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Agriculture and Regional Development in Greece

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Abstract

This paper attempts to explore the effects of post-war war economic development model followed in Greece. The model is characterized by both the neglect of Greek agriculture and the emphasis on industrialization, mainly around the two major cities, Athens and Thessaloniki.

The model has to develop a strong industrial sector but to inflate services and it devastated agriculture. At the regional level the uneven growth path that has been adopted perpetuated between urban and tourist areas on the one hand and the rural regions on the other.

KEYWORDS:

Economic development model, Greek agriculture, industrialisation, urbanisation, income disparities, regional development, economic crisis.

1.) Introduction

Modern agriculture may be a key factor of regional development (Randall 2009) especially in countries with considerable spatial income disparities (World Development Report 2008: Agriculture for Development). Regional development policies would contribute to a sustainable national economic development (Friedman and Alonso 1964), enhancing regional growth potential, balancing population distribution increasing productivity and creating employment and income generation opportunities. There are certain regional development models that incorporate agriculture as an engine of regional economic growth (World Development Report 2009: Spatial Disparities and Development Policy).

The debate on which sector, i.e. agriculture, industry should be the priority for economic development was of major importance in 1950's and the 1960's (Mercado 2002). A strong argument in favour of agriculture was that agriculture development preceded industrial development and, furthermore, especially in developing countries an increase in rural sector's productivity would not only solve the food shortage, prevalent in these countries but it would also increase people's income and improve the country's foreign exchange revenues.

On the other hand the argument in favour of industrialisation was based on the experience of the developed countries in Europe, the USA, Japan e.t.c. Industrialisation supporters claimed that resources could be mobilised for being invested in basic industries and machinery and in various infrastructure projects like electric energy power, and the transportation network.

The whole debate was transformed to a controversy between balanced as opposed to the unbalanced growth concepts. The supporters of unbalanced growth believe that growth could only be achieved only in the leading sectors of the nation's economy. Investments must be focused on those sectors who achieve the higher capital – output ratio. This concept in effect claims that a country should choose the one of the two opposite development paths, i.e. agriculture vs. industry

The opposite view, of the balanced growth policy claims that concentrating resources only in a few sectors would undermine the potential of the other sectors.

The debate of balanced versus unbalanced growth modes was extended to the area of spatial development. The unbalanced growth supporters suggest a spatially selective investment plan (growth pole centre theory) while their opponents would prefer a spatially balanced pattern.

The debate on prioritising between agriculture and industry has sparked further discussions on the interrelations between the basic sectors of economy that triggered the development of models that compromise the growth of both sectors and take into account, the nature of development investments and structural changes in an economy.

Certain development theories have argued the inefficacy of adopting a dichotomous development mode between the two sectors (Koppel 1991) for instance argues that the choice of a rural or urban alternative seems to be a deceptive dilemma. Misra (1981), pointed out those arguments by raising three fundamental questions: 1.) whether it is possible to develop rural areas without urban development and the opposite. 2.) Whether there is a country that has developed solely on urban or rural sector and 3.) Whether poverty and underdevelopment are divisible in clear cut urban and rural developments. The apparent negative response to the above questions would lead to the conclusion that the issue is not which to develop first between urban and rural areas but rather in discovering ways to develop both in order to meet many national , regional and local needs. Apparently this balanced development can lead to the reduction of gaps in income, productivity, social services and quality of life in general between rural and urban areas.

At the end of 1951 Greece and its economy were devastated after a decade and even more of war entanglements including a destructive and fratricidal civil war and foreign occupation (Kamarinou1977).

K. Varvaressos, argued that the agricultural sector should be the main pillar of development in the country assisted by large land reclamation, irrigation and improved farming techniques since the industry because of the small size of the Greek market and lack of technology, could not exploit economies of scale and through it achieve high output levels absorbing a massive rural exodus. (K.Varvaressos, cited in Maraveyas, 1992 p.p 35)

According to the 1951 census Greece was an agrarian country, the population of the country was 7,566,000 persons, of whom 43.2% were economically active. The urban population was 38.5%, the semi-urban 13.8% and the rural 47.7%. The agricultural sector employed 59.5% of the working population and contributed 29% of GDP. The average farm size was 35.8 acres and there were 1,311,980 farms employing 1,928,120 farmers. The debate on the country's proper development model that had started in the second half of the 1940's followed the industrialisation vs. agriculture development argument.

According to the opposite view, the Greek agriculture was not sufficient by itself to meet the export promotion and of providing productive employment for the entire population. (I. Zigdis, cited in. Maraveyas, 1992, p.p. 36). Also according to X. Zolotas any progress in

agriculture was unable to address the problem of agricultural productivity if the rural population has not been significantly reduced. A massive rural exit did not concern Zolotas because he believed that the development of industry and other sectors, supported by the state and foreign capital with the sufficient finance and proper use of foreign technology could absorb the surplus rural population. Zolotas was also optimistic about the industrial development mainly through private initiative and enterprise and he believed that companies would eventually stop to be hesitant and make unproductive investments or smuggling funds and will ultimately be dedicated to helping the economic growth. (Zolotas, cited in Maraveyas, 1992 p.p. 37, 38).

