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AN ECONOMIC ANALYSIS OF TRENDS IN AGRICULTURE SECTOR IN MADURAI DISTRICT OF TAMIL NADU: EVIDENCE OF SECONDARY DATA

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Abstract

Present study made an attempt to analyze the trends of agricultural sector in Madurai district of Tamil Nadu for a decade (During 1998-99 to 2010-11) with the evidence of secondary sources of information which was obtained from the Directorate of Economics and Statistics, Madurai district of Tamil Nadu. This study finds that the area production of all major crops has come down in an alarming rate during the study periods. It is observed that the quantity production of cereals was 20 percent in 1998-99 and it has increased to 38 percent in 2009-10. The quantity production of commercial crops is estimated at 78 percent in 1998-99. It has declined to 61 percent in 2009-10. Due to modernization and mechanization in agriculture the use of wooden ploughs has reduced from 65.4 percent in 1992 to around 47 percent in 2004. Whereas the use of iron ploughs was increased from 13.1 to 17.2 percent during the same periods. The study is also observed that the availability of cattle population in 1992 was 32.2 percent to the total livestock population and it has gradually declined to 23.5 percent in 2004 in Madurai district. The growth of buffaloes is also showing a continuous decline of 8.15 percent to 1.8 percent from 1992 to 2004

Keywords: Production, area irrigated, livestock and tools and implements

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Introduction

The agriculture and allied sector continues to be vital to the sustainable growth and development of the Indian economy. Not only does it meet the food and nutritional needs of 1.3 billion Indians but also it contributes significantly to production, employment and demand generation through various backward and forward linkages. In addition, the role of agricultural sector in alleviating poverty ad in ensuring the sustainable development of the economy is well established (State of Indian Agriculture, 2016). It accounting for 14 percent of the nation's GDP, about 11 percent of its exports, about half of the population still relies on agriculture as its principal source of income and it is a source of raw material for a large number of industries (State of Indian Agriculture, 2013).

The endowment of agriculture of the State to the Gross State Domestic Product (GSDP) at Constant prices accounts for 9.4 per cent in 2008-09. Nevertheless, the agriculture sector ensures household food security and brings forth equity in distribution of income and wealth which would result in the reduction of poverty. According to An Economic Appraisal of Tamil Nadu in 2012-13, the agricultural sector observed a severe drought impacting the area, yield and production of all important crops in the State during 2012-13. This brought about a steep drop of 13.04 percent in the Gross State Domestic Product (GSDP) of the agricultural sub sector between 2011-12 and 2012- 13. As a result, the relative share of the sub sector in the primary sector declined from 83.0 percent in 2011- 12 to 80 percent in 2012–13. In overall State's GSDP has declined from 7.4 percent to 6.2 percent during the same period. With this background, the present study made an attempt to analyze the trends of agricultural sector in Madurai district of Tamil Nadu for a decade with the evidence of secondary sources of information which was obtained from the Directorate of Economics and Statistics, Madurai district of Tamil Nadu.

Methods and Materials

The study is mainly based on secondary sources of the information. The secondary data was collected from the Directorate of Economics and Statistics, Madurai district for the period of 2001-02 to 2010-11. For analysis, simple percentages were used in this paper.

Results and discussion

This section is devoted to the results and discussion of the secondary data which was obtained from the Directorate of Economic and Statistics, Madurai district of Tamil Nadu for a decade of 2001-02 to 2010-11.

Table 1 explains that the area production in Madurai district, in all the agricultural crops during 1998-99 to 2010-11. The area production in cereals is declined from 66 percent in 1998-99 to 22 percent in 2003-04 and then it has increased to 76 percent in 2010-11. Whereas in area production in pulses is also declined from 7.6 percent in 1998-99 to 5.1 percent in 2003-04 and then it has increased to 7.3 percent in 2010-11. But in area production of oil seed, there has been a continuous reduction was observed during 1998-99 to 2010-11. It is estimated from the table is that 9 percent in 1998-99 to just 3 percent during 2010-11.

