

Advances and key challenges in Economic Impact Assessment

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1. Introduction

Environmental, social and economic impact assessments are normally the key components of broader Environmental Impact Assessment (EIA) requirements, often performed at the project approval stage. Economic Impact Assessment (EcIA) plays an important role in determining the overall worthiness of a project. Typical EcIA analysis includes reporting output, employment, income and value added at the project and state/national levels. EcIA usually follows the mainstream framework of economic thought where more projects; more developments typically are seen as desirable in order to increase economic growth with economic growth being the goal of the development. It does not take into account other goals of economic development such as quality of life (QoL) or sustainability. There are issues with this approach because not all developments even with positive economic impacts, will result in a sustainable development for the community, region and/or country.

Typically EcIA is not integrated with other impact assessments (IA) such as environmental or social impact assessment (SIA). Ivanova et al. (2007) showed that while there is a common reliance on socio-demographic data for both EcIA and SIA, there is a lack of integration between those types of impact assessment in Australia. Ivanova et al. (2007) argued that this lack of integration limit the usefulness of application of those assessments. For example, SIA reports finding at the personal and community level, while EcIA usually is focused on state or national levels. This disconnection results in the less than comprehensive IA. Alternative assessment techniques (such as experimental workshops, choice modelling and choice behaviour) were used by Ivanova et al. (2007) to illustrate the potential for integration of EcIA and SIA.

Another issue is the choice of spatial level of EcIA. At national level the project can be positive because it brings revenue and increases employment. At regional level the project might create bottlenecks, increasing reliance on one industry, contribute to worsening socio-economic conditions of local community due to influx of fly-in/fly-out and drive-in/drive-out (FIFO/DIDO) workers, damping housing prices, and loss of the sense of the community.

The rest of the paper is structured as follows. Section 2 discusses the economic development goals and how EcIA is typically performed. Section 3 outlines the suggestions for integration of EcIA and SIA. Section 4 provides summary and discussion.

2. Economic Development and EcIA

There is increasingly a consensus that economic development is a multidimensional process that involves interactions among different goals of development such as increase in gross domestic product (GDP) and sustainable development (World Bank, 2003). Economic development policies need to take into consideration the social, cultural, political systems and institutions as well as their changing interaction over time in a country. For example, World Bank (1991) stated that in addition to widely used indicators of economic welfare such as GDP, income and employment other indicators such as QoL indicators need to be included in development goals.

Regional growth theories are concerned primarily with explaining development by key macroeconomic indicators such as output, employment, income, investment, savings, wages and interest rates and do not explicitly include broader indicators such as QoL in their framework. From a range of economic development theories, economic base theory has been used extensively in EcIA although other theories can provide important insights on region's and countries' development. According to the economic base theory regional prosperity is determined exclusively by the external demand for a region's products. Marginal propensity to spend (MPS) locally is important for increasing regional prosperity. Since the reliance on external demand can lead to a region's stagnation, diversification strategies should be suggested.

Typically EcIA is performed as an ad hoc impact analysis for a particular project without consideration of regional or national development goals or non-market impacts. There is a range of tools that can be used for the EcIA such as simple spending multipliers, input-output modelling, or general equilibrium modelling (Jensen and West, (2002), Rolfe et al., (2005)). To translate social and environmental costs and benefits into cost benefit (CBA) monetary framework, economic valuation methods such as choice modelling and contingent valuation can be used.

EcIA is often distant from the community of interest, reporting impacts at the state or national level and ignoring socio-economic issues at the community level, while non-market valuation methods can be used for the estimation of trade-offs between environmental and socio-economic issues.

A number of EcIAs undertaken to fulfil minimum legislative requirements have been inadequate. For example, Lockie et al. (2008) analysed 16 impact assessment studies from mining projects in Australia and concluded that majority economic impacts were reported in EcIA at a very basic level. Mostly, business output, value added, wealth, income and employment were reported. Some EcIA statements present net economic impacts but economic impacts were not consistently addressed, and there were variations in a range of methodologies employed and the depth of data collected (Lockie et al., 2008).

