

# A Study on the Korean Educational Policy on the Merger of Small Schools in Rural Areas

-Focusing on the Educational Outcomes and the Social Effects of Boarding Middle school-

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*The purpose of this study is to propose a framework to analyze the educational effects and outcome of the boarding middle school established following the merger and abolition of small schools in rural area. According to the decrease in birth rate and reduction of population in rural area, the schools have brought about many problems for decrease of number of student, and environment of education have become deteriorated. By extension, this situation has given rise to the impoverishment of community as well as the abolition of small schools in rural area. Merger and abolition of schools in Korean rural area are inevitable for change of placement standard to school and qualitative improvement of environment of education.*

*This study suggests 1) educational effects and outcome, 2) changes and benefits of student's living conditions, 3) social effects to local community, and 4) economic efficiency analysis as a new framework to evaluate the validity of establishing a school. It sets up a hypothesis that the students, parents and community satisfy the boarding school in rural area, a school record be improved and the abolition of schools have little effect on community. Finally, it emphasizes that in order to success the policy of the merger of small schools and the boarding middle school, it be attributed to the social-cultural environment based on local residents and community and required provision of a variety of utilization plans reflecting local specifics and guarantee of local residents' participation and selection.*

*Keywords: effect analysis of school establishment, merger of small schools in rural area, boarding middle school, educational effects and outcome, social effects to local community, economical efficiency analysis)*

## I. Introduction

Recently, as birth rates have been decreasing and our society has been switched into aging society, the number children that start school has been decreasing every year. The phenomenon of decreases in the number of school children and increases in the number of small schools increase is not limited to farming and fishing villages but is nationwide. In particular, this phenomenon has considerable effects on small schools in some regions.

Due to the insufficient number of students, small schools have problems as curriculums cannot be normally operated and educational conditions for students become poor. However, the closing of small schools in farming and fishing villages not only will remove schools that are the pivots of those communities but also can be diffused into social problems decreases in the populations of those regions and shortages in workforce.

The present study is intended to analyze the educational effects of boarding middle schools being promoted as part of the farming and fishing village small school merger policy, the effects of those schools on communities, and the economic feasibility of previous projects. The results of the present study are expected to be helpful for establishment of policies for small schools that are expected to increase and to be utilized as basic data for ex post facto assessment of public construction projects including those for school facilities.

## II. Present status of small school merger

### 2.1 Present status of small schools throughout the country

The ratios of small schools with the number of students not exceeding 60 by school level were shown to be 23% with 1,420 out of 6,161 in the case of elementary schools, 14.7% in the case of middle schools, and 2.2% in the case of high schools 2.2% indicating that the ratio of small schools among elementary schools is the highest.

To see by do, 39.6% of all schools in Gangwon-do are small schools with 60 or fewer students and small schools in Gyeongbuk, Jeonbuk, Jeonnam also account for at least 35% of schools in respective dos. In particular, in the case of do regions, except for Gyeonggi and Jeju, the number of small schools with 60 or fewer students is 1,747 which is at a serious level reaching approximately 31.6% of the total number of schools (5,524schools) and the downsizing is judged to continue hereafter due to decreases in the number of students decrease.

Table1. Present status of small schools by school level throughout the country (Unit: school, %)

Division	Total	Elementary	Middle	High
Number of schools	11,688	6,161	3,205	2,322
60 or fewer	1,941	1,420	471	50
%	16.6%	23.0%	14.7%	2.2%

### 2.2 Present status of establishment of boarding middle schools

As for the establishment of boarding middle schools implemented according to a policy to merger small schools in rural areas, beginning with Songnisan middle schools in 2011, one, five, and six middle schools were established in 2011, 2012, and 2013 respectively. Six, eight, and four schools will be established in 2014, 2015, and 2016 respectively. To see by region, two schools in Gyeongbuk, four schools in Gyeongnam, five schools in Chungbuk, and four schools in Jeonnam are being merged into or established as boarding middle schools.

### III. Analysis of changes in educational conditions after the merger into Songnisan Middle School

#### 3.1 Analysis of present statuses of schools before and after the merger

##### (1) Present status of schools before the merger

Before the merger, there were seven middle schools in the jurisdiction of Boeun-gun and among them, all four schools except for Boeun Middle School, Boeun Girl's Middle School, and Bodeok Middle School were small schools with the number of students smaller than 50. Songnisan Middle School was established in March 2011 as the first boarding middle school in the country by merging three small schools in the Boeun-gun region. Songnisan Middle School was established by extending and altering the existing facilities of Wonnam Middle School and merging Songni Middle School, Naebuk Middle School, and Wonnam Middle School.

