%	-8.79%	-12.67%
furniture, jewelry, musical instruments	-3.17%	-6.33%	-9.40%
energy, water, construction	-0.26%	-0.07%	-0.33%
trade services (s.)	-2.72%	-6.44%	-9.06%
accommodation and leisure s.	-3.19%	-5.06%	-8.26%
traffic and news services	-1.67%	-3.21%	-4.91%
finance and insurance s.	-2.40%	-6.22%	-8.57%
real estate and business s.	2.44%	4.88%	7.40%
public administration, defence and cultural s.	-1.66%	-3.00%	-4.60%

Table 40: Separated Effects - exports-6-W1

	shrinking	aging	overall
agricultural products	-0.30%	3.02%	2.74%
mining	0.25%	-1.55%	-1.30%
food, beverages, tobacco	0.52%	-1.88%	-1.33%
textiles, clothing, leather	1.35%	-9.57%	-8.30%
wood, paper, printing	0.14%	-0.57%	-0.43%
petroleum and chemical products	0.27%	-2.07%	-1.80%
metals	0.87%	-5.10%	-4.27%
machinery, vehicles, appliances	1.23%	-7.46%	-6.31%
furniture, jewelry, musical instruments	0.91%	-5.36%	-4.47%
energy, water, construction	0.08%	-0.06%	0.01%
trade services (s.)	0.78%	-5.44%	-4.69%
accommodation and leisure s.	0.91%	-4.27%	-3.35%
traffic and news services	0.48%	-2.71%	-2.23%
finance and insurance s.	0.68%	-5.25%	-4.58%
real estate and business s.	-0.69%	4.11%	3.40%
public administration, defence and cultural s.	0.48%	-2.54%	-2.07%

Table 41: Separated Effects - exports-6-W2

	shrinking	aging	overall
agricultural products	-2.37%	-1.56%	-4.00%
mining	-1.76%	-2.12%	-3.86%
food, beverages, tobacco	-4.20%	-3.73%	-7.92%
textiles, clothing, leather	-5.93%	-8.46%	-14.08%
wood, paper, printing	-2.28%	-2.38%	-4.62%
petroleum and chemical products	-1.98%	-2.70%	-4.63%
metals	-3.75%	-4.42%	-7.99%
machinery, vehicles, appliances	-4.86%	-6.03%	-10.61%
furniture, jewelry, musical instruments	-4.13%	-4.83%	-8.85%
energy, water, construction	-1.35%	-1.23%	-2.56%
trade services (s.)	-4.23%	-5.66%	-9.72%
accommodation and leisure s.	-5.07%	-4.87%	-9.87%
traffic and news services	-3.73%	-4.19%	-7.85%
finance and insurance s.	-4.10%	-5.80%	-9.75%
real estate and business s.	-3.23%	-3.64%	-6.79%
health, education and social s.	-1.85%	-1.37%	-3.21%
public administration, defence and cultural s.	-1.92%	-2.02%	-3.90%

Table 42: Separated Effects - production-1-W1

	shrinking	aging	overall
agricultural products	0.01%	-1.25%	-1.23%
mining	0.01%	-1.71%	-1.70%
food, beverages, tobacco	0.02%	-3.00%	-2.98%
textiles, clothing, leather	0.04%	-6.85%	-6.81%
wood, paper, printing	0.01%	-1.92%	-1.91%
petroleum and chemical products	0.01%	-2.18%	-2.17%
metals	0.02%	-3.58%	-3.56%
machinery, vehicles, appliances	0.03%	-4.88%	-4.85%
furniture, jewelry, musical instruments	0.02%	-3.90%	-3.88%
energy, water, construction	0.01%	-0.99%	-0.98%
trade services (s.)	0.03%	-4.57%	-4.55%
accommodation and leisure s.	0.03%	-3.93%	-3.90%
traffic and news services	0.02%	-3.39%	-3.36%
finance and insurance s.	0.02%	-4.69%	-4.66%
real estate and business s.	0.02%	-2.94%	-2.92%
health, education and social s.	0.01%	-1.10%	-1.09%
public administration, defence and cultural s.	0.01%	-1.64%	-1.62%

Table 43: Separated Effects - production-1-W2

	shrinking	aging	overall
agricultural products	-1.18%	-1.88%	-3.11%
mining	-0.89%	-2.54%	-3.41%
food, beverages, tobacco	-2.11%	-4.47%	-6.59%
textiles, clothing, leather	-3.00%	-10.12%	-12.93%
wood, paper, printing	-1.15%	-2.86%	-3.98%
petroleum and chemical products	-1.00%	-3.23%	-4.20%
metals	-1.90%	-5.28%	-7.08%
machinery, vehicles, appliances	-2.47%	-7.20%	-9.50%
furniture, jewelry, musical instruments	-2.09%	-5.78%	-7.80%
energy, water, construction	-0.68%	-1.47%	-2.14%
trade services (s.)	-2.13%	-6.77%	-8.81%
accommodation and leisure s.	-2.56%	-5.84%	-8.35%
traffic and news services	-1.88%	-5.02%	-6.86%
finance and insurance s.	-2.07%	-6.94%	-8.92%
real estate and business s.	-1.63%	-4.36%	-5.94%
health, education and social s.	-0.94%	-1.64%	-2.57%
public administration, defence and cultural s.	-0.97%	-2.43%	-3.37%

Table 44: Separated Effects - production-2-W1

	shrinking	aging	overall
agricultural products	1.14%	-1.55%	-0.37%
mining	0.87%	-2.12%	-1.26%
food, beverages, tobacco	2.06%	-3.72%	-1.66%
textiles, clothing, leather	2.96%	-8.45%	-5.65%
wood, paper, printing	1.13%	-2.38%	-1.27%
petroleum and chemical products	0.98%	-2.69%	-1.74%
metals	1.88%	-4.42%	-2.62%
machinery, vehicles, appliances	2.45%	-6.02%	-3.70%
furniture, jewelry, musical instruments	2.05%	-4.82%	-2.83%
energy, water, construction	0.67%	-1.23%	-0.57%
trade services (s.)	2.10%	-5.65%	-3.63%
accommodation and leisure s.	2.52%	-4.87%	-2.39%
traffic and news services	1.85%	-4.19%	-2.38%
finance and insurance s.	2.03%	-5.79%	-3.84%
real estate and business s.	1.60%	-3.63%	-2.07%
health, education and social s.	0.92%	-1.37%	-0.45%
public administration, defence and cultural s.	0.95%	-2.02%	-1.09%

Table 45: Separated Effects - production-2-W2

	shrinking	aging	overall
agricultural products	-1.15%	-1.20%	-2.38%
mining	-0.86%	-1.65%	-2.50%
food, beverages, tobacco	-2.05%	-2.89%	-4.94%
textiles, clothing, leather	-2.91%	-6.59%	-9.39%
wood, paper, printing	-1.11%	-1.85%	-2.95%
petroleum and chemical products	-0.97%	-2.10%	-3.05%
metals	-1.84%	-3.45%	-5.22%
machinery, vehicles, appliances	-2.39%	-4.70%	-6.99%
furniture, jewelry, musical instruments	-2.03%	-3.76%	-5.74%
energy, water, construction	-0.66%	-0.96%	-1.61%
trade services (s.)	-2.07%	-4.40%	-6.41%
accommodation and leisure s.	-2.49%	-3.79%	-6.24%
traffic and news services	-1.83%	-3.26%	-5.06%
finance and insurance s.	-2.01%	-4.51%	-6.46%
real estate and business s.	-1.58%	-2.83%	-4.38%
health, education and social s.	-0.91%	-1.06%	-1.97%
public administration, defence and cultural s.	-0.94%	-1.57%	-2.50%

