

Jurnal
EKONOMI PEMBANGUNAN
Kajian Masalah Ekonomi dan Pembangunan

Volume 8, No.1, Juni 2007

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IMPACTS OF ECONOMIC DEVELOPMENT AND POPULATION GROWTH ON AGRICULTURAL LAND CONVERSION IN JOGJAKARTA: A DYNAMIC ANALYSIS

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ABSTRAK

Luas lahan pertanian cenderung berkurang karena dialihfungsikan untuk keperluan lain sebagai akibat dari pembangunan ekonomi regional. Kajian ini bertujuan untuk menganalisis alih fungsi lahan di Jogjakarta dengan menggunakan model dinamis dengan memasukkan variabel ekonomi, demografi dan infrastruktur. Panel data yang digunakan dalam kajian ini dikumpulkan dari lima wilayah selama kurun waktu 1979-2000.

Estimasi dilakukan dengan panel regresi. Hasilnya menunjukkan bahwa lahan pertanian di Jogjakarta berubah secara dinamis dan menuju pada keadaan yang stabil. Lahan sawah akan tetap ada, sedangkan lahan kering kemungkinan akan dikonversi ke lahan sawah dan untuk kepentingan lainnya. Lahan sawah akan dicetak sebagai akibat naiknya pendapatan daerah. Tekanan penduduk terhadap lahan kering jauh lebih besar daripada terhadap lahan sawah.

Kata kunci: *alih fungsi lahan pertanian, pembangunan ekonomi, penambahan penduduk, model dinamis, regresi panel*

INTRODUCTION

Agricultural land conversion has two major adverse impacts: ecological and economic impacts. Ecologically, the agricultural land conversion leads to decrease in carrying

capacity of lands. Irianto (2004) highlights agricultural land conversion has potential impact on reduction in ground water production and flood. For example, flood in Jakarta is mainly caused by agricultural land

conversion in Bogor (Ashari, 2003). Moreover, loss of water resource is highly costly because water resource has high total economic value (Usman, 1991). Agricultural land conversion also leads to loss of aesthetics (Soetisna et al., 1992) because agricultural landscape provides natural services such as amenity, clean air, and biodiversity. In many countries, environment is of high priority concern of the country's development. The increasing awareness of people on the environmental issues encourages several researchers to study the environmental effects of agricultural activities partly because agriculture has different characteristics from those of other industries regarding its environmental effects. One of the characteristics is its spatial conservatory which provides a beautiful landscape and friendly environment that create amenities for the citizens.

Economically, agricultural land conversion does not only impact on agricultural productions; but also leads to loss of agricultural jobs for both former and land owners and agricultural wage workers; loss of agricultural investments such as irrigation, institutions and other infrastructures; and negative environmental consequences (Firman, 1997). In fact, agricultural sector provides most jobs in rural area (Hill, 2000; Soekartawi, 1994). The implication is that there will be huge quantity of opportunity cost resulting from agricultural land conversion.

Once the lands are converted to other non agricultural purposes, it will never back to the original agricultural lands. As a result, there is permanent decrease in total production of agricultural outputs. Ironically, the national demand for foods is steadily

increasing along with the steady rise in population growth. However, Indonesian agricultural production still faces classical problems such as shortage of water in dry season, lack of fertilisers during early planting season, and agricultural land conversion. The two first problems have temporary impact, but the last problem has permanent impact on rice production.

The fact that agricultural land conversion has various permanent impacts on production of rice, ecology, and socio-economics of rural life, it is important to study agricultural land conversion. This paper aims to examine the land conversion using a dynamic model, and to determine factors influencing the speed of land conversion. A theoretical frame work of land conversion and mathematical model will be built and data set on agricultural land will be used to test empirically. Results of empirical test will be discussed.

CONCLUSION

Agricultural land conversion is inevitable along with economic development and demographical changes. In Jogjakarta, length of road, population, regional income and farmer exchange rate are the main factors affecting agricultural land conversion. Accounting for those factors and interdependency between dryland and wetland, it is indicates that the wetland is created and dryland converted at constant rate. The rate of dryland conversion is much higher than the rate of wetland creation. Regional income and population have opposite effect on change in both dryland and wetland. Length of road has the same impact; but the magnitudes of both impacts are different.

Despite the inevitable agricultural land conversion, it is unnecessary to worry about it. This is because the dynamic model indicates that in the long run, the wetland agriculture in Jogjakarta will not disappear, although the dryland will likely to evaporate from Jogjakarta because it will be converted to wetland and other purposes as a consequence of economic development and population growth. Since the wetland is expected to be more productive, it is reasonable that the quantity of wetland will increase.

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