All of Wonnam Middle School, Songni Middle School, and Naebuk Middle School that were merged were small schools with three classes and in particular, in the case of Songni Middle School and Naebuk Middle School, the total number of students was not larger than 30 and the number of students per class was smaller than 10. In addition, all the facilities of the individual schools were older than 40 years because Naebuk Middle School, Songni Middle School, and Wonnam Middle School were constructed in 1972, 1973, and 1970 respectively. Therefore, the schools before the merger could not smoothly operate curriculums because the subject classroom system and subject classes by level could not be implemented and could not provide comfortable and hygienic learning environments.

##### (2) Present status of schools after the merger

For Songnisan Middle School established by merging three schools; Wonnam Middle School, Naebuk Middle School, and Songni Middle School, school facilities were secured by remodeling, extending, and altering the existing buildings of Wonnam Middle School. On the 27,063m<sup>2</sup> wide site, school buildings, a cafeteria, multipurpose rooms, a gymnasium, and a dormitory building were remodeled or newly constructed and the playground and basketball court which had been poor were improved to improve students' learning environments. The money invested in the extension project was 13,100 million won in total consisting of a site purchasing cost of 264 million won and facility costs of 12,836 million won<sup>1</sup>.

Table 4. Estimated budgets required for the establishment and operation of Songnisan Middle School (Unit: million won)

Division	Site purchase cost	Facility cost	Annually required operating expenses				Total
			Dormitory operating expenses	Student commuting cost	Food service expense	After school education cost	
Estimated budget	264	12,836	17	94	284	43	13,538

#### 3.2 Present status of school operation after the merger

<sup>1</sup> Data on the Ministry of Education and Science's central examination of boarding middle school related treasury investments and loans(2010.04)

#### (1) Changes in the operation of Songnisan Middle School<sup>2</sup>

After the merger, in 2011, Songnisan Middle School implemented educational activities such as the selection of an advanced subject classroom system and the foundation of a student orchestra. In addition, facility and environment improvement projects were implemented such as the completion of subject classrooms and the installation of an education and history hall, dedicated rooms for English, an orchestra room, a music room, and classrooms by level. In 2012, the advanced subject classroom system was actually operated, 1+1 migratory classes by level were implemented for three subjects, health room environment was improved, and a school parent reception room and a school steering committee meeting room were installed. In 2013, dormitory extension, orchestra room expansion, and Wee Class installation projects were implemented and for 2014, after-school program activation, smart classroom installation, and library rearrangement are planned.

#### (2) Changes in curriculum operation

To improve students' academic abilities, Songnisan Middle School is implementing diverse projects such as subject classroom system operation for all subjects; small group migratory classes by level, peer learning helper system operation, and personal intensive reading stand unsupervised learning operation. In addition, characteristic feature education programs were implemented such as monthly Hanmadang family meetings participated by all dormitory students, student orchestra operation, personal theme book making, personal chrysanthemum cultivating, and personal musical instrument performance. For humanity cultivation, humanity cultivation programs through experience and those through volunteer work are operated.

### IV. Results of analysis of the effects of establishment of Songnisan Middle School

#### 4.1 Analysis of educational effects

##### (1) Changes in the number of students before and after the merger

A major factor for quantitative analysis of educational outcomes after the establishment of a school is tracing changes<sup>3</sup> in the number of registered students. To compare the numbers of students before and after the merger, the number of students when the small school merger plan was established (2009.09) and that in January 2011 which is before the merger of schools were examined and according to the results, the total number of students of the three schools was 90 both in September 2009 and in January 2011. However, after the merger, as of December 2012, the total number of students increased to 124 thereby showing a number of student increase rate of 37.7%. As such, whereas the average number of students per class was only 10 before the merger, the average number of students per class after the merger became 24.8 so that appropriate scales of classes are maintained. In particular, the number of first year students that

<sup>2</sup> Summary of 2012 academic year Songnisan education(Songnisan Middle School) data and an interview with the principal

<sup>3</sup> In the analytic study of the effects of establishment of schools by professors Neilson and Zimmerman of Yale University in the USA, changes in school records, the number of students, and house prices were used as major variables(Christopher Neilson & Seth Zimmerman The Effect of School Construction on Test Scores, School Enrollment and Home Prices, 2011.11)

entered the school in 2012 was 54 with an increase by 10 compared to the number of second year students that entered the school in 2011 when the school was established which was 44 indicating that preference for the school has been increasing. Although this increase in the number of students is attributable to the fact that part of Sanoe-myeon which was the school district for Boeun Middle School in part, the enthusiasm of the principal and teachers after the merger, the substantialization of the operation of curriculums, and the operation of the boarding middle school are judged to be important factors.