Table 46: Separated Effects - production-3-W1

	shrinking	aging	overall
agricultural products	1.21%	-0.92%	0.33%
mining	0.93%	-1.26%	-0.34%
food, beverages, tobacco	2.20%	-2.21%	-0.01%
textiles, clothing, leather	3.15%	-5.07%	-2.01%
wood, paper, printing	1.20%	-1.42%	-0.23%
petroleum and chemical products	1.04%	-1.61%	-0.58%
metals	2.01%	-2.65%	-0.70%
machinery, vehicles, appliances	2.61%	-3.62%	-1.09%
furniture, jewelry, musical instruments	2.18%	-2.88%	-0.73%
energy, water, construction	0.72%	-0.73%	-0.02%
trade services (s.)	2.23%	-3.38%	-1.20%
accommodation and leisure s.	2.68%	-2.90%	-0.24%
traffic and news services	1.97%	-2.50%	-0.56%
finance and insurance s.	2.16%	-3.47%	-1.35%
real estate and business s.	1.71%	-2.17%	-0.49%
health, education and social s.	0.98%	-0.81%	0.17%
public administration, defence and cultural s.	1.02%	-1.21%	-0.21%

Table 47: Separated Effects - production-3-W2

	shrinking	aging	overall
agricultural products	0.00%	-1.51%	-1.51%
mining	0.00%	-2.06%	-2.06%
food, beverages, tobacco	0.00%	-3.62%	-3.62%
textiles, clothing, leather	0.00%	-8.23%	-8.23%
wood, paper, printing	0.00%	-2.32%	-2.32%
petroleum and chemical products	0.00%	-2.62%	-2.62%
metals	0.00%	-4.30%	-4.30%
machinery, vehicles, appliances	0.00%	-5.86%	-5.86%
furniture, jewelry, musical instruments	0.00%	-4.69%	-4.70%
energy, water, construction	0.00%	-1.20%	-1.20%
trade services (s.)	0.00%	-5.50%	-5.50%
accommodation and leisure s.	0.00%	-4.74%	-4.74%
traffic and news services	0.00%	-4.08%	-4.08%
finance and insurance s.	0.00%	-5.64%	-5.64%
real estate and business s.	0.00%	-3.54%	-3.54%
health, education and social s.	0.00%	-1.33%	-1.33%
public administration, defence and cultural s.	0.00%	-1.97%	-1.97%

Table 48: Separated Effects - production-4-W1

	shrinking	aging	overall
agricultural products	2.30%	-1.21%	1.16%
mining	1.77%	-1.66%	0.09%
food, beverages, tobacco	4.19%	-2.92%	1.28%
textiles, clothing, leather	6.05%	-6.66%	-0.86%
wood, paper, printing	2.29%	-1.87%	0.39%
petroleum and chemical products	1.99%	-2.12%	-0.17%
metals	3.85%	-3.48%	0.24%
machinery, vehicles, appliances	5.02%	-4.75%	0.06%
furniture, jewelry, musical instruments	4.18%	-3.79%	0.30%
energy, water, construction	1.37%	-0.97%	0.39%
trade services (s.)	4.27%	-4.45%	-0.30%
accommodation and leisure s.	5.13%	-3.82%	1.25%
traffic and news services	3.76%	-3.29%	0.41%
finance and insurance s.	4.13%	-4.56%	-0.54%
real estate and business s.	3.27%	-2.86%	0.35%
health, education and social s.	1.88%	-1.07%	0.80%
public administration, defence and cultural s.	1.95%	-1.59%	0.32%

Table 49: Separated Effects - production-4-W2

	shrinking	aging	overall
agricultural products	-3.02%	-1.76%	-4.89%
mining	-2.24%	-2.39%	-4.59%
food, beverages, tobacco	-5.34%	-4.20%	-9.53%
textiles, clothing, leather	-7.51%	-9.50%	-16.58%
wood, paper, printing	-2.89%	-2.68%	-5.52%
petroleum and chemical products	-2.52%	-3.03%	-5.48%
metals	-4.74%	-4.97%	-9.46%
machinery, vehicles, appliances	-6.15%	-6.76%	-12.52%
furniture, jewelry, musical instruments	-5.24%	-5.43%	-10.51%
energy, water, construction	-1.71%	-1.38%	-3.06%
trade services (s.)	-5.36%	-6.36%	-11.49%
accommodation and leisure s.	-6.44%	-5.48%	-11.81%
traffic and news services	-4.74%	-4.72%	-9.34%
finance and insurance s.	-5.21%	-6.52%	-11.51%
real estate and business s.	-4.11%	-4.09%	-8.08%
health, education and social s.	-2.35%	-1.54%	-3.88%
public administration, defence and cultural s.	-2.44%	-2.28%	-4.65%

Table 50: Separated Effects - production-5-W1

	shrinking	aging	overall
agricultural products	-0.64%	-1.44%	-2.10%
mining	-0.48%	-1.97%	-2.44%
food, beverages, tobacco	-1.14%	-3.45%	-4.59%
textiles, clothing, leather	-1.62%	-7.85%	-9.39%
wood, paper, printing	-0.62%	-2.21%	-2.82%
petroleum and chemical products	-0.54%	-2.50%	-3.03%
metals	-1.03%	-4.10%	-5.09%
machinery, vehicles, appliances	-1.34%	-5.59%	-6.86%
furniture, jewelry, musical instruments	-1.13%	-4.48%	-5.58%
energy, water, construction	-0.37%	-1.14%	-1.50%
trade services (s.)	-1.15%	-5.25%	-6.36%
accommodation and leisure s.	-1.38%	-4.52%	-5.88%
traffic and news services	-1.02%	-3.89%	-4.88%
finance and insurance s.	-1.12%	-5.38%	-6.46%
real estate and business s.	-0.88%	-3.37%	-4.24%
health, education and social s.	-0.51%	-1.27%	-1.77%
public administration, defence and cultural s.	-0.52%	-1.88%	-2.39%

Table 51: Separated Effects - production-5-W2

	shrinking	aging	overall
agricultural products	-1.81%	-2.08%	-3.98%
mining	-1.36%	-2.81%	-4.14%
food, beverages, tobacco	-3.22%	-4.95%	-8.17%
textiles, clothing, leather	-4.56%	-11.16%	-15.41%
wood, paper, printing	-1.75%	-3.16%	-4.87%
petroleum and chemical products	-1.52%	-3.57%	-5.04%
metals	-2.89%	-5.83%	-8.54%
machinery, vehicles, appliances	-3.75%	-7.93%	-11.40%
furniture, jewelry, musical instruments	-3.18%	-6.39%	-9.45%
energy, water, construction	-1.04%	-1.63%	-2.64%
trade services (s.)	-3.25%	-7.47%	-10.56%
accommodation and leisure s.	-3.90%	-6.45%	-10.28%
traffic and news services	-2.87%	-5.55%	-8.34%
finance and insurance s.	-3.15%	-7.66%	-10.66%
real estate and business s.	-2.49%	-4.81%	-7.22%
health, education and social s.	-1.43%	-1.82%	-3.23%
public administration, defence and cultural s.	-1.48%	-2.68%	-4.11%

