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EFFECTS OF HOUSEHOLD EXPENDITURE PATTERNS ON NIGERIA POVERTY ODDS

Anumudu Charles Nnamdi
Macro-Economics and public Finance, Research Division
National Institute For Legislative studies, National Assembly, Abuja, Nigeria
anumudu2010@yahoo.com

Asogwa Ikechukwu Sebastine
Department of Economics, University of Nigeria, Nsukka, Nigeria
asogwa.ikechukwu11@yahoo.com

Eze Onyinye Junior
Graduate University of Brighton, United Kingdom
onyitexjun@yahoo.com

Abstract
Poverty and household expenditure patterns are like the two sides of a coin, where poverty is a state of lacks and denial; household expenditure patterns are the mirrors of households' welfare. This study investigated the effects of some household expenditure patterns on the odds ratio of poverty adopting logit model. Study showed that about 52.25 percent of Nigeria's populations are poor. Expenditure patterns of the households were classified into socio-economic characteristics: poverty status, sex and sector. The rural resident households likewise the poor revealed to spend more on food while the urban residents spend more on health. Female-headed households spend more on health while the male-headed households spend more on food. Health and food expenditures are the significant expenditures patterns with other poverty indicators like sector and household size as in the model. The rural household residents increase, in turn, increases the log of the odds ratio of poverty more, relative to the urban resident increase in households. Household size correlate with the log odds ratio of poverty implied that poverty odds increase as household size increase. Health insurance scheme, education subsidy, pension scheme, women empowerment and family planning advocacy policies and programme are recommended.

Keywords: Expenditure, poverty, household, population, consumption

INTRODUCTION

Poverty odds and households' expenditure patterns are like the two sides of a coin, where poverty is a state of lacks, deprivations and denial while household expenditure patterns are the mirrors of the households' poverty status. Poverty commonly refers to the lack of basic human needs faced by certain people in the society. African nations typically fall toward the bottom of any list measuring small size economic activity, such as income per capita or GDP per capita despite a wealth of natural resources.

Nigeria is classified as a middle income country, practicing mixed economy and an emerging market in the world, with expanding financial service, communication and entertainment sector. Poverty is conceptualized in many dimensions, concepts and approaches such as (absolute poverty, Relative poverty, non-income dimensional poverty etc). Poverty in absolute term refers to the deprivation of basic human needs, which commonly include food, water, sanitation, clothing, shelter, health care, education assess etc. An absolute line in poverty concept is fixed in terms of living standards indicator being used and fixed over the entire domain of the poverty comparison (Ravallion 1992). Relative poverty is defined contextually as economic inequality in the location or society in which people live. The poverty trend estimate focused on the cost of meeting caloric needs and some allowance for non -food needs measured in absolute terms.

The characteristics of poverty incidence encompasses the following:(hunger, lack of health care, lack of education, lack of housing and utilities, violence, low household expenditure capacities and others).These characteristics are used to classify poverty into poverty Incidence, Depth of poverty (poverty gap) and poverty severity (squared poverty gap).Incidence of poverty is the share of the population that cannot afford to buy a basket of goods. Depth of poverty provides the information regarding how far off households are from the poverty line. This measure captures the mean aggregate income or consumption short fall relative to the poverty line across the whole population. Poverty severity takes account not only the distance separating the poor from the poverty line (the poverty gap) but also the inequality among the poor. This implies that, a higher weight is placed on those household who are further away from the poverty line. Household expenditure or income is often adopted in the case of poverty line determination. The Nigeria food poverty line is N39, 759.49 naira, the absolute poverty line is N54, 401.16 with food and non- food inclusive and relative poverty line is N66, 802.20 naira. These monetary lines separate the poor from the non-poor. The individual whose per capita expenditure is less than the poverty line as above are considered to be poor while those above the poverty line are considered to be non -poor.

Statement of Problem

According to (Adam Smith 1776), “No society can surely be flourishing and happy, of which by far the greater part of the numbers are poor and miserable”. In the light of this, the poverty status of a nation can be mirrored by the expenditure capacity. The expenditure patterns of the households vary across items and individuals’ needs. Some identified expenditure items include: expenditure on food, own consumption, expenditure on health, Rent, non -food etc. And these expenditure patterns are influenced by some poverty characteristics: nutritional status, health access, age, household size, sectors (urban and rural).

