
Widening development prescriptions: policy implications of an Index of Sustainable Economic Welfare (ISEW) for Thailand

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Abstract: Over the past three decades, Thailand has recorded consistently high levels of economic growth, making it one of the most successful economies in the world during this period. However, economic growth has associated costs that can also reduce social welfare. This study will estimate an Index of Sustainable Economic Welfare (ISEW) for Thailand over a twenty-five year period, 1975–1999. This paper concludes that even low-middle income countries are beginning to approach the point at which economic growth produces both diminishing and, at times, negative welfare returns as the costs of achieving growth begin to outweigh the associated benefits. These results are important for policy makers and highlight the importance of widening policy prescriptions in order to increase social welfare. However, the policy guidelines that are suggested must be critically accepted before being adopted due to possible weaknesses of the ISEW approach.

Keywords: Thailand; ISEW; policy; welfare.

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1 Introduction

Over the past three decades, Thailand has recorded consistently high levels of economic growth, making it one of the most successful economies in the world during this period. This sustained increase in national income has been central in reducing absolute poverty levels (measured in terms of income levels) from nearly one-third of the population in 1975 to less than 10% in 1999 [1]. This performance ranks Thailand as one of the world's most successful economies during this period. However, economic growth has associated

costs that can also reduce social welfare. An increasing number of studies reveal that, beyond a certain point, the positive welfare contribution of economic growth can cease to increase and actually diminish due to its hidden and traditionally unreported costs [2–8]. A new measure of welfare has been empirically applied in this paper: it is commonly referred to as an Index of Sustainable Economic Welfare (ISEW). The ISEW is an attempt at calculating the relevant benefits and costs of growth – namely, economic, social, political, environmental, and spiritual benefits and costs – to ascertain a more accurate measure of the sustainable economic welfare associated with a nation's economic activity. It is being widely accepted as a useful indicator of sustainable development at the national level.

This paper will estimate an ISEW for Thailand over a twenty-five year period, 1975–1999. As Thailand is often presented as a model for other developing countries to imitate, it is a worthwhile country to review [9]. It should be of interest to development planners to apply this new approach of measuring welfare to developing countries to investigate whether it is possible for low-income countries to *prematurely* reach the point whereby economic growth no longer increases economic welfare but, instead, reduces it.

This paper concludes that Thailand, which is a low-middle income country, is beginning to approach the point at which economic growth produces both diminishing and, at times, negative welfare returns as the costs of achieving growth begin to outweigh the associated benefits. This conclusion is important for policy makers and highlights the importance of widening development prescriptions to offer alternatives to the current orthodoxy of giving primacy to achieving economic growth [10,11].

This study is divided into five sections. The first section introduces the paper. Section 2 will focus on the application of the ISEW to Thailand and its adaptation of systems analysis and social choice theory. Section 3 will present the results. Section 4 discusses the policy implications of these results before some of the potential pitfalls of basing policies on this indicator are highlighted in Section 5. Conclusions are drawn in Section 6.

2 An ISEW for Thailand

The findings of previous ISEW studies are summarised in Castaneda [12]. Other than the work by Castenda on Chile, all previous ISEW studies have been applications to developed countries. The results across these wealthy countries are quite consistent: welfare increased in line with economic growth until the late 1970s or early 1980s (although at a much slower rate), at which time the ISEW began to fall despite the real GDP continuing to rise. These studies reveal that, beyond a certain point, the costs of achieving economic growth begin to outweigh the associated benefits. The resultant decline in welfare levels reflects a failure on the part of national governments to achieve sustainable development. The point at which marginal increases in economic growth result in negative returns has been labelled as the *Threshold Point* [13,14]. Such a concept is not new within the literature [15–17], and over the past three decades, the possible crossing of this point by developed countries has been widely discussed and debated (see [18–21]). For policy makers, serious implications flow from these results. Moreover, if similar results are found in developing countries that have yet to reach Rostow's [22] age of mass consumption, the policy implications are significant since they challenge the underlying tenants of mainstream development economics [23].

Applications of the ISEW to developing countries, such as in Castaneda ([12] also see [23]) are important. Developing countries are characterised by low-income levels, unstable employment, political instability, and poor social capital. Orthodox development prescriptions hold that economic growth will remedy these ills. Yet, if the Threshold Point can be reached by countries with low national-income levels, and economic growth has diminishing and negative welfare returns, entirely new approaches to development economics are required.