Table 52: Separated Effects - production-6-W1

	shrinking	aging	overall
agricultural products	0.51%	-1.75%	-1.22%
mining	0.39%	-2.38%	-1.99%
food, beverages, tobacco	0.92%	-4.18%	-3.25%
textiles, clothing, leather	1.32%	-9.46%	-8.22%
wood, paper, printing	0.50%	-2.67%	-2.17%
petroleum and chemical products	0.44%	-3.02%	-2.59%
metals	0.84%	-4.94%	-4.15%
machinery, vehicles, appliances	1.09%	-6.73%	-5.71%
furniture, jewelry, musical instruments	0.92%	-5.40%	-4.52%
energy, water, construction	0.30%	-1.38%	-1.08%
trade services (s.)	0.94%	-6.33%	-5.43%
accommodation and leisure s.	1.12%	-5.46%	-4.35%
traffic and news services	0.83%	-4.69%	-3.89%
finance and insurance s.	0.91%	-6.49%	-5.62%
real estate and business s.	0.72%	-4.07%	-3.37%
health, education and social s.	0.41%	-1.53%	-1.12%
public administration, defence and cultural s.	0.43%	-2.27%	-1.85%

Table 53: Separated Effects - production-6-W2

	shrinking	aging	overall
agricultural products	-6.80%	-6.63%	-13.14%
mining	-2.60%	-3.10%	-5.63%
food, beverages, tobacco	-6.71%	-6.62%	-13.08%
textiles, clothing, leather	-5.29%	-7.88%	-12.93%
wood, paper, printing	-4.89%	-5.38%	-10.07%
petroleum and chemical products	-3.60%	-4.57%	-8.01%
metals	-3.47%	-4.16%	-7.46%
machinery, vehicles, appliances	-2.58%	-3.58%	-6.04%
furniture, jewelry, musical instruments	-4.16%	-4.91%	-8.93%
energy, water, construction	-2.35%	-2.39%	-4.68%
trade services (s.)	-5.06%	-6.62%	-11.43%
accommodation and leisure s.	-6.09%	-6.06%	-11.94%
traffic and news services	-5.67%	-6.41%	-11.81%
finance and insurance s.	-5.17%	-7.01%	-11.88%
real estate and business s.	-9.69%	-10.91%	-19.61%
health, education and social s.	-1.30%	-0.76%	-2.07%
public administration, defence and cultural s.	-1.68%	-1.78%	-3.43%

Table 54: Separated Effects - imports-1-W1

	shrinking	aging	overall
agricultural products	0.04%	-5.37%	-5.33%
mining	0.02%	-2.51%	-2.49%
food, beverages, tobacco	0.04%	-5.36%	-5.32%
textiles, clothing, leather	0.03%	-6.37%	-6.34%
wood, paper, printing	0.03%	-4.35%	-4.33%
petroleum and chemical products	0.02%	-3.70%	-3.67%
metals	0.02%	-3.36%	-3.34%
machinery, vehicles, appliances	0.02%	-2.90%	-2.88%
furniture, jewelry, musical instruments	0.02%	-3.97%	-3.94%
energy, water, construction	0.01%	-1.93%	-1.92%
trade services (s.)	0.03%	-5.36%	-5.33%
accommodation and leisure s.	0.04%	-4.90%	-4.86%
traffic and news services	0.03%	-5.19%	-5.16%
finance and insurance s.	0.03%	-5.68%	-5.65%
real estate and business s.	0.06%	-8.88%	-8.83%
health, education and social s.	0.01%	-0.62%	-0.61%
public administration, defence and cultural s.	0.01%	-1.44%	-1.43%

Table 55: Separated Effects - imports-1-W2

	shrinking	**aging**	**overall**
agricultural products	-3.45%	-7.93%	-11.21%
mining	-1.31%	-3.71%	-4.99%
food, beverages, tobacco	-3.40%	-7.92%	-11.17%
textiles, clothing, leather	-2.67%	-9.43%	-11.95%
wood, paper, printing	-2.48%	-6.43%	-8.79%
petroleum and chemical products	-1.82%	-5.46%	-7.18%
metals	-1.76%	-4.97%	-6.62%
machinery, vehicles, appliances	-1.31%	-4.28%	-5.51%
furniture, jewelry, musical instruments	-2.10%	-5.87%	-7.89%
energy, water, construction	-1.19%	-2.87%	-4.02%
trade services (s.)	-2.56%	-7.91%	-10.32%
accommodation and leisure s.	-3.09%	-7.24%	-10.21%
traffic and news services	-2.88%	-7.66%	-10.37%
finance and insurance s.	-2.62%	-8.38%	-10.81%
real estate and business s.	-4.97%	-12.96%	-17.34%
health, education and social s.	-0.65%	-0.92%	-1.58%
public administration, defence and cultural s.	-0.85%	-2.13%	-2.96%

Table 56: Separated Effects - imports-2-W1

	shrinking	**aging**	**overall**
agricultural products	3.44%	-6.63%	-3.33%
mining	1.29%	-3.10%	-1.84%
food, beverages, tobacco	3.38%	-6.61%	-3.36%
textiles, clothing, leather	2.63%	-7.87%	-5.37%
wood, paper, printing	2.45%	-5.38%	-3.02%
petroleum and chemical products	1.80%	-4.56%	-2.84%
metals	1.74%	-4.15%	-2.49%
machinery, vehicles, appliances	1.29%	-3.58%	-2.35%
furniture, jewelry, musical instruments	2.07%	-4.90%	-2.90%
energy, water, construction	1.17%	-2.39%	-1.25%
trade services (s.)	2.53%	-6.62%	-4.21%
accommodation and leisure s.	3.05%	-6.05%	-3.09%
traffic and news services	2.86%	-6.41%	-3.68%
finance and insurance s.	2.59%	-7.01%	-4.56%
real estate and business s.	5.06%	-10.90%	-6.34%
health, education and social s.	0.64%	-0.76%	-0.12%
public administration, defence and cultural s.	0.83%	-1.78%	-0.96%

Table 57: Separated Effects - imports-2-W2

	shrinking	**aging**	**overall**
agricultural products	-3.35%	-5.17%	-8.41%
mining	-1.28%	-2.41%	-3.66%
food, beverages, tobacco	-3.31%	-5.16%	-8.37%
textiles, clothing, leather	-2.59%	-6.14%	-8.64%
wood, paper, printing	-2.41%	-4.19%	-6.52%
petroleum and chemical products	-1.77%	-3.56%	-5.27%
metals	-1.71%	-3.24%	-4.88%
machinery, vehicles, appliances	-1.27%	-2.79%	-4.01%
furniture, jewelry, musical instruments	-2.04%	-3.82%	-5.81%
energy, water, construction	-1.16%	-1.86%	-2.99%
trade services (s.)	-2.49%	-5.16%	-7.55%
accommodation and leisure s.	-3.00%	-4.71%	-7.63%
traffic and news services	-2.80%	-5.00%	-7.69%
finance and insurance s.	-2.54%	-5.47%	-7.90%
real estate and business s.	-4.83%	-8.56%	-13.01%
health, education and social s.	-0.64%	-0.59%	-1.23%
public administration, defence and cultural s.	-0.82%	-1.38%	-2.19%