Ang. Angelopoulos advocated in favor of more intermediate positions that if a country does not want to lag there should no more be engaged in the conflict between industrial and rural development. Both these directions are necessary and complementary to its other. Because, if a country promotes the development of agriculture through the broadest use of machinery, the immediate result would be that a portion of rural population would become redundant and it would seek new employment. (Angelopoulos, cited in Maraveyas, 1992, p.p. 38). Angelopoulos thought of agricultural development as the first priority and that industry should be a necessary complement. He also shared the fears of Varvaressos about the ability of private initiative and suggested the involvement of the state in major industries.

In addition the left party which was defeated at the civil war and it was marginalized politically; it was an advocate of rapid industrialization with heavy state involvement but narrow private initiative. (Batsis, cited in Maraveyas, 1992 p.p. 38)

This debate over the course of development ended with the electoral victory of Marshal Papagos at the elections of 1953. According to the policy decided at the time and played a crucial role in the development of the entire economy up to today, agricultural policy's primary target was not to assist the development of the sector but to compel the rural sector to contribute as much as allowed by the political and social conjuncture, in creating favourable conditions for the deployment of private capital in the non-agricultural sector of the economy.

2) Agriculture and Greek Economic Development, 1970 until today

Two events were the landmarks for the period since 1971 in Greece, first the fall of the military dictatorship in 1974, after the Turkish invasion of Cyprus and second the country's entry into the EEC in 1981.

However, the emphasis on industrialisation through a centralised model (Krugman 1991), and the integration to the global economy were not challenged to the least.

As shown in Table1, employment in agriculture has been constantly decreasing since 1972 except for the 2011 when the percentage share of agriculture employment rose slightly relatively to the previous years.

At the same time, industrial development although it grew significantly between 1970 and 1975 then it remained rather steady before it starts to descend off on 1990. Employment in services kept constantly rising up to 2000 afterwards remained rather constant as a percentage share of total employment. It is rather evident that industry did not manage to absorb the redundant rural employment. The correlation coefficient between employment in agriculture and employment in industry although negative is low, see table 2. Primarily agriculture workers moved to services or became unemployed.

The correlation coefficient between agriculture employment and employment in services and unemployment are negative but high as it is shown in table 2. These trends in employment mirror economic inefficiencies and resulted in several economic disorders such as the misallocation of resources including labour that led to low productivity.

TABLE 1: RATES OF EMPLOYMENT AND UNEMPLOYMENT BY MAIN ECONOMIC SECTOR

YEARS	EMPLOYMENT IN AGRICULTURE (%)	EMPLOYMENT IN SECONDARY SECTOR (%)	EMPLOYMENT IN TERTIARY SECTOR (%)	UNEMPLOYMENT (%)
1970	55,74%	19,90%	24,36%	3,33%
1975	41,74%	30,38%	27,87%	3,11%
1980	41,73%	30,44%	27,83%	3,08%
1985	30,34%	30,80%	38,73%	4,12%
1990	28,62%	30,60%	36,09%	4,37%
1995	20,81%	25,37%	53,82%	7,78%
2000	18,78%	24,41%	56,80%	8,08%
2005	15,41%	23,47%	61,12%	10,84%
2010	15,02%	23,17%	61,81%	11,12%
2011	15,25%	22,95%	61,80%	14,74%

SOURCE: GREEK STATISTICAL AUTHORITY, ANNUAL YEARBOOK, VARIOUS YEARS, OWN CALCULATIONS

Recent factors like the high cost of living in cities, increasing unemployment and job insecurity, declining wages in the economy and the emergence of food insecurity has led to a significant number of people seeking employment in the agricultural sector from which it was probably originated.

TABLE 2: COEFFICIENTS OF CORRELATION BETWEEN EMPLOYMENT IN AGRICULTURE AND EMPLOYMENT IN OTHER SECTORS AND UNEMPLOYMENT

COEFFICIENTS OF CORRELATION	FORMULAE	DEFINITIONS	RESULTS
r(1)	ST.EMP, agr/ST.EMP.Sagr	Correlation between total employment and agriculture employment	-0,70284
r(2)	SINDEMP, agr/SINDEMP.Sagr	Correlation between employment in industry and agriculture	-0,3364
r(3)	StERTEMP, agr/StERTEMP.Sagr	Correlation between employment in services and in agriculture	-0,88756
r(4)	SUNEM, agr/SUNEM.Sagr	Correlation between unemployment and agriculture employment	-0,77835