Net economic impacts were presented mostly as positive. Negative economic impacts were not always identified and quantified. Some local impacts such as housing and labour shortages were

acknowledged in a number of reports but were either not quantified at all or were quantified in very general terms. EcIAs emphasized project justification and did not usually provide detailed understanding of the costs associated with proposed development, the distribution of costs and benefits, the opportunity costs involved in foregoing other potential development paths (Lockie et al., 2008).

Some of the environmental impact statements in Australia involved the use of input-output modelling as the core of the EcIA stage, but reported only basic results such as output, value added, income and employment multipliers. Ivanova (2014) showed how EcIA using input-output analysis can be expanded to identify connection between the proposed project and key industries in the region. Other methodologies such as cost benefit analysis (CBA) were rarely used in EcIA. Risks and uncertainties, sustainable development and QoL were also rarely incorporated in the EcIA.

3. SIA and EcIA: possible integration

SIA studies are most commonly conducted prior to the approval of large projects in order to predict and mitigate major social issues (Dale et al., 1997). The single project focus of most SIA studies makes it difficult for policy makers to draw more general conclusions about how communities might be impacted upon during fluctuations in commodity cycles (Petkova-Timmer et al., 2009). Rolfe et al., (2007a) investigated social and economic impacts in mining regions. They stated that the increase in mining activities has generated a number of positive as well as negative economic and social impacts, including increases in employment, income, new infrastructure and regional spending; housing shortages, community fragmentation due to FIFO/DIDO. While positive economic impacts are typically assessed in quantitative terms, social positive and negative impacts often are discussed in qualitative terms. The vagueness of such qualitative description is problematic in estimating the magnitude of impacts and in monitoring them over time (Ivanova and Rolfe 2011). Ivanova and Rolfe (2011) used non-market economic evaluation techniques such as choice modelling (CM) and choice behaviour (CB) to quantify the most important issues that were identified during the SIA stage. CM and CB were based on SIA and literature review, and the quantitative results of non-market valuation were used to feed into the mitigation strategies. Non-market valuation allowed to compare different options, benefits within each option can be compared, different benefits can be compared to costs of implementation, socio-demographics can be identified of those who hold particular values regarding regional development options.

There are many options for the mitigations strategies from negative social and economic impacts and for community/regional development. SIA does not provide a clear guidance on how to prioritize the development choices. Adding non-market valuation techniques to EcIA allowed a better understanding on how the community might prioritize different options and choose development options that are more acceptable by the community (Rolfe et al., 2007b). Furthermore, Esteves and Ivanova (2015) suggested that integrated SEcIA can be used to guide local supplier development initiatives.

Ivanova et al. (2007) suggested to integrate EcIA and SIA at the initial impact assessment stage to collect the data for non-market valuation. Ivanova and Rolfe (2011) used Ivanova et al. (2007) framework in application to mining community about community development options. They used the SIA approach to identify issues in regarding mining expansions and identified preferred development choices among community using non-market valuation techniques. Ivanova and Rolfe (2011) found that some issues that were stated to be important in SIA were significant in non-market valuation study. For example, results of non-market valuation indicated that the development that involve more FIFO/DIDO will encourage residents to reduce their planned stay in town by 1.3 years. Furthermore, one of the most important issues such as housing pressures were taken further to develop a regional housing model underpinned by relationships between demographic and dwelling characteristics (Akbar et al., 2011).

The expansion of Ivanova et al. (2007) framework of integration of EcIA and SIA is shown in Fig. 1.