Despite the fact that Nigeria economy is paradoxically assumed to be growing, the proportion of Nigerians living in poverty is increasing every year. The statistics revealed that, Nigeria population living in poverty estimate is 112.47 million; this represents about 69.0 percent of Nigeria Population. Total expenditure on food and non- food as yardstick produced a poverty incidence of 60.2 percent or 89,096,000 Nigerians living in poverty also. The urban food poverty is 26.7 percent and rural food poverty is 48.3 percent. The household assessment of livelihood of poverty urban and rural is 30.1 and 41.9 percent respectively. The distribution of average household size “national” is 5.8 percent and 5.5 and 6.0 percent for “urban and rural” household size respectively. The percentage of the population with no health care available is 14.9 percent national. These statistics depict the odds of poverty deepening in Nigeria in the identified indicators and dimensions such as enlisted: sector, health sector, educational status, occupational status and household expenditure capacity. The research question here is “what are the effects of household expenditure pattern on the poverty odds?

This paper tends therefore to investigate the different effects of household expenditure patterns on the poverty odds. It could be assumed that household expenditure patterns should have positive impacts on odds of poverty, although this assumption is not reliable until empirically proven. This is because the expenditure patterns as stated earlier are used to mirror the odds of poverty. The social-economic characteristics classifications will be employed in order to deepen the understanding on the odds of poverty and household expenditure in groups. This paper will also buttress the underpinning in Sami (2003), argument on ethical questions that measuring poverty always rises, for example, “should someone who is well endowed with some wealth attributes to be poor if s/he is unable to attain the minimum requirements for one basic need? Likewise, (NBS 2010) supported the need to investigate household expenditure patterns effects by stating that “expenditure shares actually show the direction of the country’s expenditure profile and the areas that requires interventions in the case of low capacity spending”.

LITERATURE REVIEW

Poverty is general scarcity or dearth, or the state of one who lacks a certain amount of material possessions or money. Absolute poverty or destitution refers to the deprivation of basic human needs, which commonly include food, water, sanitation, clothing, shelter, health care and education. Poverty humiliates and dehumanizes its victims (Anumudu et al 2014).Poverty profile sets out the major facts on poverty (Inequality) and then examine the patterns of poverty to see how it varies by geography (by region, urban/rural, mountain/Plain etc.), by community characteristics (e.g by education of household head, by size of household).Poverty profile is simply a comprehensive poverty comparison, showing how poverty varies across subgroup of society, such as region of residence or sector of employment. A concise and universally accepted definition of poverty is elusive largely because it affects many aspect of the human condition, including physical, moral and psychological (Ajakaiye and Adeyeye: CBN Economic and Financial Review Vol. 39,No. 4).Sami (2003) argued some ethical questions that measuring poverty always rises, for example, “should someone who is well endowed with some attributes poor if she is unable to attain the minimum requirements for one basic need? The answer is not obvious according to the study. Alaye-Ogan (2008) found that rural women in Nigeria are more prone to poverty than their male counterparts and a vast majority of these women have become the sole bread winners in their families.

The expenditure share of household changes in the following item such as in Food Purchase, Food own Consumption, Education share, Health share, Rent share, Non -food share, per capita Household expenditure share and others. These expenditure shares actually show the direction of the country’s expenditure profile and the areas that require interventions in the case of low capacity spending, (NBS 2010). Expenditure on food and health can be seen as the most pressing among the basic needs of the household. This is due to the increasing concern hunger and health status have attracted in the literature. Household expenditure on food and health are parts of consumer’s expenditure that states the welfare status of the household. Consumption represents the largest part of the overall spending and is a key determinant of Gross Domestic product” (Yuni 2012). Laura and James (2010), closely proposed the possibility of adopting household expenditure patterns to mirror welfare status of the household.