SOURCE: OWN CALCULATIONS

TABLE3: NUMBER OF EMPLOYEES IN AGRICULTURE PER GREEK REGION

Greek regions	2000	2001	2002	2003	2004*	2005*	2006*	2007*	2008*
Total	722.440	670.791	659.836	642.783	570.443	567.228	573.415	541.753	541.227
<i>East Macedonia-Thrace</i>	82.110	76.555	79.999	74.637	63.852	62.501	58.215	61.742	61.682
<i>Central Macedonia</i>	128.954	118.884	111.224	117.733	100.198	93.292	93.981	89.222	89.136
<i>Western Macedonia</i>	21.678	19.089	19.127	20.262	18.653	18.770	18.592	17.475	17.458
<i>Thessaly</i>	87.292	80.846	77.467	80.297	76.429	77.434	72.358	69.979	69.911
<i>Hiperus</i>	29.835	25.433	28.558	24.176	24.654	24.001	27.667	26.504	26.478
<i>Ionian islands</i>	22.501	20.841	18.092	15.299	14.422	16.084	17.849	12.536	12.523
<i>Western Greece</i>	92.870	85.485	81.851	73.980	65.738	65.241	65.341	60.720	60.661
<i>Sterea Ellada</i>	49.506	44.125	45.782	46.804	38.491	37.213	39.619	43.351	43.309
<i>Peloponnese</i>	89.334	82.863	85.632	85.135	77.880	84.473	90.349	81.387	81.308
<i>Attica</i>	19.311	19.550	16.990	14.422	11.292	11.102	11.241	10.227	10.217
<i>Northern Aegean</i>	12.963	12.026	13.489	10.418	11.901	12.165	13.529	12.192	12.181
<i>Southern Aegean</i>	9.426	7.612	6.971	8.718	7.604	7.061	6.862	7.637	7.629
<i>Crete</i>	76.659	77.481	74.653	70.902	59.329	57.889	57.811	48.780	48.734

SOURCE: EURO STAT REGIONAL YEARBOOK 2011

TABLE 4: NUMBER OF TOTAL EMPLOYEES PER GREEK REGION

Greek regions	2000	2001	2002	2003	2004*	2005*	2006*	2007*	2008*
Total	4.255.114	4.260.547	4.356.481	4.408.022	4.514.448	4.550.600	4.659.809	4.782.684	4.791.577
<i>East Macedonia-Thrace</i>	243.486	238.213	239.585	235.868	232.070	235.509	211.554	243.013	243.163
<i>Central Macedonia</i>	717.604	722.791	722.342	748.325	755.123	753.668	790.331	798.838	800.227
<i>Western Macedonia</i>	103.093	104.186	105.320	103.355	103.608	101.989	107.420	107.416	107.439
<i>Thessaly</i>	284.119	280.178	281.960	287.399	309.237	305.518	309.339	310.942	311.177
<i>Hiperus</i>	128.688	121.884	127.546	125.468	131.061	127.488	139.030	140.644	140.687
<i>Ionian islands</i>	89.181	87.660	89.592	90.400	91.761	93.478	91.388	91.149	91.328
<i>Western Greece</i>	278.469	270.875	276.746	277.747	281.386	282.463	290.831	295.916	296.286
<i>Sterea Hellas</i>	203.538	198.533	213.720	225.825	214.765	222.797	232.485	231.808	232.004
<i>Peloponnese</i>	246.250	241.901	252.903	248.126	250.124	253.816	268.687	271.053	271.257
Attica	1.507.296	1.541.716	1.601.333	1.606.586	1.683.938	1.701.022	1.745.296	1.811.189	1.816.436
<i>Northern Aegean</i>	68.755	69.934	69.113	68.761	71.132	73.433	76.278	77.840	77.917
<i>Southern Aegean</i>	117.314	117.738	116.733	122.307	123.767	127.476	124.072	128.466	128.785
<i>Crete</i>	267.320	264.939	259.587	267.854	266.477	271.944	273.098	274.408	274.872

SOURCE: EURO STAT REGIONAL YEARBOOK 2011

Agriculture's gross value added (GVA) in percentage share of total was severely reduced from just over 12 percent in 1970 to almost 3.5 percent in 2007 compared with a lower reduction of industry's VA and a considerable increase of the services' VA in the same period, see Table 6. That indicates that the growth rate of agriculture was below the total economy's growth rate. As a matter of fact agriculture's VA in absolute 2000 prices rose between 1970 and 2000 was set on a descending path afterwards and in 2007 reached a level below its corresponding level of 1970, see table 5. The above result may be explained by the adoption of the subsidised system of the Common Agriculture Policy (CAP) after Greece joined the European Community in 1981. The introduction of subsidies caused the reduction of the output of the high value added products like vegetable crops, grape and wine products, oil, and aromatic products e.t.c. Greek rural production focused exclusively to the subsidized crops like cotton, cereals, corn and very few others. Finally after the appliance of the disconnection of subsidies from the production during 2005, the reduction of rural production became dramatic. Owing to that system Greek farmers prefer instead of producing and pay the relevant costs to take the subsidies for their living. Consequently a possible reduction or elimination of subsidies would cause a terrible shock or else a final blow to the Greek agriculture even amid of a fierce economic crisis.