Table 58: Separated Effects - imports-3-W1

	shrinking	**aging**	**overall**
agricultural products	3.66%	-3.97%	-0.40%
mining	1.38%	-1.85%	-0.50%
food, beverages, tobacco	3.60%	-3.96%	-0.44%
textiles, clothing, leather	2.80%	-4.72%	-1.99%
wood, paper, printing	2.61%	-3.22%	-0.67%
petroleum and chemical products	1.92%	-2.73%	-0.87%
metals	1.85%	-2.49%	-0.69%
machinery, vehicles, appliances	1.37%	-2.14%	-0.81%
furniture, jewelry, musical instruments	2.20%	-2.93%	-0.77%
energy, water, construction	1.25%	-1.43%	-0.20%
trade services (s.)	2.70%	-3.97%	-1.35%
accommodation and leisure s.	3.26%	-3.62%	-0.43%
traffic and news services	3.04%	-3.85%	-0.88%
finance and insurance s.	2.77%	-4.21%	-1.54%
real estate and business s.	5.40%	-6.62%	-1.54%
health, education and social s.	0.68%	-0.45%	0.24%
public administration, defence and cultural s.	0.88%	-1.06%	-0.19%

Table 59: Separated Effects - imports-3-W2

	shrinking	aging	overall
agricultural products	0.00%	-6.45%	-6.46%
mining	0.00%	-3.02%	-3.02%
food, beverages, tobacco	0.00%	-6.44%	-6.44%
textiles, clothing, leather	0.00%	-7.66%	-7.67%
wood, paper, printing	0.00%	-5.23%	-5.24%
petroleum and chemical products	0.00%	-4.44%	-4.44%
metals	0.00%	-4.04%	-4.04%
machinery, vehicles, appliances	0.00%	-3.48%	-3.48%
furniture, jewelry, musical instruments	0.00%	-4.77%	-4.77%
energy, water, construction	0.00%	-2.33%	-2.33%
trade services (s.)	0.00%	-6.44%	-6.44%
accommodation and leisure s.	0.00%	-5.89%	-5.89%
traffic and news services	0.00%	-6.24%	-6.24%
finance and insurance s.	0.00%	-6.82%	-6.83%
real estate and business s.	-0.01%	-10.62%	-10.62%
health, education and social s.	0.00%	-0.74%	-0.74%
public administration, defence and cultural s.	0.00%	-1.73%	-1.73%

Table 60: Separated Effects - imports-4-W1

	shrinking	aging	overall
agricultural products	7.05%	-5.22%	1.61%
mining	2.64%	-2.44%	0.14%
food, beverages, tobacco	6.92%	-5.21%	1.52%
textiles, clothing, leather	5.35%	-6.20%	-1.04%
wood, paper, printing	5.02%	-4.23%	0.63%
petroleum and chemical products	3.68%	-3.59%	-0.05%
metals	3.56%	-3.27%	0.16%
machinery, vehicles, appliances	2.63%	-2.82%	-0.28%
furniture, jewelry, musical instruments	4.22%	-3.86%	0.26%
energy, water, construction	2.40%	-1.88%	0.47%
trade services (s.)	5.18%	-5.21%	-0.24%
accommodation and leisure s.	6.25%	-4.76%	1.33%
traffic and news services	5.85%	-5.05%	0.59%
finance and insurance s.	5.31%	-5.53%	-0.46%
real estate and business s.	10.51%	-8.65%	1.04%
health, education and social s.	1.31%	-0.60%	0.72%
public administration, defence and cultural s.	1.69%	-1.40%	0.27%

Table 61: Separated Effects - imports-4-W2

	shrinking	**aging**	**overall**
agricultural products	-8.60%	-7.45%	-15.63%
mining	-3.31%	-3.49%	-6.69%
food, beverages, tobacco	-8.50%	-7.44%	-15.57%
textiles, clothing, leather	-6.72%	-8.86%	-15.22%
wood, paper, printing	-6.20%	-6.05%	-11.96%
petroleum and chemical products	-4.56%	-5.13%	-9.46%
metals	-4.39%	-4.67%	-8.82%
machinery, vehicles, appliances	-3.28%	-4.02%	-7.12%
furniture, jewelry, musical instruments	-5.28%	-5.52%	-10.60%
energy, water, construction	-2.99%	-2.69%	-5.58%
trade services (s.)	-6.42%	-7.44%	-13.49%
accommodation and leisure s.	-7.72%	-6.80%	-14.23%
traffic and news services	-7.18%	-7.20%	-13.99%
finance and insurance s.	-6.55%	-7.87%	-13.99%
real estate and business s.	-12.18%	-12.21%	-23.00%
health, education and social s.	-1.65%	-0.86%	-2.52%
public administration, defence and cultural s.	-2.13%	-2.00%	-4.09%

Table 62: Separated Effects - imports-5-W1

	shrinking	**aging**	**overall**
agricultural products	-1.87%	-6.15%	-7.95%
mining	-0.71%	-2.87%	-3.57%
food, beverages, tobacco	-1.84%	-6.14%	-7.92%
textiles, clothing, leather	-1.44%	-7.31%	-8.69%
wood, paper, printing	-1.34%	-4.99%	-6.28%
petroleum and chemical products	-0.99%	-4.24%	-5.18%
metals	-0.95%	-3.85%	-4.76%
machinery, vehicles, appliances	-0.71%	-3.32%	-4.00%
furniture, jewelry, musical instruments	-1.14%	-4.55%	-5.65%
energy, water, construction	-0.64%	-2.22%	-2.85%
trade services (s.)	-1.39%	-6.14%	-7.47%
accommodation and leisure s.	-1.67%	-5.61%	-7.23%
traffic and news services	-1.56%	-5.95%	-7.44%
finance and insurance s.	-1.42%	-6.51%	-7.85%
real estate and business s.	-2.71%	-10.14%	-12.60%
health, education and social s.	-0.35%	-0.71%	-1.06%
public administration, defence and cultural s.	-0.46%	-1.65%	-2.10%

Table 63: Separated Effects - imports-5-W2

	shrinking	**aging**	**overall**
agricultural products	-5.24%	-8.75%	-13.69%
mining	-2.00%	-4.10%	-6.03%
food, beverages, tobacco	-5.18%	-8.74%	-13.65%
textiles, clothing, leather	-4.07%	-10.40%	-14.22%
wood, paper, printing	-3.77%	-7.10%	-10.67%
petroleum and chemical products	-2.77%	-6.02%	-8.63%
metals	-2.67%	-5.48%	-7.98%
machinery, vehicles, appliances	-1.99%	-4.72%	-6.58%
furniture, jewelry, musical instruments	-3.20%	-6.48%	-9.55%
energy, water, construction	-1.81%	-3.16%	-4.91%
trade services (s.)	-3.90%	-8.73%	-12.37%
accommodation and leisure s.	-4.69%	-8.00%	-12.48%
traffic and news services	-4.37%	-8.45%	-12.55%
finance and insurance s.	-3.98%	-9.24%	-12.92%
real estate and business s.	-7.51%	-14.24%	-20.76%
health, education and social s.	-1.00%	-1.02%	-2.02%
public administration, defence and cultural s.	-1.29%	-2.36%	-3.62%