METHODOLOGY

Logistic regression is in many ways the natural complement of ordinary linear regression and this is an approach like ordinary least Square (OLS) regression. However, with logistic regression, the researcher is predicting a dichotomous outcome. The major shift of logistic

regression from the regular ordinary least square (OLS) regression is that in OLS regression, the dependent variable is continuous and in Binomial Logistic regression, it is binary and coded as (0 or 1).This thereby referred to the model with mixed categorical and continuous X variables as Logistic regression Models.

$$\Pr ob(Y=1) = 1 - L(-\sum_{k=1}^{k} \beta_k x_k) = L(\sum_{k=1}^{k} \beta_k x_k) = \frac{\ell^{\sum_{k=1}^{k} \beta_k x_k}}{1 + \ell^{\sum_{k=1}^{k} \beta_k x_k}} \text{.....(1)}$$

The logistic model as stated above can be compactly presented as equation 2 below:

$$Log[\frac{p(Y=1)}{1-p(1-Y)}] = \sum_{k=1}^{k} \beta_k x_k \text{.....(2)}$$

The Logit of odds ratio $Ln\left[\frac{P_i}{1-P_i}\right]$ from equation 2 is arrived at by taking the antilog of the estimated logit that is, the odds ratio. The interpretation of the odds ratio is as follows: when the odds ratio (OR) of a regressor is greater than 1(OR> 1), then the odds of the regress and P(Y=1) increases at increase in X or odds of P(X=1).Likewise, if the odds ratio (OR) of the regrssor is less than 1(OR<1), then the log of the odds of the regress and decreases. The odds ratio approach is perhaps preferred to better understand when we are dealing with a special case in which both X and Y are dichotomous.

Model Specification and Estimation Approach

To mirror the effects of household expenditure patterns on Nigeria poverty odds, the model below is specified:

$$Ln\left(\frac{p(Y=1)}{1-p(Y=1)}\right) = LnPoor = \alpha_0 + \alpha_1 hheh + \alpha_2 hhee + \alpha_3 hhnf + \alpha_4 hhef +$$
$$\alpha_5 rent\exp + \alpha_6 nfdinves + \alpha_7 nfdcloth + \alpha_8 nfdtotpr + \alpha_9 sex + \alpha_{10}\sec tor$$
$$+ \alpha_{11} hhsize + \alpha_{12} age + \varepsilon \text{.....(3)}$$

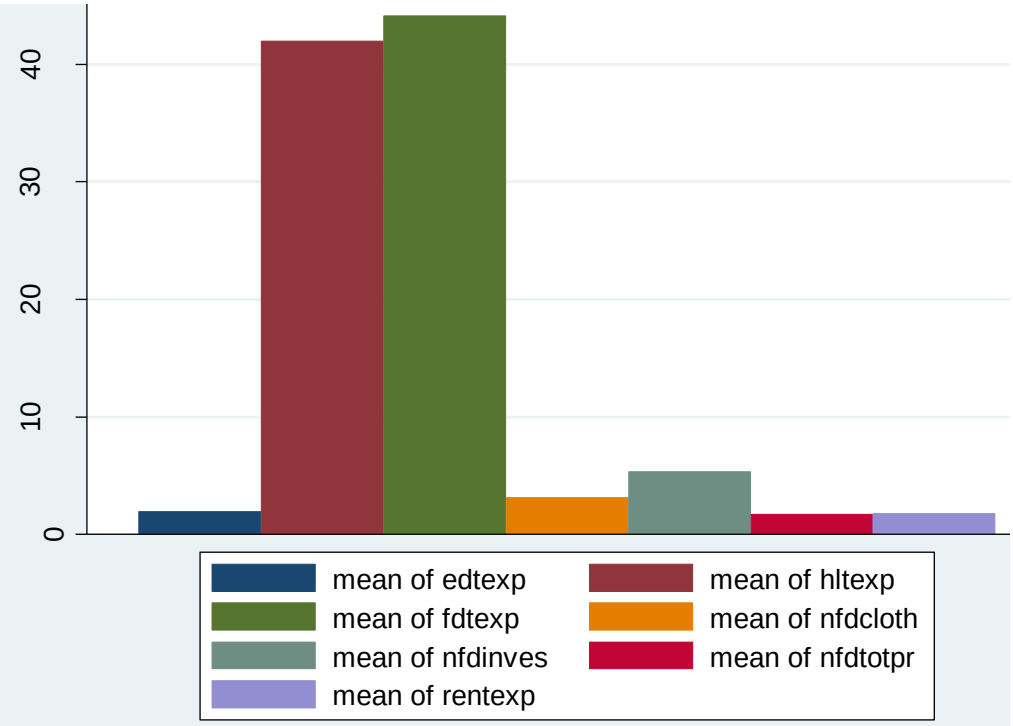
Poor (odds) = the number of the households that live below the poverty line as specified in the study.