Table: 1 Area production in Madurai district

Year	Cereals	Pulses	Oil seeds	Commercial crops	Total
1998-99	99983 (66.0)	11492 (7.58)	14138 (9.32)	26059 (17.2)	151672 (100)
1999-00	94114 (69.0)	9644 (7.02)	10671 (7.8)	22877 (16.7)	137306 (100)
2000-01	92934 (69.43)	11263 (8.41)	9573 (7.2)	20077 (15.0)	133847 (100)
2001-02	81928 (67.1)	10614 (8.7)	9039 (7.4)	20602 (16.7)	122183 (100)
2002-03	61693 (64.0)	9365 (10.0)	5909 (6.13)	19449 (20.2)	96416 (100)
2003-04	43409 (21.7)	10141 (5.1)	7736 (3.9)	138905 (69.4)	200191 (100)
2004-05	81105 (69.0)	9283 (7.9)	7210 (6.11)	20440 (17.32)	118038 (100)
2005-06	93743 (70.9)	9589 (7.3)	9032 (7.0)	19869 (15.03)	132233 (100)
2006-07	88762 (71.2)	9127 (7.3)	6365 (5.1)	20429 (16.4)	124683 (100)
2007-08	85212 (70.54)	11239 (9.3)	5859 (4.9)	18494 (15.31)	120804 (100)
2008-09	92271 (76.0)	7302 (5.98)	5752 (5.0)	16854 (13.8)	122179 (100)
2009-10	72934 (73.7)	7588 (7.7)	4496 (5.0)	13991 (14.13)	99009 (100)
2010-11	82114 (76.0)	7928 (7.3)	3747 (3.45)	14825 (13.65)	108614 (100)

Source: Secondary Data

Even in the area production of commercial crops is also been observed that a decline of 17 percent to 13.6 percent from 1998-99 to 2010-11. This is due to the lack of production knowledge, traditional pattern of usage, degradation of soils, monsoon failure and drought are responsible for such reduction in area production in all crops in the study district.

Table: 2 Quantity productions in Madurai district (in tonns)

Year	Cereals	Pulses	Oil seeds	Commercial crops	Total
1998-99	424619 (21.0)	6371 (0.31)	20773 (1.02)	1579077 (77.75)	2030840 (100)
1999-00	379587 (23.37)	3842 (0.24)	15103 (0.9)	1226047 (75.47)	1624579 (100)
2000-01	358849 (26.0)	4517 (0.33)	13302 (1.0)	1007588 (72.79)	1384256 (100)
2001-02	317499 (24.9)	4459 (0.35)	12681 (0.99)	942884 (73.8)	1277523 (100)
2002-03	205559 (16.97)	4248.174 (0.35)	8328 (0.69)	993350 (82.0)	1211485 (100)
2003-04	103860 (15.0)	435845 (63.3)	10125 (1.5)	138905 (20.17)	688735 (100)
2004-05	13176 (16.34)	2786 (3.46)	2896 (3.6)	61774 (76.6)	80632 (100)
2005-06	258344 (30.65)	5274 (0.6)	12557 (1.5)	566788 (67.2)	842963 (100)
2006-07	292721 (25.8)	2730 (0.24)	11751 (1.03)	829057 (73.0)	1136259 (100)
2007-08	246113 (25.0)	2562 (0.3)	9288 (1.0)	725034 (73.8)	982997 (100)
2008-09	299542 (28.3)	2297 (0.22)	9785 (0.93)	746162 (71.0)	1057786 (100)
2009-10	240347 (38.1)	2820 (0.45)	5509 (0.9)	381946 (61.0)	630622 (100)

Source: Secondary Data

The above table (2) showed that the quantity terms of agricultural commodities showing an increasing trend during 1998-99 to 2009-2010 in Madurai district of Tamil Nadu. It is observed that the quantity production of cereals was 20 percent in 1998-99 and it has increased to 38 percent in 2009-10. A minor fluctuation was observed in the case of pulses and oil seed production in the same period. In the case of commercial crops, the quantity production is

estimated at 78 percent in 1998-99 and it has positively turned to be at 82 percent in 2002-03 and then it has declined to 61 percent in 2009-10.