2.1 Application of the ISEW

An implicit understanding that society is systems-based underscores the need to consider the wider welfare implications of achieving economic growth (see Sametz [24] for an early example of this implicit reasoning). Within this application of the ISEW to Thailand, explicit systems analysis is undertaken. Society is made up of hierarchical and interconnected systems and sub-systems (or domains) [25–29]. Each domain has a direct impact on society's welfare and, therefore, measures of welfare must take each domain into account. The interrelatedness of these domains means that achieving economic growth may occur at the direct expense of one or more other sub-systems, which will feedback not only in terms of future economic consequences, but also have immediate welfare consequences.

This application of the ISEW to Thailand seeks to make this systems analysis explicit. As this ISEW considers the various feedbacks and influences upon human welfare from these domains, the following adjustments should be undertaken in estimating an ISEW for Thailand (other adjustments might be necessary for other countries) to measure changes in welfare [23,28].

Economic domain

- personal consumption adjusted for income inequality
- consumer durables
- cost of commuting.

Social domain

- public expenditure on education
- public expenditure on health
- private expenditure on health
- cost of increasing urbanisation.

Political domain

- government streets and highways
- cost of corruption
- cost of debt.

Environmental domain

- air pollution
- water pollution
- noise pollution
- loss of forests
- non-renewable resources
- long-term environmental damages.

Spiritual domain

- commercial sex work.

Table 1 Summary of adjustments for Thai ISEW

<i>Item</i>	<i>Positive/negative</i>	<i>Rationale</i>	<i>Methodology</i>
Personal consumption		Basis of ISEW	From Thai National Statistics Office [30,31]
Income inequality		Accounting for inequality	Equally distributed equivalent level of income [32]
Public expenditure on education	Positive	Adding in non-defensive expenses	75% of public expenditure on education due to low base [30,31]
Public expenditure on health	Positive	Adding in non-defensive expenses	75% of public expenditure on health due to low base [30,31]
Commuting	Negative	Subtracting costs for time lost	US\$ 219 per car calculated in 1990 extrapolated to cover all years [33]
Urbanisation	Negative	Subtracted for defensive private expenditure	18% of Bangkok personal income is spent for access to clean water and air [34]
Private expenditure on health	Negative	Subtracted for defensive private expenditure	50% of all private health expenditure [30,31,35]
Public expenditure on roads	Positive	Accounting for services not included in public expenditure	50% of all public expenditure on roads [2,30,31]
Consumer durables	Positive	Accounting for services not included in public expenditure	10% of expenditure on private consumer durables [2,30,31]

Table 1 Summary of adjustments for Thai ISEW (continued)

<i>Item</i>	<i>Positive/negative</i>	<i>Rationale</i>	<i>Methodology</i>
Corruption	Negative	Subtracting for unaccounted political costs to society	0.0088% of GDP (1975–1981), 0.0074% of GDP (1982–1988), 0.007% of GDP (1989–1999) based on [36]
Debt	Negative	Subtracting for unaccounted political costs to society	50% of interest paid on public debt [30,31]
Air pollution	Negative	Subtracting costs of environmental damage	Costs of pollution abatement for Co ₂ , CO, NO _x , SO _x , SPM [37,38]
Water pollution	Negative	Subtracting costs of environmental damage	Costs of cleaning water is 7.5 baht per kilogram of Biochemical Oxygen Demand (BOD) [39–41]
Noise pollution	Negative	Subtracting costs of environmental damage	1% of GNP [2,30,31]
Deforestation	Negative	Subtracting costs of environmental damage	886 baht per hectare of forest lost is the cost of soil erosion [42]
Long-term environmental damage	Negative	Subtracting costs of environmental damage	Estimated damage for each tonne of carbon emissions is 21.59 baht [43,44]
Commercial sex work	Negative	Unaccounted costs to spiritual system	3% of GNP [30,31,45]

Source: Compiled from [23].

A full explanation of the methodology and calculation for estimating these separate costs and benefits can be found elsewhere [23]. In general, though, the methodology followed is that which has been set out previously in [2] and Cobb and Cobb [35].