STATA software is used to estimate the models in this study.

Table1: Description of Variables

Variable name	Storage type	Display format	Variable label
Edtexp(hhee)	Double	%10.0g	total monetary value of education
Hltexp(hheh)	Double	%10.0g	total monetary value of health
Rentexp	Float	%9.0g	actual rent paid and owner-occupied imputed rent
Nfdinves	Double	%10.0g	large investment expenditure (purchase of household durable assets)
Fdtexp(hhef)	Double	%10.0g	total purchased and auto-consumption food expenditure
Nfdtexp(hhenf)	Double	%10.0g	total non-food consumption expenditure
Nfdcloth(hhec)	Long	%12.0g	clothing and footwear
Nfdtotpr	Long	%12.0g	own enterprise consumption of non-food items
Hhsize			Household number
Sex			*gender or household head(male and female)*
Sector			*region of resident of household(urban and rural)*
Age			*age of the household head*

Figure 1: Household Expenditure Patterns in Nigeria



From the graph above it can be seen that on the aggregate, household expenditure on food is highest among other household expenditure patterns with about 48 percent of the household per capita expenditure on food. This is closely followed by household expenditure on health with 42 percent of their per capita expenditure committed to health. Apart from these two expenditure patterns that showed a major expenditure for the households, other expenditure patterns are averagely within 10 percent of their per capita expenditure being committed to their respective headings.

ANALYSIS AND FINDINGS

Number of observations = 119

LR chi2 (11) = 84.46

Prob > chi2 = 0.0000

Log likelihood = -35.616796

Pseudo R2 = 0.5425

Logistic Regression

Table 2: Odds Ratios of the coefficients

Pov	Odds Ratio	Std. Err.	Z	P>z	[95% Conf.	Interval]
log_edtexp	.834105	.1495208	-1.01	0.312	.5869961	1.18524
log_hltexp	.3504935	.0822064	-4.47	0.000	.2213273	.5550408
log_fdtexp	.0980244	.0558413	-4.08	0.000	.0320947	.2993888
log_nfdcloth	.7197753	.1273906	-1.86	0.063	.5087983	1.018236
log_nfdinves	.9902554	.1537845	-0.06	0.950	.7303945	1.34257
log_nfdtotpr	.9809606	.3126934	-0.06	0.952	.5251949	1.832241
Rentexp	.999925	.00008	-0.94	0.349	.9997683	1.000082
_Isector_2	5.923041	4.653144	2.26	0.024	1.270107	27.62162
Hhsize	2.219933	.4502558	3.93	0.000	1.491749	3.303574
_Ihhsex_2	1.07863	1.020316	0.08	0.936	.1689233	6.887399
Hhagey	1.035149	.0320585	1.12	0.265	.9741845	1.099929

From the result above, the number of observations that is best suit for estimation is 119 as stated in the Table 2.The likelihood test statistics is 84.46 with eleven degree of freedom and it follows Chi-square distribution. LRchi2 (11) is defined by the number of models estimated (2) multiply by the number of predictors in the model (11). The LR chi-square statistic is calculated as -2(L(null model) –L(fitted model) = -2*(-77.848357)-(-35,616796) = 84.46. The L(null model) is from the log likelihood with just the response variable in the model (Iteration and l(fitted

model) is the log likelihood from the final iteration(assuming the model converged) with all the parameter

This is the probability of getting a LR test statistics as extreme as, or more so, than the hypothesis that all regression coefficients across both model are simultaneously equal to zero. The Prob>chi2 value is 0.000 and it is less than 0.05 (<0.05) at 95% confidence interval, it implies that the model is statistically different from zero. In other words, the model estimated is statistically significant or non-trivial.

Logistic regression does not have an equivalent R square as it is in OLS regression but it adopts in similarity the Mcfadden's Pseudo R square. However, the interpretation of Mcfadden's Pseudo R square is with great caution. Intuitively, the larger pseudo R square statistics the more of the variation is explained by the model to a maximum of 1, event occurrence (Center for family and Demographic Research: Annotated output state (http://www.bgsu.edu/organisation/cfdr/index.html 2006).