Table 64: Separated Effects - imports-6-W1

	shrinking	**aging**	**overall**
agricultural products	1.53%	-7.42%	-5.96%
mining	0.58%	-3.47%	-2.91%
food, beverages, tobacco	1.51%	-7.40%	-5.96%
textiles, clothing, leather	1.17%	-8.81%	-7.70%
wood, paper, printing	1.09%	-6.02%	-4.97%
petroleum and chemical products	0.80%	-5.11%	-4.34%
metals	0.78%	-4.64%	-3.91%
machinery, vehicles, appliances	0.58%	-4.00%	-3.46%
furniture, jewelry, musical instruments	0.92%	-5.49%	-4.60%
energy, water, construction	0.52%	-2.68%	-2.17%
trade services (s.)	1.13%	-7.40%	-6.33%
accommodation and leisure s.	1.36%	-6.77%	-5.46%
traffic and news services	1.27%	-7.17%	-5.96%
finance and insurance s.	1.16%	-7.84%	-6.75%
real estate and business s.	2.24%	-12.15%	-10.16%
health, education and social s.	0.29%	-0.86%	-0.57%
public administration, defence and cultural s.	0.37%	-1.99%	-1.63%

Table 65: Separated Effects - imports-6-W2

	shrinking	aging	overall
agricultural products	-6.17%	-5.89%	-11.81%
mining	-3.81%	-4.43%	-8.08%
food, beverages, tobacco	-6.21%	-6.01%	-12.00%
textiles, clothing, leather	-7.29%	-9.96%	-16.71%
wood, paper, printing	-4.69%	-5.11%	-9.57%
petroleum and chemical products	-3.67%	-4.59%	-8.10%
metals	-5.27%	-6.14%	-11.08%
machinery, vehicles, appliances	-5.76%	-7.04%	-12.41%
furniture, jewelry, musical instruments	-5.46%	-6.32%	-11.51%
energy, water, construction	-3.56%	-3.73%	-7.15%
trade services (s.)	-6.09%	-7.73%	-13.42%
accommodation and leisure s.	-6.91%	-6.96%	-13.55%
traffic and news services	-6.12%	-6.88%	-12.65%
finance and insurance s.	-5.71%	-7.59%	-12.94%
real estate and business s.	-7.69%	-8.64%	-15.69%
health, education and social s.	-3.48%	-3.22%	-6.61%
public administration, defence and cultural s.	-3.73%	-4.07%	-7.64%

Table 66: Separated Effects - labor-1-W1

	shrinking	aging	overall
agricultural products	0.04%	-4.77%	-4.73%
mining	0.02%	-3.58%	-3.56%
food, beverages, tobacco	0.04%	-4.86%	-4.83%
textiles, clothing, leather	0.04%	-8.08%	-8.04%
wood, paper, printing	0.03%	-4.13%	-4.11%
petroleum and chemical products	0.02%	-3.72%	-3.70%
metals	0.03%	-4.97%	-4.94%
machinery, vehicles, appliances	0.03%	-5.71%	-5.67%
furniture, jewelry, musical instruments	0.03%	-5.11%	-5.08%
energy, water, construction	0.02%	-3.02%	-3.00%
trade services (s.)	0.04%	-6.27%	-6.23%
accommodation and leisure s.	0.04%	-5.63%	-5.59%
traffic and news services	0.04%	-5.57%	-5.54%
finance and insurance s.	0.03%	-6.15%	-6.11%
real estate and business s.	0.05%	-7.02%	-6.98%
health, education and social s.	0.02%	-2.60%	-2.58%
public administration, defence and cultural s.	0.02%	-3.29%	-3.27%

Table 67: Separated Effects - labor-1-W2

	shrinking	aging	overall
agricultural products	-3.14%	-7.04%	-10.02%
mining	-1.93%	-5.30%	-7.13%
food, beverages, tobacco	-3.15%	-7.19%	-10.21%
textiles, clothing, leather	-3.70%	-11.88%	-15.26%
wood, paper, printing	-2.38%	-6.10%	-8.34%
petroleum and chemical products	-1.86%	-5.49%	-7.25%
metals	-2.68%	-7.32%	-9.80%
machinery, vehicles, appliances	-2.93%	-8.39%	-11.09%
furniture, jewelry, musical instruments	-2.77%	-7.55%	-10.16%
energy, water, construction	-1.80%	-4.46%	-6.18%
trade services (s.)	-3.09%	-9.22%	-12.08%
accommodation and leisure s.	-3.51%	-8.31%	-11.63%
traffic and news services	-3.11%	-8.21%	-11.11%
finance and insurance s.	-2.90%	-9.06%	-11.74%
real estate and business s.	-3.93%	-10.29%	-13.83%
health, education and social s.	-1.76%	-3.85%	-5.56%
public administration, defence and cultural s.	-1.89%	-4.87%	-6.66%

Table 68: Separated Effects - labor-2-W1

	shrinking	aging	overall
agricultural products	3.12%	-5.89%	-2.89%
mining	1.91%	-4.42%	-2.59%
food, beverages, tobacco	3.13%	-6.01%	-2.99%
textiles, clothing, leather	3.69%	-9.95%	-6.52%
wood, paper, printing	2.37%	-5.10%	-2.85%
petroleum and chemical products	1.84%	-4.59%	-2.83%
metals	2.68%	-6.13%	-3.62%
machinery, vehicles, appliances	2.93%	-7.03%	-4.29%
furniture, jewelry, musical instruments	2.74%	-6.31%	-3.69%
energy, water, construction	1.79%	-3.72%	-2.00%
trade services (s.)	3.08%	-7.72%	-4.84%
accommodation and leisure s.	3.50%	-6.95%	-3.61%
traffic and news services	3.10%	-6.87%	-3.94%
finance and insurance s.	2.87%	-7.58%	-4.88%
real estate and business s.	3.96%	-8.63%	-4.99%
health, education and social s.	1.75%	-3.22%	-1.51%
public administration, defence and cultural s.	1.88%	-4.07%	-2.27%

Table 69: Separated Effects - labor-2-W2

	shrinking	aging	overall
agricultural products	-3.05%	-4.59%	-7.54%
mining	-1.88%	-3.45%	-5.27%
food, beverages, tobacco	-3.06%	-4.68%	-7.66%
textiles, clothing, leather	-3.60%	-7.78%	-11.17%
wood, paper, printing	-2.31%	-3.98%	-6.21%
petroleum and chemical products	-1.81%	-3.58%	-5.32%
metals	-2.61%	-4.79%	-7.27%
machinery, vehicles, appliances	-2.85%	-5.50%	-8.20%
furniture, jewelry, musical instruments	-2.69%	-4.92%	-7.51%
energy, water, construction	-1.75%	-2.90%	-4.60%
trade services (s.)	-3.00%	-6.03%	-8.89%
accommodation and leisure s.	-3.41%	-5.42%	-8.71%
traffic and news services	-3.02%	-5.37%	-8.25%
finance and insurance s.	-2.81%	-5.92%	-8.60%
real estate and business s.	-3.82%	-6.76%	-10.34%
health, education and social s.	-1.71%	-2.50%	-4.18%
public administration, defence and cultural s.	-1.84%	-3.17%	-4.95%