TABLE 5: DEVELOPMENT OF VA TOTAL AND BY SECTOR OF ECONOMY, CONSTANT PRICES (2000=100), IN MILLION EUROS (1970-2007)

Years	Total VA	Agriculture VA	Industry VA	Construction VA	Wholesale and retail VA	Financial Intermediation And real estate VA	Other service Activities VA
1970	50858,7	6164,0	7058,7	6409,6	10645	7327,3	12052,7
1975	66990,2	7431,3	10281,9	6445,8	14967	10213	15352,7
1980	82302,4	7924,6	13286,3	7349,4	18967	13242	18985,4
1985	88592,5	7927,8	13948,2	6272,6	21857	15416	20946,5
1990	96256,2	7010,8	14620,4	7849,0	24941	18262	23130,6
1995	103243,9	8013,0	14722,4	6841,1	27632	21696	24286,2
2000	120382,2	7933,3	16754,4	8469,7	36264	24794	26166,4
2005	149651,7	7563,4	20599,6	11159	51950	25906	32362,5
2006	154551,1	6197,9	21229,2	12266	53604	27224	33871,1
2007	160659,5	5526,3	21563,9	13196	57945	27812	34767,9

SOURCE: WWW.STATS.OECD.ORG.

TABLE 6: PERCENTAGE OF VA BY MAIN ECONOMIC SECTORS.

Arithmetical order of years	Years	PERCENTAGE OF AGRICULTURAL VA	PERCENTAGE OF SECONDARY SECTOR VA	PERCENTAGE OF TERTIARY SECTOR VA
1	1970	12,12%	26,48%	59,04%
6	1975	11,09%	24,97%	60,50%
11	1980	9,63%	25,07%	62,20%
16	1985	8,95%	22,82%	65,72%
21	1990	7,28%	23,34%	68,91%
35	2004	5,14%	19,76%	75,47%
36	2005	5,05%	21,22%	73,65%
37	2006	4,01%	21,67%	74,21%
38	2007	3,44%	21,64%	75,02%

SOURCE: WWW. STATS. OECD.ORG

In addition, Greek agriculture shows weak or non –existent linkages with other economic sectors. Correlation coefficients of agriculture VA and VA of other sectors tend to zero; see Table 7, with the exception of a moderate correlation coefficient with construction’s VA that equals to 47.5 percent.

TABLE 7: COEFFICIENTS OF CORRELATION BETWEEN MAIN SECTORS.

COEFFICIENTS OF CORRELATION	FORMULAE	DEFINITIONS	RESULTS
r(1)	$Stva_{agr}/Stva.Sagr$	Correlation between total value added and agriculture	0,035
r(2)	$Sagr, Sind/Sagr.Sind$	Correlation between agriculture and industry	0,1174
r(3)	$Sagr, Scon/Sagr.Scon$	Correlation between agriculture and construction	0,475
r(4)	$Sagr, Swhol/Sagr.Swhol$	Correlation between agriculture and wholesale and retail services)	-0,085
r(5)	$Sagr, Sfin/Sagr.Sfin$	Correlation of agriculture and financial services	0,1978
r(6)	$Sagr, Sserv/Sagr.Sser$	Correlation between agriculture and other services	0,09817
r(7)	$Stva, Sind/Stva.Sind$	Correlation between total value added and industry	0,97187
r(8)	$Stva, Scon/Stva.Scon$	Correlation between total value added and construction	0,748
r(9)	$Stva, Swhol/Stva.Swhol$	Correlation between total value added and wholesale and retail services.	0,9854
r(10)	$Stva, Sfin/Stva.Sfin$	Correlation between total value added and financial services	0,9599
r(11)	$Stva, Sser/Stva.Sser$	Correlation between total value added and other services	0,98903

SOURCE: OWN CALCULATIONS

This result is an indication of that agriculture has been neglected and it has followed an autonomous path, accepting the strong effects of both international and those at national level price fluctuation (spider theorem).