Table: 3 Net area Irrigated by source in Madurai district (in ha)

Year	Canals	Tanks	Ground water	Dug well	Total
2001-2002	35213 (43.09)	12596 (15.41)	263 (0.32)	33651 (41.2)	81723 (100)
2002-2003	20547 (30.06)	13616 (20.01)	302 (0.44)	33895 (49.6)	68360 (100)
2003-2004	11681 (23.18)	8556 (16.98)	282 (0.56)	29880 (59.29)	50399 (100)
2004-2005	33218 (38.86)	15056 (17.61)	763 (0.90)	36453 (42.64)	85490 (100)
2005-2006	40154 (40.39)	19406 (19.52)	634 (0.64)	39214 (39.45)	99408 (100)
2006-2007	40720 (42.83)	21480 (22.59)	393 (0.41)	32482 (34.16)	95075 (100)
2007-2008	33240 (34.72)	27036 (28.24)	643 (0.67)	34811 (36.36)	95730 (100)
2008-2009	24615 (30.31)	20980 (25.84)	800 (0.99)	34811 (42.87)	81206 (100)
2009-2010	26062 (29.10)	26671 (29.78)	1088 (1.21)	35728 (39.90)	89549 (100)

Source: Secondary data

The above table (3) reveals that the net area irrigated by source in the study district during 2001-02 to 2009-10. During the study period, canals and dug wells played a major role in irrigation purpose as compared to all other sources for the same. The contribution of canals in net area irrigated during 2001-02 was 43 percent and it has come down to 29 percent in 2009-10. But at the same time, the contribution of tanks showed a positive sign of 15.41 percent of net area were irrigated in 2001-02 and it has extended to around 30 percent in 2009-10. Whereas the contribution of dug well is estimated from the table is that 41.2 percent in 2001-02 and it has decreased to 39.9 percent in 2009-10.

Table: 4 Gross Area Irrigated by source in Madurai district (in ha)

Year	Canals	Tanks	Ground water	Dug well	Total
2001-2002	43266 (74.00)	14563 (24.91)	274 (0.47)	364 (0.62)	58467 (100)
2002-2003	20547 (29.49)	13641 (19.58)	309 (0.44)	35188 (50.50)	69685 (100)
2003-2004	11786 (23.68)	8626 (17.33)	282 (0.57)	29073 (58.42)	49767 (100)
2004-2005	28089 (36.38)	14963 (19.38)	763 (o.99)	33391 (43.25)	77206 (100)
2005-2006	36986 (40.11)	18306 (19.84)	634 (0.69)	36319 (39.37)	92245 (100)
2006-2007	33422 (38.88)	21052 (24.49)	338 (0.39)	31139 (36.23)	85951 (100)
2007-2008	26316 (30.68)	26430 (30.81)	631 (0.74)	32401 (37.77)	85778 (100)
2008-2009	23985 (30.27)	20731 (26.16)	797 (1.01)	33724 (42.56)	79237 (100)
2009-2010	25222 (29.19)	26384 (30.18)	1087 (1.24)	34432 (39.38)	87125 (100)

Source: Secondary data

Table (4) witnessed that reduction in gross area irrigated by all sources as exception to the tanks and dug well in the study periods of 2001-02- 2009-10. For instance, the area irrigated by canals is estimated that 74 percent of the area to the total area in 2001-02 but this proportion has declined to 29 percent in 2009-10. The gross area irrigated by tanks was accounted about 25 percent in 2001-02. It has increased to 30.2 percent in 2009-10. While the gross area irrigated by dug well as shown in the table was less than one percent of the area to the total area irrigated by all sources. But fortunately it has gone to around 40 percent in 2009-10.