The interpretation of logistic regression result is more meaningful when it adopts the odds or odds ratio term as counter parts to probabilities and probability ratio. Just as a recount, the log of the odds ratio is the predicted change in odds for a unit increase in the predictor. When the odds ratio statistics is less than 1, increasing values of the explanatory variable or the presence of an outcome in case of dichotomous explanatory outcome correspond to decreasing odds of the event's occurrence measured by the log of the odds ratio of poverty.

Likewise, when the odds ratio is greater than 1, the increasing value or presence of an outcome in case of dichotomous explanatory outcome variables correspond to increasing odds of the event's occurrence measured by the log of the odds ratio of poverty. Default of model specification, logit model assumes positives signs (+) for all the variables prior to the model estimation.

The odds ratio statistics as in table 2 corresponding to all the variables in the model except sector, age of household head, household size and household sex are less than 1.Therefore, it implies that a unit increase on the household expenditure patterns as contained in the model will lead to a decrease on the log of the odds ratio of poverty of y=1(poor) and y=0 (not poor) (Oscar, 2013).

Also, household head sex, sector, age of the household head and household size unit increase or presence of the categorical variables will lead to an increase in the log of the odds ratio of poverty. It implies thereafter that the odds ratios corresponding for each of the variable is greater than 1(OR>1).

POLICY IMPLICATIONS

Considering the significant variables in the model such as household expenditures on health, food, sector and household size and with their respective relationships as indicated by the log of the odds of poverty, the following policy implications are suggested based on the result of the analysis:

Firstly, the inverse relationship of household expenditure on health with the log of odds ratio of poverty suggested that expenditure on health increase leads to a reduction on poverty odds. Expenditure on health should be highly subsidized by government or agencies in Nigeria as such will lead to a decrease in poverty odds. The inverse relationship of the household expenditure on health with the log of the odds ratio of poverty in the study also conforms to existing literature. This may be because, the log of the odds ratio of poverty is measured by per capita expenditure, therefore it implies that as per capita expenditure increase, household expenditure will also increase. This also reflects an increase in income of the household and thereby moving the household above the poverty line (reducing the log of the odds of poverty ratio). Health insurance Scheme could serve as boosting scheme of Health expenditure alternatively.

Secondly, household expenditure on food showed an inverse relationship with the log of the odds of poverty. This implies that household expenditure on food increase will lead to a decrease in the log of the odds ratio of poverty in Nigeria. Hence, it suggests that the rate of hunger has been on the target of the household to satisfy. In order to sustain the relationship of household expenditure on food with the odds of poverty, an increase in the disposable income of the household is advocated. A review of tax system that could lead to an increase in the disposable in of the household through reduction of tax could be an option. Notwithstanding, agriculture should also be sustained and adequate inflation control policy instituted in order to ensure sustenance of food availability.

Considering household size, the direct relationship of the household size with the log of the odds ratio of poverty implies that addition in the household size (number) increases the odds of poverty in Nigeria. Household size could be controlled by advocacy of family planning. Households should be educated on the essence of family planning and also on the implication of household size explode of the odds ratio of poverty.

Sector as poverty indicator is a categorical indicator that takes account of the location of the household (rural and urban sector). In this case, the value assignment for the sector categories are ‘1’ when the household is the urban region while ‘2’ two is assigned to the household comes from the rural area. The implication of the sector in this study is considered in relative terms to each other given one as base category. Therefore, given the result of this

study, households in the rural area tends to increase the log of the odds of poverty more relative to the household in the urban area. This implies that the probability of a household being poor given that the household reside in the rural area is more than when the household is from the urban area. Welfare of the rural sector should be addressed by the government and other related agencies. This includes the provision of social amenities; expand markets and other health facilities. Efforts to transit development in the rural area are advised.

Apart from the significant variables in the model, the non- significant variables in the model estimated include household expenditure on: education, clothing, large investment, own consumption enterprise, rent(shelter), and poverty indicators like sex of the household head and age of the household head indicated their respective impact factors. The correlates of these variables also suggest some policy implications despite it that they are not significant.

Considering household expenditure on education that showed a negative correlate with the log of the odds ratio of poverty conforms to the literature that an increase in the household expenditure on education reduces the odds of poverty. This is because education increases the human development index and empowers household mentally and economically. Despite the thrust to sustain the increase of household expenditure on education, employment opportunities should also be worked out to enable the educated household be absorbed for utilization in the country's economic activities. The rate of unemployment in Nigeria could be traced why it is non- significance of the household expenditure on education.