Also it reflects the effects of low productivity and competitiveness of agricultural products, lack of infrastructure, expertise and information networks

TABLE 8: AGRICULTURE GVA TOTAL AND PER GREEK REGION, IN MILLION EUROS, CURRENT PRICES (2000-2008)

Greek regions	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	7.933	8.260	8.184	8.448	8.172	8.403	6.989	6.877	6.575
East Macedonia-Thrace	665	709	638	707	658	689	508	572	501
Central Macedonia	1.579	1.649	1.614	1.569	1.670	1.730	1.346	1.382	1.365
Western Macedonia	278	300	315	288	287	306	251	262	254
Thessaly	1.089	1.010	1.065	1.205	1.107	1.132	818	802	846
Hiperus	340	402	371	381	350	363	312	293	271
Ionian islands	128	145	145	153	123	157	116	119	99
Western Greece	891	956	945	947	912	927	773	782	762
Stereia Hellas	942	884	851	909	818	895	722	681	635
Peloponese	665	794	742	820	732	775	767	674	627
Attica	381	347	368	351	315	330	311	327	301
Nothern Aegean	176	220	171	234	183	160	176	130	126
Southern Aegean	149	157	149	152	146	161	174	171	161
Crete	650	686	810	734	872	780	713	682	626

SOURCE: EURO STAT REGIONAL YEARBOOK 2011

TABLE 9: INDUSTRY GVA TOTAL AND PER GREEK REGION IN MILLION EUROS, CURRENT PRICES (2000-2008)

Greek regions	2000	2001	2002	2003	2004*	2005*	2006*	2007*	2008*
Total	16.754	17.058	18.537	19.326	20.422	22.494	23.431	24.537	27.394
East Macedonia-Thrace	729	779	855	875	877	956	916	1.029	1.125
Central Macedonia	2.972	2.926	2.940	3.126	3.298	3.501	3.641	3.881	4.286
Western Macedonia	765	762	936	924	1.020	1.177	1.201	1.342	1.321
Thessaly	904	1.014	1.158	1.312	1.345	1.463	1.694	1.631	1.871
Central Greece	4.940	4.876	5.183	5.266	5.402	6.009	6.059	6.449	7.167
Hiperus	247	265	298	320	325	372	394	431	450
Ionian islands	54	83	124	130	134	155	176	185	210
Western Greece	628	755	918	976	1.002	1.097	1.214	1.286	1.409
Peloponnese	1.438	1.254	1.326	1.331	1.342	1.558	1.642	1.793	1.942
Attica	5.849	5.926	6.417	6.776	7.414	8.187	8.592	8.788	10.057
Northern Aegean	68	99	147	154	150	171	208	211	241
Southern Aegean	205	266	360	348	334	372	411	447	475
Crete	321	410	542	545	582	658	709	760	851

SOURCE: EURO STAT REGIONAL YEARBOOK 2011

TABLE 10: TERTIARY SECTOR GVA TOTAL AND PER GREEK REGION IN MILLION EUROS, CURRENT PRICES (2000-2008)

Greek regions	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	95.694	103.650	112.394	126.529	137.946	143.726	156.315	168.618	175.694
<i>East Macedonia-Thrace</i>	3.594	3.990	4.097	4.670	5.128	5.403	5.674	6.152	6.387
<i>Central Macedonia</i>	14.548	15.383	16.498	18.825	20.987	21.877	23.622	25.107	25.728
<i>Western Macedonia</i>	1.900	2.011	2.217	2.506	2.629	2.845	3.203	3.362	3.348
<i>Thessaly</i>	4.949	5.388	5.717	6.450	7.331	7.295	7.831	8.499	8.704
Central Greece	17.608	18.559	19.822	22.435	24.799	25.779	28.066	30.496	31.460
<i>Hiperus</i>	2.550	2.655	2.835	3.267	3.672	3.701	4.047	4.339	4.436
<i>Ionian islands</i>	2.054	2.218	2.410	2.737	2.971	3.157	3.373	3.626	3.803
<i>Western Greece</i>	4.717	4.990	5.320	6.147	6.723	6.857	7.547	8.243	8.557
<i>Peloponnese</i>	4.396	4.518	4.794	5.318	5.952	6.187	6.769	7.189	7.368
<i>Attica</i>	42.363	46.963	51.936	58.075	62.776	65.220	71.069	76.923	81.089
<i>Northern Aegean</i>	1.582	1.823	1.847	2.146	2.229	2.291	2.538	2.737	2.799
<i>Southern Aegean</i>	3.648	3.764	4.015	4.497	4.774	5.016	5.619	5.988	6.280
<i>Crete</i>	5.504	5.769	6.245	6.925	7.292	8.001	8.693	9.356	9.898

SOURCE: EURO STAT REGIONAL YEARBOOK 2011

TABLE 11: TOTAL GREEK GVA PER REGION IN MILLION EUROS, CURRENT PRICES (2000-2008)