Table: 5 Sources of water supply (in number)

Year	No. of Canals	Wells used for irrigation purpose only	Tube wells	Wells used for Domestic purpose only	Reservoirs	Tanks
2001-02	**51**	35301	279	21592	2	2287
2002-03	**51**	43741	519	25682	2	2287
2003-04	**51**	43741	587	31685	2	2287
2004-05	**51**	41381	548	38871	2	2287
2006-07	**80**	47708	810	39031	2	2287
2007-08	**80**	47874	871	56373	2	2287
2008-09	**80**	47587	816	57241	2	2287
2009-10	**80**	47497	816	58031	2	2287
2010-11	**80**	47467	791	58994	2	2287

Source: Secondary data

The table (5) explains that the sources of water supply in agriculture and domestic sectors of Madurai district. The number of canals is available for agriculture was 51 in 2001-02. It has increased to 80 in number during 2010-11. The number wells exclusively used for irrigation purpose in Madurai district was 35301 and it has increased to 47467 in 2010-11. It is estimated that the number wells increased during the study period was around 12166. The number tube well is also showing an increasing sign of 279 to 791 during the period from 2001-02 to 2010-11. The number of wells is used for domestic activities is showing that an increment of 21592 in 2001-02 to 58994 in 2010-11.

Table: 6 Status of agricultural tools and implements during the study period

Year	Wooden ploughs	Iron ploughs	Water ploughs	Tractor	Sugarcane crushers	Oil Ghanis	Total
1992	103381 (65.4)	20745 (13.1)	33252 (21.02)	485 (0.30)	76 (0.05)	245 (0.2)	**158184** **(100)**
1997	41512 (59.4)	0 0	26860 (38.40)	1214 (1.73)	179 (0.26)	169 (0.24)	**69934** **(100)**
2004	25297 (46.80)	9202 (17.02)	17644 (32.64)	1257 (2.33)	239 (0.44)	414 (0.76)	**54053** **(100)**

Source: Secondary Data

The table (6) makes clear that the status of agricultural tools and implements during last three quinquinnial livestock census in 1992, 1997 and 2004 in Madurai district of Tamil Nadu. Due to modernization and mechanization in agriculture the use of wooden ploughs has reduced from 65.4 percent in 1992 to around 47 percent in 2004. Whereas the use of iron ploughs was increased from 13.1 to 17.2 percent during the same periods. The remaining tools and implements such as water ploughs, tractors, sugarcane crushers and oil ghanis also showing an upward trend during the study periods.

Table: 7 Livestock status of Madurai district

Year	Cattle	Buffaloes	Sheep	Goats	Total Livestock
1992	227423 (32.2)	57564 (8.15)	175423 (24.8)	187617 (26.6)	706615 (100)
1997	248245 (35.8)	69879 (10.1)	154932 (22.32)	177556 (25.6)	694101 (100)
2002	224656 (28.0)	12273 (1.52)	216416 (26.9)	238588 (29.64)	804942 (100)
2004	164151 (23.5)	12380 (1.8)	216416 (30.98)	238588 (34.15)	698674 (100)

Source: Secondary data

The above table explains livestock status in Madurai district in four livestock census such as 1992, 1997, 2002 and 2004. The availability of cattle population in 1992 was 32.2 percent to the total livestock population and it has gradually comes down to 23.5 percent in 2004 livestock census in Madurai district. The growth of buffaloes is also showing a continuous decline of 8.15 percent to 1.8 percent from 1992 to 2004. On the other hand, the growth of sheep and goats were showing an increment of 24.8 percent to 30.98 percent and 26.6 percent to 34.15 percent of sheep and goats respectively during 1992 to 2004 in Madurai district of Tamil Nadu.

Conclusion

Agriculture even today plays a pivotal role for the life of local population in general and the rural population in particular in the rural pockets of Tamil Nadu and very particularly the study district. This study finds that the area production of all major crops has come down in an

alarming rate during the study periods. It is observed that the quantity production of cereals was 20 percent in 1998-99 and it has increased to 38 percent in 2009-10. The quantity production of commercial crops is estimated at 78 percent in 1998-99. It has declined to 61 percent in 2009-10.

Due to modernization and mechanization in agriculture the use of wooden ploughs has reduced from 65.4 percent in 1992 to around 47 percent in 2004. Whereas the use of iron ploughs was increased from 13.1 to 17.2 percent during the same periods. The study is also observed that the availability of cattle population in 1992 was 32.2 percent to the total livestock population and it has gradually comes down to 23.5 percent in 2004 livestock census in Madurai district. The growth of buffaloes is also showing a continuous decline of 8.15 percent to 1.8 percent from 1992 to 2004

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