2.2 Results

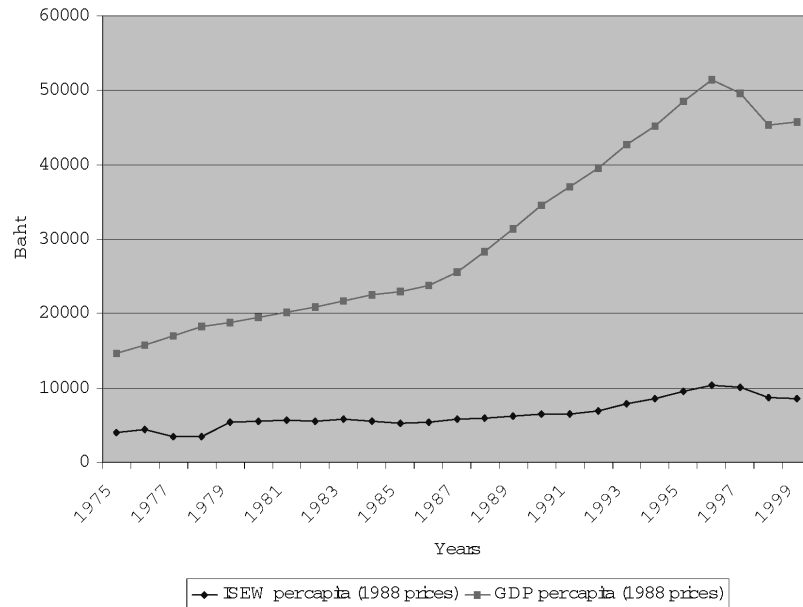
The welfare trend for Thailand when measured by the ISEW is different to that of welfare measured by indicators of economic growth. The changing influences and feedbacks from the various domains impact on human welfare and are captured within this ISEW. Not only does the ISEW per capita increase at a slower rate than GDP per capita, it also decreases at times when GDP per capita actually increases. The ISEW per capita rose and fell throughout the 1980s, effectively being unchanged in 1986 from the 1979 figure. In comparison, GDP per capita rose by more than 25% over this same period. During the 1990s, both measures increased, although at significantly different rates. Within this period, the divergence between the two indices becomes quite apparent.

Table 2 ISEW per capita and GDP per capita for Thailand, 1975–1999 (1988 prices)

<i>Year</i>	<i>Economic (millions of baht)</i>	<i>Social (millions of baht)</i>	<i>Political (millions of baht)</i>	<i>Environmental (millions of baht)</i>	<i>Spiritual (millions of baht)</i>	<i>ISEW (millions of baht)</i>	<i>ISEW per capita</i>	<i>GDP per capita</i>
1975	289271	-14226	-3336	-81373	-18646	171690	4050	14662
1976	309968	-14380	-2771	-80580	-20371	191866	4440	15754
1977	333312	-17629	-5263	-137464	-22430	150526	3400	16942
1978	348689	-17828	-4460	-145862	-24558	155981	3449	18237
1979	368041	-17613	-5865	-70782	-25744	248037	5379	18819
1980	386847	-16607	-7034	-75363	-27190	260653	5550	19458
1981	405849	-20549	-8540	-79451	-28562	268747	5614	20206
1982	408616	-17597	-10231	-83773	-30133	266882	5464	20883
1983	432608	-17658	-11473	-83698	-32043	287736	5811	21729
1984	438488	-21985	-13914	-87772	-33754	281063	5556	22504
1985	439241	-25719	-15881	-90177	-35137	272327	5258	22996
1986	447554	-28279	-18989	-74774	-36950	288562	5448	23722
1987	483945	-35342	-17922	-78871	-40599	311211	5777	25561
1988	521801	-43117	-17445	-85397	-46051	329791	6000	28380
1989	552434	-48866	-16382	-91478	-51838	343870	6153	31316
1990	603071	-54663	-10593	-113112	-57650	367053	6519	34565
1991	622392	-60523	-7050	-120985	-62420	371414	6520	37073
1992	655585	-63159	-2937	-126737	-66967	395785	6849	39506
1993	719644	-57618	781	-134028	-72808	455971	7816	42765
1994	785056	-57295	3409	-141474	-79645	510051	8631	45174
1995	853737	-59299	8159	-150382	-86771	565444	9510	48511
1996	929336	-66005	10343	-158653	-91513	623508	10372	51489
1997	932210	-65835	2765	-163368	-89590	616182	10132	49691
1998	830688	-55185	-292	-163192	-79414	532605	8665	45348
1999	832001	-70019	-7335	-148076	-82165	524406	8505	45789

Source: Compiled from [23].

The peak of both indices was 1996, just prior to the financial crisis of 1997. GDP per capita recovered almost immediately; however, the ISEW failed to rally as quickly. It is too early to confirm whether this is a trend or a fluctuation. However, by drawing on the results of other studies (see Castenda [12] for a survey), it may be argued that this new divergence could and should have been expected.