(2) Outcomes of the operation of extracurricular activities (club and after-school program)

To compare the number of clubs permanently opened/operated in the school (excluding discretionary activity or extracurricular activity clubs which are part of curriculums) before and after the merger, whereas the number of clubs was 4 before the merger (2010 school year), it increased to 6 in 2012 and the number of participating students also increased from 35 to 96 indicating that club activities were activated.

The number of after-school programs was 8 in total consisting of 5 school subject programs and 3 specialty aptitude education programs in Wonnam Middle School before the merger and the number of participating students was only 59. However, the number of after-school programs opened in 2012, the second year after the merger was 52 in total comprising 26 school subject programs and 26 specialty aptitude education programs and the number of participating students was 122 indicating that after-school programs were actively operated since most students were participating.

(3) Results of national level educational achievement assessment by subject before and after the merger

Before the merger (2010), the ratios of students with at least moderate academic abilities (compared to students that took the exam) were Korean language 93.8%, society 87.5%, mathematics 62.5%, science 93.8%, and English 100%. However, the ratios of students with at least moderate academic abilities in 2012, the second year after the merger were 100% for all of Korean language, society, and mathematics, 96.2% for science 96.2%, and 88.5% for English indicating that educational achievement was enhanced in all subjects except for English compared to 2010. In particular, the ratios of students with at least moderate academic abilities by subject in 2012 were much higher than the average of Chungbuk Middle School.

Whereas the ratios of students with basic or lower academic abilities in 2010 before the merger were Korean language 6.2%, society 12.5%, mathematics 37.5%, science 6.2%, and English 0%, those in 2012 were 0% for all of Korean language, society, and mathematics, 3.8% for science 3.8%, and 11.5% for English indicating the outcomes were higher in 2012 compared to 2010 in all subjects except for English. In the assessment for three years, 2010-2012, only one student had lower than basic academic abilities for English in assessment in 2011 and no student had lower than basic academic abilities for other subjects according to examination.

Table 10. The results of National Assessment of Educational Achievement by subject (2010-2012 : Unit:%)

Year	Number of examinees (ratio of examinees)	Korean language			society			mathematics			science			English		
		At least	Basic	Lower	At least	Basic	Lower	At least	Basic	Lower	At least	Basic	Lower	At least	Basic	Lower
'10	16(100%)	93.8	6.2	0	87.5	12.5	0	62.5	37.5	0	93.8	6.2	0	100	0	0
'11	22(100%)	86.4	13.6	0	95.5	4.5	0	100	0	0	90.9	9.1	0	72.7	22.7	4.6
'12	26(100%)	100	0	0	100	0	0	100	0	0	96.2	3.8	0	88.5	11.5	0
	Chungbuk average	98.3			78.0			71.8			69.2			78.9		

Year	es to students	derate			n basic			derate			n basic			derate			n basic		
		At least	Basic	Lower	At least	Basic	Lower	At least	Basic	Lower	At least	Basic	Lower	At least	Basic	Lower	At least	Basic	Lower
'10	16(100%)	93.8	6.2	0	87.5	12.5	0	62.5	37.5	0	93.8	6.2	0	100	0	0			
'11	22(100%)	86.4	13.6	0	95.5	4.5	0	100	0	0	90.9	9.1	0	72.7	22.7	4.6			
'12	26(100%)	100	0	0	100	0	0	100	0	0	96.2	3.8	0	88.5	11.5	0			
	Chungbuk average	98.3			78.0			71.8			69.2			78.9					

(4) Analysis of yearly enhancement of educational achievement

To review the outcomes of yearly enhancement of educational achievement, the ratio of students with at least moderate academic abilities increased greatly from 87.5% in 2010 to 89.1% in 2011 and 96.9% in 2012. The ratio of students with basic academic abilities decreased greatly from 12.5% in 2010 to 10.0% in 2011 and 3.1% in 2012.

(5) Analysis of enhancement of the ratios of students with at least moderate academic abilities by subject

As for the enhancement of the ratios of students with at least moderate academic abilities by subject before and after the merger(2010 and 2012), the ratio was enhanced by 6.6% from 93.8% to 100% in the case of Korean language and by 60% in the case of mathematics as the subject with the largest enhancement. However, the ratios of students with at least moderate academic abilities decreased by 11.5% from 100% to 88.5% for English.