Table 70: Separated Effects - labor-3-W1

	shrinking	aging	overall
agricultural products	3.33%	-3.53%	-0.28%
mining	2.04%	-2.65%	-0.66%
food, beverages, tobacco	3.33%	-3.60%	-0.34%
textiles, clothing, leather	3.94%	-5.99%	-2.23%
wood, paper, printing	2.52%	-3.06%	-0.61%
petroleum and chemical products	1.96%	-2.75%	-0.84%
metals	2.86%	-3.69%	-0.94%
machinery, vehicles, appliances	3.12%	-4.23%	-1.23%
furniture, jewelry, musical instruments	2.93%	-3.79%	-0.94%
energy, water, construction	1.91%	-2.23%	-0.37%
trade services (s.)	3.28%	-4.65%	-1.49%
accommodation and leisure s.	3.73%	-4.17%	-0.54%
traffic and news services	3.31%	-4.13%	-0.93%
finance and insurance s.	3.06%	-4.56%	-1.60%
real estate and business s.	4.23%	-5.22%	-1.20%
health, education and social s.	1.86%	-1.92%	-0.09%
public administration, defence and cultural s.	2.00%	-2.44%	-0.49%

Table 71: Separated Effects - labor-3-W2

	shrinking	aging	overall
agricultural products	0.00%	-5.73%	-5.73%
mining	0.00%	-4.31%	-4.31%
food, beverages, tobacco	0.00%	-5.85%	-5.85%
textiles, clothing, leather	0.00%	-9.69%	-9.69%
wood, paper, printing	0.00%	-4.96%	-4.97%
petroleum and chemical products	0.00%	-4.47%	-4.47%
metals	0.00%	-5.97%	-5.97%
machinery, vehicles, appliances	0.00%	-6.84%	-6.85%
furniture, jewelry, musical instruments	0.00%	-6.14%	-6.15%
energy, water, construction	0.00%	-3.63%	-3.63%
trade services (s.)	0.00%	-7.52%	-7.52%
accommodation and leisure s.	0.00%	-6.76%	-6.77%
traffic and news services	0.00%	-6.69%	-6.69%
finance and insurance s.	0.00%	-7.38%	-7.38%
real estate and business s.	-0.01%	-8.41%	-8.41%
health, education and social s.	0.00%	-3.13%	-3.13%
public administration, defence and cultural s.	0.00%	-3.96%	-3.96%

Table 72: Separated Effects - labor-4-W1

	shrinking	aging	overall
agricultural products	6.41%	-4.64%	1.57%
mining	3.92%	-3.49%	0.30%
food, beverages, tobacco	6.40%	-4.73%	1.50%
textiles, clothing, leather	7.58%	-7.86%	-0.71%
wood, paper, printing	4.85%	-4.02%	0.65%
petroleum and chemical products	3.76%	-3.62%	0.01%
metals	5.51%	-4.84%	0.40%
machinery, vehicles, appliances	6.02%	-5.55%	0.15%
furniture, jewelry, musical instruments	5.62%	-4.97%	0.44%
energy, water, construction	3.66%	-2.93%	0.62%
trade services (s.)	6.31%	-6.10%	-0.10%
accommodation and leisure s.	7.18%	-5.48%	1.45%
traffic and news services	6.37%	-5.42%	0.67%
finance and insurance s.	5.89%	-5.98%	-0.37%
real estate and business s.	8.19%	-6.83%	0.84%
health, education and social s.	3.58%	-2.53%	0.97%
public administration, defence and cultural s.	3.84%	-3.20%	0.51%

Table 73: Separated Effects - labor-4-W2

	shrinking	aging	overall
agricultural products	-7.81%	-6.62%	-14.06%
mining	-4.83%	-4.98%	-9.58%
food, beverages, tobacco	-7.86%	-6.76%	-14.30%
textiles, clothing, leather	-9.21%	-11.17%	-19.62%
wood, paper, printing	-5.93%	-5.73%	-11.34%
petroleum and chemical products	-4.65%	-5.16%	-9.58%
metals	-6.66%	-6.88%	-13.07%
machinery, vehicles, appliances	-7.28%	-7.89%	-14.62%
furniture, jewelry, musical instruments	-6.91%	-7.09%	-13.63%
energy, water, construction	-4.51%	-4.19%	-8.50%
trade services (s.)	-7.70%	-8.67%	-15.81%
accommodation and leisure s.	-8.74%	-7.81%	-16.09%
traffic and news services	-7.74%	-7.72%	-14.96%
finance and insurance s.	-7.23%	-8.51%	-15.24%
real estate and business s.	-9.69%	-9.68%	-18.47%
health, education and social s.	-4.41%	-3.62%	-7.89%
public administration, defence and cultural s.	-4.72%	-4.57%	-9.07%

Table 74: Separated Effects - labor-5-W1

	shrinking	aging	overall
agricultural products	-1.70%	-5.47%	-7.10%
mining	-1.05%	-4.11%	-5.11%
food, beverages, tobacco	-1.71%	-5.58%	-7.23%
textiles, clothing, leather	-2.01%	-9.25%	-11.12%
wood, paper, printing	-1.29%	-4.74%	-5.97%
petroleum and chemical products	-1.01%	-4.26%	-5.23%
metals	-1.46%	-5.70%	-7.07%
machinery, vehicles, appliances	-1.59%	-6.53%	-8.02%
furniture, jewelry, musical instruments	-1.50%	-5.86%	-7.29%
energy, water, construction	-0.98%	-3.46%	-4.40%
trade services (s.)	-1.68%	-7.17%	-8.75%
accommodation and leisure s.	-1.90%	-6.45%	-8.28%
traffic and news services	-1.69%	-6.38%	-7.98%
finance and insurance s.	-1.57%	-7.04%	-8.52%
real estate and business s.	-2.14%	-8.03%	-10.00%
health, education and social s.	-0.96%	-2.98%	-3.92%
public administration, defence and cultural s.	-1.02%	-3.77%	-4.76%

Table 75: Separated Effects - labor-5-W2

	shrinking	aging	overall
agricultural products	-4.76%	-7.77%	-12.27%
mining	-2.94%	-5.84%	-8.62%
food, beverages, tobacco	-4.79%	-7.94%	-12.49%
textiles, clothing, leather	-5.62%	-13.09%	-18.16%
wood, paper, printing	-3.61%	-6.73%	-10.11%
petroleum and chemical products	-2.83%	-6.06%	-8.72%
metals	-4.07%	-8.07%	-11.80%
machinery, vehicles, appliances	-4.45%	-9.25%	-13.30%
furniture, jewelry, musical instruments	-4.20%	-8.32%	-12.26%
energy, water, construction	-2.74%	-4.92%	-7.52%
trade services (s.)	-4.69%	-10.16%	-14.46%
accommodation and leisure s.	-5.33%	-9.16%	-14.17%
traffic and news services	-4.72%	-9.05%	-13.42%
finance and insurance s.	-4.40%	-9.98%	-14.02%
real estate and business s.	-5.95%	-11.32%	-16.63%
health, education and social s.	-2.68%	-4.26%	-6.84%
public administration, defence and cultural s.	-2.87%	-5.37%	-8.08%

Table 76: Separated Effects - labor-6-W1

	shrinking	aging	overall
agricultural products	1.39%	-6.59%	-5.26%
mining	0.85%	-4.95%	-4.14%
food, beverages, tobacco	1.39%	-6.72%	-5.39%
textiles, clothing, leather	1.64%	-11.12%	-9.61%
wood, paper, printing	1.05%	-5.71%	-4.71%
petroleum and chemical products	0.82%	-5.14%	-4.36%
metals	1.19%	-6.85%	-5.74%
machinery, vehicles, appliances	1.30%	-7.86%	-6.65%
furniture, jewelry, musical instruments	1.22%	-7.06%	-5.90%
energy, water, construction	0.80%	-4.17%	-3.41%
trade services (s.)	1.37%	-8.63%	-7.36%
accommodation and leisure s.	1.56%	-7.77%	-6.29%
traffic and news services	1.38%	-7.68%	-6.39%
finance and insurance s.	1.28%	-8.47%	-7.28%
real estate and business s.	1.76%	-9.64%	-8.04%
health, education and social s.	0.78%	-3.60%	-2.85%
public administration, defence and cultural s.	0.84%	-4.55%	-3.75%