Greek regions	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	120.382	128.969	139.116	154.303	166.540	174.624	186.735	200.033	209.662
<i>East Macedonia-Thrace</i>	4.989	5.478	5.590	6.253	6.663	7.048	7.099	7.753	8.012
<i>Central Macedonia</i>	19.100	19.959	21.052	23.520	25.956	27.109	28.609	30.370	31.379
<i>Western Macedonia</i>	2.942	3.072	3.469	3.717	3.936	4.327	4.656	4.966	4.924
<i>Thessaly</i>	6.942	7.412	7.940	8.967	9.783	9.890	10.343	10.932	11.421
Central Greece	25.513	26.617	28.060	30.910	33.136	34.904	36.815	39.494	41.021
<i>Hiperus</i>	3.137	3.322	3.504	3.967	4.347	4.436	4.754	5.063	5.156
<i>Ionian islands</i>	2.236	2.446	2.679	3.020	3.228	3.469	3.665	3.930	4.111
<i>Western Greece</i>	6.236	6.701	7.183	8.069	8.638	8.881	9.534	10.311	10.727
<i>Peloponnese</i>	6.500	6.566	6.862	7.468	8.026	8.520	9.178	9.656	9.938
<i>Attica</i>	48.593	53.236	58.720	65.201	70.505	73.737	79.972	86.039	91.446
<i>Northern Aegean</i>	1.826	2.142	2.164	2.534	2.562	2.622	2.922	3.077	3.167
<i>Southern Aegean</i>	4.002	4.187	4.524	4.998	5.253	5.548	6.204	6.606	6.917
<i>Crete</i>	6.475	6.865	7.597	8.204	8.746	9.439	10.115	10.797	11.375

SOURCE: EURO STAT REGIONAL YEARBOOK 2011

Table 12 shows the correlation coefficients between GVA in agriculture and other main economic sectors per Greek region and between employment in agriculture and employment in other main sectors per Greek region.

TABLE 12: COEFFICIENTS OF CORRELATION BETWEEN MAIN SECTORS GVA AND EMPLOYMENT PER GREEK REGION

Regions	Agriculture over Industry	Agriculture over Services	Agriculture over Total GVA	Agriculture GVA over Rural Employment	Agricultural GVA over Total Employment
Total	-0,7919	-0,7545	-0,75	0,5748	-0,8007
Northern Greece	-0,7398	-0,6931	-0,6765	0,6304	-0,7581
East Macedonia	-0,681	-0,7213	-0,6828	0,6274	0,3053
Central Macedonia	-0,7015	-0,6319	-0,6234	0,4609	-0,7771
Western Macedonia	-0,5854	-0,681	-0,6396	0,3385	-0,7149
Thessaly	-0,6497	-0,6317	-0,5805	0,7421	-0,5485
Central Greece	-0,85	-0,8103	-0,7432	0,4582	-0,8662
Hiperus	-0,8004	-0,7972	-0,8069	-0,2898	-0,9673
Ionian islands	-0,5038	-0,5836	-0,5868	0,3672	-0,1219
Western Greece	-0,7592	-0,813	-0,771	0,6133	-0,9408
Sterea Hellas	-0,6813	-0,8882	-0,8755	0,3083	-0,7158
Peloponese	-0,68	-0,3945	-0,4475	0,1769	-0,5228
Attica	-0,8609	-0,8726	-0,8571	0,8557	-0,8573
Aegean islands	-0,2649	-0,3939	-0,3263	0,2725	-0,4877
Northern Aegean	-0,6116	-0,6115	-0,6796	-0,4304	-0,7669
Southern Aegean	0,6261	0,712	0,7027	0,4512	0,5948
Crete	-0,089	-0,2291	-0,2244	0,09815	-0,495

SOURCE: OWN CALCULATIONS

There is a negative correlation between GVA in agriculture and the rest of the economy, especially in Northern Greek region, Central Macedonia, Epirus, Western Greece and Attica which shows the negative relationship between the Greek GVA in agriculture and other economic sectors at both to the regional and national level of the economic sector at large. The exception is the region of South Aegean with positive although moderate correlation between agriculture and the other two economic sectors and this indicates positive synergies. In this case we have indeed a peculiarity of the Greek reality where all sectors of the local economy grow simultaneously.

It is also obvious the negative correlation between rural GVA and total employment, indicating a negative relationship between the rural GVA and total employment especially in , Central Greece, Central Macedonia, Epirus, Western Greece and Attica.

5. CONSEQUENCES OF THE FOLLOWED GREEK REGIONAL DEVELOPMENT MODEL

Table 13 shows that the Greek rural population has been significantly reduced as a consequence of the reduction of the rural labor force and the rural GVA. The totally unbalanced development followed in Greece resulted to a huge depopulation in rural areas and, at the same time to a monstrous hydrocephalus development of the regions around the two big cities of Athens and Thessaloniki. Whatever anemic growth of the secondary sector and the excessive swelling of the tertiary sector occurred mainly around these two cities.

Therefore the ultimate implementation of the growth pole development model in post war Greece has evolved mainly through the shrinkage (reached the limits of the annihilation) of agriculture has led the stagnation of the secondary sector and to a highly inflated service sector.