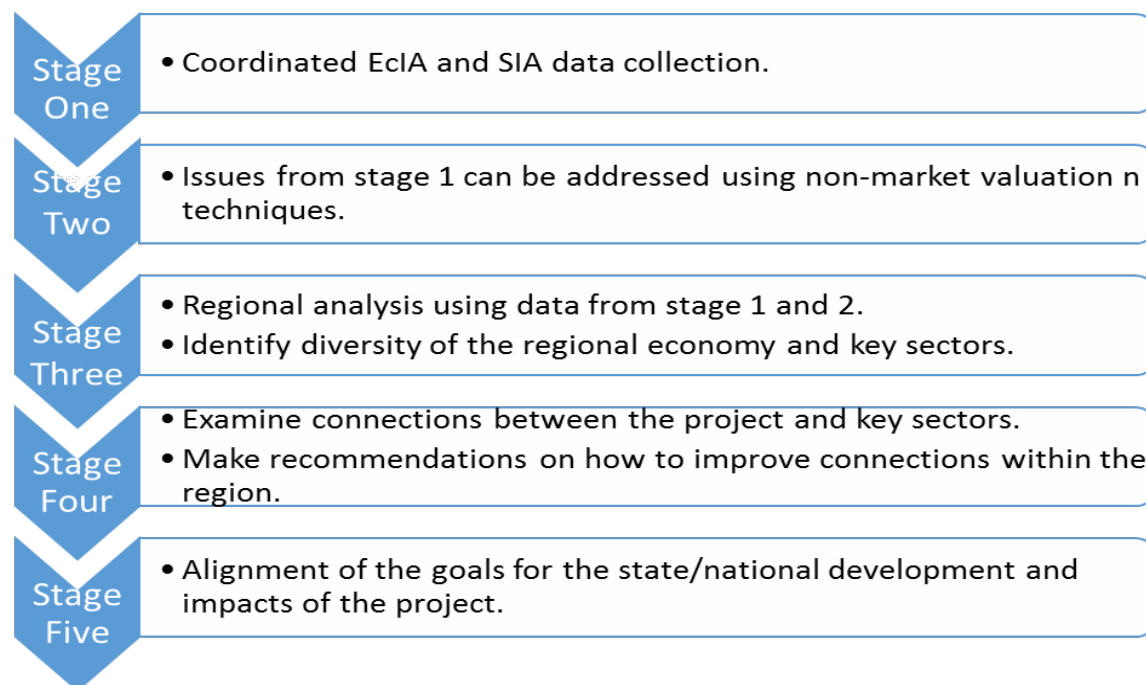


Figure 1. Framework of integration of EcIA and SIA.

Stage one, EcIA and SIA need to be coordinated during the initial data collection to reduce the duplication, cost of IA and to collect additional data. Data collection refers to the identification of community concerns, issues and attitudes and various indicators at the community level such as population changes, broader economic development indicators such as QoL and sustainability.

Stage two, the most important issues from SIA can be taken further to develop nonmarket valuation survey to quantify the magnitude of those issues and trade-offs community members are willing to take to reduce the negative or increase the positive impacts.

Stage three, the regional analysis, can be performed using input-output analysis. It is suggested that input-output model is calibrated using the data from stage one and two of the integrated socio-economic impact assessment (SEcIA) including MPS in the region, the location of the workforce and purchasing pattern of local industries. The identification of the diversity of the regional economy and key sectors is performed.

Stage four, the connections between the project and key sectors are examined. The recommendations on how to improve these connections within the region are made.

Stage five is the alignment of the goals of the state/national development and impacts from the project under investigation.

4. Summary and discussion

There are some issues in how EcIA is performed. First, most of EcIA do not have a valid theoretical framework behind them that connect the models used and the national, state or regional development goals. A new project (or change in current production) does not necessarily lead to a positive economic development to the region even if there is a positive change in income, employment and output.

Second, the process where EcIA and SIA are conducted separately increases the costs of SEcIA. EcIA can benefit dramatically by working in collaboration with SIA and by utilizing the available data from SIA.

Third, typically, EcIA is performed at state or national level without due consideration of regional impacts. It is, therefore, missing important connection between overall national development and local/regional development and community concerns.

Fourth, EcIA is not utilizing the methods that are readily available to perform a more comprehensive EcIA at various levels (e.g. CM at community and regional level, key industry analysis at regional level).

More comprehensive EcIA that integrates with other IA disciplines to provide a “holistic” picture of project’s impact at various levels provides more value for national, state and regional development. There is the need to step up from reporting employment, income and output to a higher level of analysis, for example, with the estimation of community’s preferred development options or key sector analysis. It is necessary to align the analysis with the government policies regarding regional development to answer the question how does this project fit into those policies. Economic development goals such as QoL and sustainable development need to be taken into account when conducting EcIA.

5. References

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