It could also be read from the result of this study that household expenditure on: clothing, investment, own consumption enterprise and rent expenditure are inversely correlated with the log of the odds ratio of poverty in the estimated model. This implies that a unit increase in each of the expenditures while fixing other expenditure constant will lead to the decrease in the log of the odds of poverty. Therefore, policies that could maintain these relationships with the expenditures and their possible improvement should be advocated. Efforts to encourage the household expenditure on investment could be done through some investment incentives like loan, free managerial assistance, partnerships and entrepreneur advocacy.

The inverse correlate of the household expenditure on shelter (rent exp) with the log of the odds ratio of poverty reflect the household expenditure on more conducive shelter (face me-I face you apartment to flat, no toilet yard to self-use toilet apartment) odds of decreasing the odds ratio of poverty. This complies with the definition of Poverty in economic and social deprivation conceptualization.

Considering the sex of the household head, sex is categorical variable of male headed household and female headed household. The numerical assignment of the household heads sex is '1' for male headed household and '2' for female headed household. By the result, female

headed household increase lead to an increase on the log of the odds ratio of poverty more relative to the male headed household. Therefore, male headed household is preferred to female headed household in favour of poverty targeting in Nigeria except when some balancing policies for female headed household are in place. Although the design of female headed household is not mechanical, that is to say most times, it is the death of the husband or unwanted pregnancy or in the case of separated families lead to the female headed household head. In the light of this knowledge and observations, it could be advised that women empowerment and education should be advocated in order to rescue the effects of these causes of female headed household. This outcome conformed to the study of Alain & Elisabeth (2009).

Finally, age of the household head which showed a positive relationship with the log of the odds of ratio of poverty implies that successive increase in the age of the age of the household head also increase the log of the odds ratio of poverty. This could be as a result of diminishing productive capacity of the household head as the age increases. Also this could reflect the effect of retirement of the civil servants, because as age of a civil servant increases, the closer the civil servant to retirement.

RECOMMENDATIONS

In the light of the empirical evidence from the analysis, it is recommended to adopt health Insurance Scheme share the burden of out of pocket health expenditure. Expenditure on health should also be subsidized by government through policies for the household that could not gain in the health insurance scheme. Minimum Wage increase *and* Pension Scheme will assist to increase the income of the household in turn increase the food expenditure which cures extreme hunger. Family Planning Advocacy will control the household size and there by ensure standard welfare for the household size. Education Subsidy, expenditure on education could be sustained by government through scholarship scheme, academic load, free education scheme and insurance of education. These will reduce the excess burden of household education expenditure.

Housing and Estate Policies will attempt to assist households' secure good shelter. Since the increase in the expenditure on shelter or welfare suggests attempts of the household to improve on the shelter. Therefore, to sustain this effect, housing and Estate building scheme is suggested. The government, Ministries, Departments and agencies are encouraged to partner on this scheme.

Also adequate measure to cushion the effects of retirement or age on household heads should be tightening. Pension Scheme should be sincerely be maintained. Likewise,

expenditure on clothing could also be encouraged through the review of social security regressive tax system in Nigeria. Social security regressive tax system will help to cushion the effects of the exclusive bearing of the household expenditure on clothing at the point of purchase. Own consumption enterprise could also be encouraged through entrepreneur advocacy.

CONCLUSION

The study revealed the poverty odds to be 52.25 percent in Nigeria using National Harmonizes Living standard survey 2009. The effects of Household expenditure patterns on odds poverty in Nigeria were investigated. Some socio-economic characteristics of the household were investigated across their different classifications on expenditure patterns. This deepens the understanding of the effects of household expenditure patterns on poverty odds fleshing the classifications impacts. In the current study that are invoke, the mirroring of poverty status in Nigeria using household expenditure patterns and expenditure capacities is lacking. Attempts to conceptualize poverty in many dimensions have existed but the conceptualization of household expenditure patterns approach cutting across some socio-economic classifications remain a gap. This gap as filled by this study and with the evidence from the study deepened the knowledge on the effects of household expenditure patterns on the odds of poverty in Nigeria along some socio economic characteristic impacts that were examined. Solution policies, programmes and action plan were recommended to address the effects revealed by the empirical evidence.

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