TABLE 13: POPULATION OF GREECE BY AREAS

POPULATION OF GREECE BY AREAS								
CENSUS YEAR	POPULATION				% DISTRIBUTION			
	TOTAL	URBAN	SEMI-URBAN	RURAL	TOTAL	URBAN	SEMI-URBAN	RURAL
1951	7632801	2879994	1130188	3622619	100	37,7	14,8	47,5
1961	8388553	3628105	1085856	3674592	100	43,3	12,9	43,8
1971	8768641	4667489	1019421	3081731	100	53,2	11,6	35,2
1981	9740417	5159528	1125547	2955342	100	58,1	11,6	30,3
1991	10259900	6036660	1312774	2910466	100	58,8	12,8	28,4
2001	10964020	8206991		2727106	100	75,1	0	24,9

SOURCE: GREEK STATISTICAL AUTHORITY, ANNUAL YEARBOOK OF GREECE 2008

If the ratio of population density of the most populated region i.e. Attica to the least populated region i.e. Evritania that is calculated for 2000 and 2009 respectively proves that the gap between the two has expanded from 9452 percent to 10063 percent and furthermore even the gap of population

density between the touristically developed Chalkidiki and the nearby city of Thessaloniki calculated for 2000 and 2009 respectively proves that this gap remained huge from 1003,96 percent to 946,6 percent.

TABLE 14: DENSITY OF GREEK POPULATION IN NUMBER OF RESIDENTS PER SQUARE KILOMETER IN DIFFERENT REGIONS

GEO/TIME	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Greece	83,5	83,8	84,1	84,3	84,6	84,9	85,2	85,6	85,9	86,2
Anatoliki Makedonia, Thraki	43,2	43,2	43,2	43,2	43,2	43,3	43,2	43,2	43,1	43,1
Evros	35,4	35,4	35,3	35,3	35,3	35,5	35,3	35,2	35,2	35,1
Kentriki Makedonia	99,1	99,7	100,4	100,9	101,2	101,4	101,9	102,3	102,7	103,2
Thessaloniki	304,2	306,6	309,6	312,4	314,1	315,8	318,5	321,1	323,8	326,6
Chalkidiki	30,3	30,5	30,6	30,7	30,7	30,7	30,8	30,8	30,8	34,5
Dytiki Makedonia	31,9	31,9	32,0	32,0	31,9	31,9	31,8	31,7	31,7	31,7
Grevena	14,3	14,2	14,2	14,1	14,0	13,9	13,8	13,8	13,7	13,6
Florina	30,1	30,2	30,3	30,4	30,3	30,3	29,8	29,8	29,8	29,7
Thessalia	52,9	52,8	52,7	52,7	52,7	52,7	52,6	52,6	52,6	52,6
Ipeiros	37,1	37,1	37,2	37,4	37,6	37,8	38,2	38,5	38,9	39,3
Ionia Nisia	91,0	92,0	93,5	94,7	95,6	96,5	97,7	98,8	100,1	101,3
Zakynthos	95,4	96,7	98,3	99,0	98,9	98,9	99,2	99,4	99,7	100,0
Kerkyra	175,0	176,9	180,0	183,6	187,4	191,3	195,3	199,6	204,0	208,5
Dytiki Ellada	65,4	65,5	65,8	66,0	66,2	66,4	66,5	66,7	66,9	67,2
Evrytania	10,8	10,7	10,7	10,7	10,8	10,9	10,8	10,8	10,7	10,7
Fokida	18,1	18,1	18,3	18,3	18,2	18,1	18,1	18,0	17,9	17,8
Peloponnisos	38,7	38,7	38,8	38,8	38,7	38,6	38,5	38,4	38,3	38,2
Lakonia	25,5	25,6	25,8	25,8	25,8	25,8	25,7	25,6	25,4	25,3
Attiki	1.020,9	1.024,3	1.027,4	1.032,1	1.039,6	1.047,7	1.055,5	1.063,3	1.070,6	1.077,0
Voreio Aigaio	53,6	53,6	53,4	53,3	53,0	52,9	52,7	52,5	52,4	52,3
Notio Aigaio	56,2	56,6	56,9	57,2	57,3	57,4	57,6	57,8	58,0	58,3
Dodekanisos	69,1	69,6	70,1	70,5	70,8	71,1	71,4	71,7	72,0	72,4
Kyklades	42,5	42,8	43,0	43,0	43,0	42,9	43,0	43,1	43,2	43,3
Kriti	71,1	71,4	71,7	71,9	72,1	72,2	72,4	72,6	72,9	73,2
Irakleio	110,0	110,4	110,9	111,4	111,8	112,2	112,7	113,2	113,8	114,4
Chania	62,1	62,6	63,0	63,2	63,2	63,1	63,2	63,3	63,4	63,7

SOURCE: EURO STAT REGIONAL YEARBOOK 2011

3. INCOME DISPARITIES IN GREEK REGIONS

The economic development of a region is, as a rule, expressed in terms of its Regional Gross Domestic Product (RGDP). This indicator is also frequently used as a basis for comparisons between regions. A meaningful comparison can be made only by comparing the regional GDP with the population of the region in question.