4.2 Analysis of social effects

(1) School merger and changes in community population

As for changes in the population of the entire Boeun-gun (Jan. 2009-end Dec. 2012), the population decreased by 554 which is -1.58%. The population of Samseung-myeon where Songnisan Middle School(former Wonnam Middle School) is located decreased by 124 from 2,692 at the end of January 2009 to 2,568 as of Dec. 2012 which is a decrease by -4.61% which is higher than the decrease rate of the entire Boeun-gun. On the other hand, the population of Songnisan-myeon which is the school district for the closed middle schools increased by 31 which is an increase by 1.41% compared to January 2009 and the population of Naebuk-myeon decreased by 5 which is a decrease by -0.26%. The population of Sanoe-myeon decreased by 55 which is a decrease by -0.26% indicating a relatively low decrease rate because the decrease rate is lower than the decrease rate of the entire Boeun-gun which was -1.58%. As such, according to the results of analysis of changes in populations in the regions of merger, the general hypothesis, "The population of regions where existing schools are closed decreases while the population of regions surrounding the merged school increases" is judged as not being applied to the case of boarding middle school merger.

(2) Changes in land prices and house prices

The 2012 officially assessed land price of standard lands in Chungcheongbuk-do increased by +3.6% compared to the previous years and the average land price of Chungbuk was identified as 11,210 won per m<sup>2</sup>. The increase rate of officially assessed individual

land prices was +5.65%, higher than the national average +4.47%<sup>4</sup>. Regional land price increase factors were reflected because of increase factors of surrounding regions following the opening of government offices in Sejong-si, the formation of innovation cities, business cities, and industrial complexes, and various development projects such as golf course construction and road expansion and paving and land price actualization following changes in use districts.

However, in the case of Boeun-gun, land prices increased by 6.3% which is higher than the increase rate of Chungcheongbuk-do despite that Boeun-gun was not related to development projects. In particular, although the land price increase rate of Boeun-gun is judged to have been affected by the adjustment of land prices for actualization, it is also judged to have been affected by land price increases following the population movement due to the opening of the boarding middle school although slightly.

### (3) Changes in community spirit

Many people point out the fact that the merger of small schools in farming and fishing villages may cause the feeling of loss to the communities of closed schools leading to decreases in populations and impoverishment of the communities. Therefore, merger schools' and closed schools' facilities should be opened so that residents in the surrounding regions can sufficiently utilize the facilities and conditions for residents' voluntary participation should be made through diverse programs.

To review the records of school facility opening before and after the merger, although the playground, auditorium, general classrooms, and special classrooms were opened to in 2010 when the school was Wonnam Middle School, only the playground was opened to the region and Songnisan Middle School was passive in opening school facilities in 2012. Through interviews with the personnel of Songnisan Middle School, it was identified that although there is no official record of school facility opening in 2012, many regional residents or alumni were using the playgrounds at night or holidays.

## V. Conclusion

The policy for small school merger is a policy that can improve educational conditions for students, school parents, and regions and may lead to population inflows from other regions and student attraction with successful settlement of merged schools. However, the policy for small school merger may still cause adverse effects to the regional society due to the feeling of loss and decreases in the population of regions of closed schools.

The purpose of the present study is to analyze and diagnose the educational effects and social effects of the boarding middle school established for the first time by the Chungbuk Education Office through merger for two years after opening to multi-directionally view the effects on the improvement of educational conditions in farming and fishing village regions and prepare a frame that can be the basis of studies in earnest later.

According to the results of the present study, the following conclusions were derived. First, the educational achievement

of students of schools merged as boarding middle schools is improved compared to small schools before merger. Second, students', teachers' and school parents' satisfaction with school education increases because of substantialization of curriculums and the operation of diverse educational activity programs.

Third, in boarding middle schools, the quality of education such as humanity education and specialty aptitude education is improved and the total number of students and the number of new students increase every year to exceed the number of students under the accommodation plan in the 3rd year after opening. Fourth, small school merger in gun regions makes the population inflow rate of the entire relevant gun higher than the outflow rate to increase social population inflow rates and make land price increase rates higher than other gun regions.

Fifth, populations in the eup/myeon regions of closed schools do not change very much before and after closing, small school closing does not have significant effects on changes in community populations, and the assumption that the merger impoverishes communities may be just concern.

The various outcomes derived in the present study are the results of analysis of outcomes and effects for two years after the establishment of the school and the theoretical validity may be secured only when supported by long-term observation and studies. The study did not trace changes in the consciousness of residents, land prices, and house prices of regions of closed schools because the study was conducted centering on the merged school. Such changes will be more carefully traced in later studies.

Finally, the largest factor for the successful settlement of Songnisan Middle School as is judged to be not only the policy for boarding middle schools but also the efforts of all related persons including the principle, all teachers, students, and regional residents to change "small schools into great schools."

## References

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<sup>4</sup> The officially assessed individual land prices increased a little because of standard land price increase(3.6%) and land price actualization following gradual recovery of real economy such as the reflection of actual transacted prices