Table 77: Separated Effects - labor-6-W2

	shrinking	aging	overall
agricultural products	-3.11%	-3.52%	-6.53%
mining	-2.23%	-2.51%	-4.67%
food, beverages, tobacco	-2.73%	-3.09%	-5.74%
textiles, clothing, leather	-2.14%	-2.42%	-4.50%
wood, paper, printing	-2.70%	-3.06%	-5.68%
petroleum and chemical products	-2.42%	-2.73%	-5.07%
metals	-2.11%	-2.39%	-4.44%
machinery, vehicles, appliances	-1.92%	-2.17%	-4.03%
furniture, jewelry, musical instruments	-2.17%	-2.45%	-4.56%
energy, water, construction	-2.49%	-2.82%	-5.23%
trade services (s.)	-2.42%	-2.74%	-5.09%
accommodation and leisure s.	-2.46%	-2.78%	-5.17%
traffic and news services	-2.69%	-3.04%	-5.65%
finance and insurance s.	-2.49%	-2.82%	-5.23%
real estate and business s.	-4.23%	-4.77%	-8.80%
health, education and social s.	-1.98%	-2.24%	-4.17%
public administration, defence and cultural s.	-2.09%	-2.36%	-4.39%

Table 78: Separated Effects - prices-1-W1

	shrinking	aging	overall
agricultural products	0.02%	-2.84%	-2.82%
mining	0.01%	-2.03%	-2.01%
food, beverages, tobacco	0.02%	-2.50%	-2.48%
textiles, clothing, leather	0.01%	-1.95%	-1.94%
wood, paper, printing	0.02%	-2.47%	-2.45%
petroleum and chemical products	0.01%	-2.21%	-2.19%
metals	0.01%	-1.93%	-1.92%
machinery, vehicles, appliances	0.01%	-1.75%	-1.74%
furniture, jewelry, musical instruments	0.01%	-1.98%	-1.97%
energy, water, construction	0.01%	-2.28%	-2.26%
trade services (s.)	0.01%	-2.21%	-2.20%
accommodation and leisure s.	0.01%	-2.25%	-2.23%
traffic and news services	0.02%	-2.46%	-2.44%
finance and insurance s.	0.01%	-2.28%	-2.26%
real estate and business s.	0.03%	-3.86%	-3.84%
health, education and social s.	0.01%	-1.81%	-1.80%
public administration, defence and cultural s.	0.01%	-1.91%	-1.89%

Table 79: Separated Effects - prices-1-W2

	shrinking	aging	overall
agricultural products	-1.57%	-4.21%	-5.72%
mining	-1.12%	-3.00%	-4.09%
food, beverages, tobacco	-1.38%	-3.70%	-5.03%
textiles, clothing, leather	-1.08%	-2.89%	-3.94%
wood, paper, printing	-1.37%	-3.66%	-4.98%
petroleum and chemical products	-1.22%	-3.27%	-4.45%
metals	-1.07%	-2.86%	-3.89%
machinery, vehicles, appliances	-0.97%	-2.60%	-3.53%
furniture, jewelry, musical instruments	-1.10%	-2.93%	-3.99%
energy, water, construction	-1.26%	-3.37%	-4.58%
trade services (s.)	-1.22%	-3.28%	-4.46%
accommodation and leisure s.	-1.24%	-3.33%	-4.53%
traffic and news services	-1.36%	-3.64%	-4.95%
finance and insurance s.	-1.26%	-3.37%	-4.58%
real estate and business s.	-2.14%	-5.70%	-7.73%
health, education and social s.	-1.00%	-2.68%	-3.65%
public administration, defence and cultural s.	-1.05%	-2.82%	-3.85%

Table 80: Separated Effects - prices-2-W1

	shrinking	aging	overall
agricultural products	1.55%	-3.51%	-2.01%
mining	1.11%	-2.51%	-1.43%
food, beverages, tobacco	1.36%	-3.09%	-1.76%
textiles, clothing, leather	1.06%	-2.41%	-1.38%
wood, paper, printing	1.34%	-3.05%	-1.75%
petroleum and chemical products	1.20%	-2.73%	-1.56%
metals	1.05%	-2.39%	-1.36%
machinery, vehicles, appliances	0.95%	-2.17%	-1.24%
furniture, jewelry, musical instruments	1.08%	-2.45%	-1.40%
energy, water, construction	1.24%	-2.81%	-1.61%
trade services (s.)	1.20%	-2.73%	-1.56%
accommodation and leisure s.	1.23%	-2.78%	-1.59%
traffic and news services	1.34%	-3.04%	-1.74%
finance and insurance s.	1.24%	-2.81%	-1.61%
real estate and business s.	2.13%	-4.77%	-2.74%
health, education and social s.	0.98%	-2.24%	-1.28%
public administration, defence and cultural s.	1.04%	-2.36%	-1.35%

Table 81: Separated Effects - prices-2-W2

	shrinking	**aging**	**overall**
agricultural products	-1.53%	-2.74%	-4.23%
mining	-1.09%	-1.95%	-3.02%
food, beverages, tobacco	-1.34%	-2.40%	-3.71%
textiles, clothing, leather	-1.05%	-1.88%	-2.91%
wood, paper, printing	-1.33%	-2.38%	-3.67%
petroleum and chemical products	-1.19%	-2.12%	-3.28%
metals	-1.04%	-1.86%	-2.87%
machinery, vehicles, appliances	-0.94%	-1.69%	-2.61%
furniture, jewelry, musical instruments	-1.06%	-1.91%	-2.95%
energy, water, construction	-1.22%	-2.19%	-3.38%
trade services (s.)	-1.19%	-2.13%	-3.29%
accommodation and leisure s.	-1.21%	-2.17%	-3.35%
traffic and news services	-1.32%	-2.36%	-3.65%
finance and insurance s.	-1.22%	-2.19%	-3.38%
real estate and business s.	-2.08%	-3.72%	-5.73%
health, education and social s.	-0.97%	-1.74%	-2.69%
public administration, defence and cultural s.	-1.02%	-1.83%	-2.84%

Table 82: Separated Effects - prices-3-W1

	shrinking	**aging**	**overall**
agricultural products	1.65%	-2.10%	-0.48%
mining	1.18%	-1.50%	-0.34%
food, beverages, tobacco	1.45%	-1.85%	-0.42%
textiles, clothing, leather	1.13%	-1.44%	-0.33%
wood, paper, printing	1.43%	-1.82%	-0.42%
petroleum and chemical products	1.28%	-1.63%	-0.37%
metals	1.12%	-1.43%	-0.33%
machinery, vehicles, appliances	1.01%	-1.30%	-0.30%
furniture, jewelry, musical instruments	1.15%	-1.46%	-0.33%
energy, water, construction	1.32%	-1.68%	-0.38%
trade services (s.)	1.28%	-1.64%	-0.37%
accommodation and leisure s.	1.31%	-1.66%	-0.38%
traffic and news services	1.43%	-1.82%	-0.41%
finance and insurance s.	1.32%	-1.68%	-0.38%
real estate and business s.	2.27%	-2.86%	-0.65%
health, education and social s.	1.05%	-1.34%	-0.30%
public administration, defence and cultural s.	1.10%	-1.41%	-0.32%