Table 15 depicts the RGDP per capita by Greek region for the period between 1999-2008. It is obvious that significant disparities exist between Greek regions. Despite the fact that during the decade there was a significant increase of the RGDP per capita of the lower income regions, the existence of large inequalities still remains. The higher RGDP per capita has been achieved in Attica the region surrounding Athens city and in the tourist regions of Aigaio and Kriti and the lower is in the rural areas like Anatoliki Makedonia-Thraki and Dytiki Ellada.

TABLE 15: GDP IN GREEK REGIONS IN EUROS PER PERSON

GEO/TIME	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Greece	9.068,2	8.961,2	9.310,3	9.917,0	10.570,9	11.128,1	11.754,1	12.557,2	14.193,6	14.116,2
Anatoliki Makedonia, Thraki	7.271,7	7.257,5	7.530,0	8.090,0	8.502,9	8.750,2	9.978,1	10.539,2	11.705,0	10.811,0
Kentriki Makedonia	7.966,5	7.580,8	8.053,3	8.545,1	9.541,5	9.821,3	10.631,0	11.163,8	12.335,3	11.896,3
Dytiki Makedonia	13.075,6	12.879,2	13.017,6	13.893,1	14.594,2	12.740,2	11.923,1	12.622,3	14.076,1	13.783,5
Thessalia	8.064,8	7.716,7	8.070,5	8.629,1	9.148,9	9.122,1	10.118,3	10.811,7	12.281,8	12.244,8
Ipeiros	9.205,5	9.100,7	9.351,0	9.784,8	10.206,8	9.466,8	10.087,1	10.779,6	12.430,3	12.227,2
Ionia Nisia	9.900,7	10.390,6	10.181,6	10.622,0	10.886,7	9.375,2	9.887,1	10.676,3	12.535,4	12.087,5
Dytiki Ellada	8.347,2	7.880,1	8.364,8	8.888,0	9.306,0	8.589,0	9.136,4	9.752,3	11.109,9	10.873,7
Stereia Ellada	10.177,4	9.948,0	10.498,1	11.203,9	11.795,1	10.603,6	11.570,1	12.450,0	14.243,9	12.786,5
Peloponnisos	6.696,6	6.624,6	6.848,2	7.294,5	7.848,4	8.581,4	9.106,4	9.779,9	11.223,8	11.842,5
Attiki	9.973,8	9.937,0	10.385,4	11.110,0	11.735,1	13.873,3	14.258,4	15.239,0	17.138,2	17.510,6
Voreio Aigaio	8.432,1	8.903,5	8.663,1	9.162,8	9.540,0	9.779,1	10.865,4	11.978,7	14.337,6	14.271,5
Notio Aigaio	10.379,0	11.767,4	11.533,2	12.161,8	12.916,0	11.047,1	11.534,2	12.813,7	15.108,8	14.767,7
Kriti	9.153,7	9.064,3	9.070,0	9.586,8	10.475,7	9.489,5	10.501,8	11.307,9	13.076,8	13.037,0

SOURCE: EURO STAT REGIONAL YEARBOOK 2011

While in 2000 the poorest Greek region was the Peloponnese accounting for the 51.22% of the RGDP's of the that richest region of Western Macedonia, in 73.85% of the country's GDP and 67.15% of Attica's, in 2008 the poorest East Macedonia Thrace reaches 61.73% of the richest Attica's and 76.58% of the country's while at the same time the GDP of the Aegean islands rose by 47.07% in the North Aegean region by 69.25% in the South Aegean by 42.28% and finally in Crete increased by 42.42% probably due to the impact of tourism.

Because Gross domestic product (GDP) is a key measure of nations and regions economic development and growth from the figures of table 6, the unbalanced development between Greek regions it is evident. The Greek development model, lead to the creation of large scale

inequalities between rural and urban areas and that was despite European Union's economic efforts to economic development in economically lagging regions and economic integration

4. CONCLUSIONS

The economic development model adopted in post-war Greek economy was characterized by the emphasis on industrialization and urbanization of the country and by selecting a strategy of unequal development.

Both they have provoked the dramatic decline of agriculture, its share of total G.V.A fell to 3.4 percent in 2007 and its labour force that has been also declined. The decline in the agricultural sector rose strongly on the policy of EU subsidies and even more from the decision to decouple subsidies from the actual production.

The problem of the declining rural sector in Greece is even more acute if it is taken into account that employment in the sector is around 15 percent of total (see table 1), a ratio that indicates the low productivity of the sector that makes questionable even its ability to support its own employees(Nikolaidis 2010).

Despite the policy of industrialising the economy, the industrial sector failed to develop as opposed to services that have ended contributing approximately 80 percent of GVA. In addition industry failed to develop linkages with the primary sector and to absorb the surplus labour of this sector.

At the regional level rural areas were depopulated and two large cities have emerged as the main economic centres.

Regional inequalities resulted to huge income disparities between developed urban and tourist areas on the one hand and poor rural areas on the other.

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