Table 83: Separated Effects - prices-3-W2

	shrinking	aging	overall
agricultural products	0.00%	-3.42%	-3.42%
mining	0.00%	-2.44%	-2.44%
food, beverages, tobacco	0.00%	-3.00%	-3.01%
textiles, clothing, leather	0.00%	-2.35%	-2.35%
wood, paper, printing	0.00%	-2.97%	-2.97%
petroleum and chemical products	0.00%	-2.65%	-2.66%
metals	0.00%	-2.32%	-2.32%
machinery, vehicles, appliances	0.00%	-2.11%	-2.11%
furniture, jewelry, musical instruments	0.00%	-2.38%	-2.38%
energy, water, construction	0.00%	-2.74%	-2.74%
trade services (s.)	0.00%	-2.66%	-2.66%
accommodation and leisure s.	0.00%	-2.71%	-2.71%
traffic and news services	0.00%	-2.95%	-2.96%
finance and insurance s.	0.00%	-2.74%	-2.74%
real estate and business s.	0.00%	-4.64%	-4.64%
health, education and social s.	0.00%	-2.18%	-2.18%
public administration, defence and cultural s.	0.00%	-2.29%	-2.29%

Table 84: Separated Effects - prices-4-W1

	shrinking	aging	overall
agricultural products	3.17%	-2.76%	0.33%
mining	2.26%	-1.97%	0.24%
food, beverages, tobacco	2.77%	-2.43%	0.29%
textiles, clothing, leather	2.17%	-1.90%	0.23%
wood, paper, printing	2.74%	-2.40%	0.28%
petroleum and chemical products	2.45%	-2.15%	0.25%
metals	2.14%	-1.88%	0.22%
machinery, vehicles, appliances	1.94%	-1.70%	0.20%
furniture, jewelry, musical instruments	2.20%	-1.93%	0.23%
energy, water, construction	2.53%	-2.21%	0.26%
trade services (s.)	2.46%	-2.15%	0.25%
accommodation and leisure s.	2.50%	-2.19%	0.26%
traffic and news services	2.73%	-2.39%	0.28%
finance and insurance s.	2.54%	-2.21%	0.26%
real estate and business s.	4.35%	-3.76%	0.44%
health, education and social s.	2.00%	-1.76%	0.21%
public administration, defence and cultural s.	2.11%	-1.85%	0.22%

Table 85: Separated Effects - prices-4-W2

	shrinking	aging	overall
agricultural products	-3.95%	-3.95%	-7.76%
mining	-2.82%	-2.82%	-5.56%
food, beverages, tobacco	-3.47%	-3.47%	-6.83%
textiles, clothing, leather	-2.72%	-2.72%	-5.35%
wood, paper, printing	-3.43%	-3.44%	-6.75%
petroleum and chemical products	-3.06%	-3.07%	-6.03%
metals	-2.68%	-2.69%	-5.28%
machinery, vehicles, appliances	-2.43%	-2.44%	-4.80%
furniture, jewelry, musical instruments	-2.75%	-2.76%	-5.42%
energy, water, construction	-3.16%	-3.17%	-6.22%
trade services (s.)	-3.07%	-3.08%	-6.05%
accommodation and leisure s.	-3.12%	-3.13%	-6.15%
traffic and news services	-3.41%	-3.42%	-6.71%
finance and insurance s.	-3.16%	-3.17%	-6.21%
real estate and business s.	-5.35%	-5.36%	-10.43%
health, education and social s.	-2.51%	-2.52%	-4.96%
public administration, defence and cultural s.	-2.65%	-2.65%	-5.23%

Table 86: Separated Effects - prices-5-W1

	shrinking	aging	overall
agricultural products	-0.85%	-3.26%	-4.09%
mining	-0.61%	-2.33%	-2.92%
food, beverages, tobacco	-0.75%	-2.86%	-3.59%
textiles, clothing, leather	-0.58%	-2.24%	-2.81%
wood, paper, printing	-0.74%	-2.83%	-3.55%
petroleum and chemical products	-0.66%	-2.53%	-3.17%
metals	-0.58%	-2.21%	-2.78%
machinery, vehicles, appliances	-0.52%	-2.01%	-2.52%
furniture, jewelry, musical instruments	-0.59%	-2.27%	-2.85%
energy, water, construction	-0.68%	-2.61%	-3.27%
trade services (s.)	-0.66%	-2.54%	-3.18%
accommodation and leisure s.	-0.67%	-2.58%	-3.23%
traffic and news services	-0.73%	-2.82%	-3.53%
finance and insurance s.	-0.68%	-2.61%	-3.27%
real estate and business s.	-1.16%	-4.43%	-5.54%
health, education and social s.	-0.54%	-2.08%	-2.60%
public administration, defence and cultural s.	-0.57%	-2.19%	-2.74%

Table 87: Separated Effects - prices-5-W2

	shrinking	aging	overall
agricultural products	-2.40%	-4.65%	-6.94%
mining	-1.71%	-3.32%	-4.97%
food, beverages, tobacco	-2.10%	-4.08%	-6.11%
textiles, clothing, leather	-1.65%	-3.20%	-4.78%
wood, paper, printing	-2.08%	-4.04%	-6.04%
petroleum and chemical products	-1.86%	-3.61%	-5.39%
metals	-1.62%	-3.16%	-4.72%
machinery, vehicles, appliances	-1.47%	-2.87%	-4.29%
furniture, jewelry, musical instruments	-1.67%	-3.24%	-4.85%
energy, water, construction	-1.92%	-3.72%	-5.56%
trade services (s.)	-1.86%	-3.62%	-5.41%
accommodation and leisure s.	-1.89%	-3.68%	-5.50%
traffic and news services	-2.07%	-4.02%	-6.00%
finance and insurance s.	-1.92%	-3.72%	-5.56%
real estate and business s.	-3.26%	-6.29%	-9.35%
health, education and social s.	-1.52%	-2.96%	-4.43%
public administration, defence and cultural s.	-1.60%	-3.12%	-4.67%

Table 88: Separated Effects - prices-6-W1

	shrinking	aging	overall
agricultural products	0.69%	-3.93%	-3.27%
mining	0.49%	-2.81%	-2.33%
food, beverages, tobacco	0.61%	-3.46%	-2.87%
textiles, clothing, leather	0.48%	-2.70%	-2.24%
wood, paper, printing	0.60%	-3.42%	-2.84%
petroleum and chemical products	0.54%	-3.05%	-2.53%
metals	0.47%	-2.67%	-2.22%
machinery, vehicles, appliances	0.43%	-2.43%	-2.01%
furniture, jewelry, musical instruments	0.48%	-2.74%	-2.28%
energy, water, construction	0.55%	-3.15%	-2.62%
trade services (s.)	0.54%	-3.06%	-2.54%
accommodation and leisure s.	0.55%	-3.11%	-2.58%
traffic and news services	0.60%	-3.40%	-2.82%
finance and insurance s.	0.55%	-3.15%	-2.62%
real estate and business s.	0.95%	-5.33%	-4.43%
health, education and social s.	0.44%	-2.51%	-2.08%
public administration, defence and cultural s.	0.46%	-2.64%	-2.19%

Table 89: Separated Effects - prices-6-W2