Figure 1 Comparison of ISEW per capita and GDP per capita measures of welfare for Thailand, 1975–1999 (1988 prices in baht)

Source: Author's own calculation.

Even though both measures are money metric, they are not cardinal in nature. What can be inferred from these two time series is the variation and divergence in the two trend lines. The analysis of the welfare experienced by the Thai population between 1975 and 1999 is, in this instance, dependent on the shape of these two trend lines. The trend line for GDP per capita has three main phases: the initial steady rise to 1986, the accelerated growth to 1997, and the final dip and recovery to 1999. The pattern for ISEW per capita is quite different. The initial rise is slower, indeed, there is no accelerated period nor is there any indication of a recovery in the final year after the index begins falling in 1997. Perhaps, of greater importance is the growing divergence between the two indices. This increasing disparity suggests that the relationship between GDP per capita and ISEW per capita is becoming increasingly weaker over time. Such a weakening casts doubts over the long-term desirability of both achieving economic growth and positioning economic growth as the lead development objective.

3 Policy implications

The central tenet of public policy in most economies since the end of the Second World War has been the achievement of economic growth [46,47]. Such an emphasis is true for both developed and developing countries [10,11,48]. This policy emphasis has been justified on the basis that economic growth will automatically increase welfare [49,50]. The major question underlying the ISEW approach is whether an increase in economic growth “really reflects the true changes in welfare” [51]. The results discussed above suggest it does not.

Achieving economic growth in the manner that occurred in Thailand has caused social, political, and environmental pressures such as pollution, increasing urbanisation costs, population growth, increased levels of stress, and so on, which has reduced levels of welfare. Therefore, expectations for improving society's welfare through continuous economic growth need to be re-examined, as do the economic and social policies for achieving this political objective.

Hagerty et al. [52] have shown that basing development policies on the results of welfare indices – such as the ISEW – is entirely legitimate if the results:

- are judged to be reliable
- have established time series measures
- can be disaggregated to analyse sub-components.

Hagerty et al. [52] do note, however, that public policies based on welfare indices are largely dependent on how welfare is defined within these indices. Nevertheless, despite the potential policy value of alternative welfare indices, *policy implications based on the analysis of ISEW are rare within the literature, especially for developing countries.*

The three policies guidelines set out below are based on the results found in this empirical exercise for Thailand. However, it is reasonable to expect that the same policies would also be valid for other developing countries exhibiting similar characteristics to Thailand. The purpose of these guidelines is to encourage a widening of current development policy prescriptions.

3.1 *Reduced emphasis on economic growth*

Achieving economic growth produces both costs and benefits. There is little doubt that economic growth can lift income levels, reduce poverty levels, and increase standards of living. But, of course, economic growth can also increase environmental, social, and political stress. Since society is systems-based and also part of a much larger economic and environmental milieu, accounting for the net benefits of economic growth must incorporate and respect all impacts of human endeavour, both economic and non-economic alike. Clearly, the desirability of economic growth should be judged by its net benefits on social welfare.

The first policy guideline then is to encourage a balanced approach to achieving economic growth. Economic growth should not simply be the dominant government policy objective. Economic growth aimed at specific sectoral areas [1] and with specific purposes in mind would be a better policy approach “than the pursuit of economic growth for its own sake in the hope that the benefits will be spread widely enough that the poor derive some gains” [53, p.76]. Economic growth is certainly an important ingredient for increasing social welfare, but it is not sufficient in itself. If the net effect of economic growth on social welfare is negative, welfare-enhancing policies that are not growth focused must be given due consideration and, where beneficial to welfare, be embraced.

3.2 Pro-poor policies emphasised

Should economic growth be pursued, an important consideration should be its impact on reducing absolute poverty. The northeast region of Thailand is one of the kingdom's poorest regions with poverty rates similar to parts of sub-Saharan Africa [9]. The welfare benefits of the economic growth experienced in Thailand over the past three decades have largely bypassed this part of the country whose population remains largely rural. Unfortunately, the welfare costs of economic growth, such as environmental stress resulting from increased industrial activity, have been disproportionately borne by these poor people [1,43].

The aim of pro-poor policies should be one of ensuring those living in absolute poverty receive a greater share of the benefits of any future economic growth plus the residual benefits from previous growth. A pro-poor policy that ought to be given greater attention is that of income redistribution. Various public policy instruments exist in this regard, the most common being taxation. It is possible to redistribute income through increased (or enforced) taxation on wealth, property, inheritance, foreign currency transactions, and the consumption of luxury goods. Other viable redistribution options include taxation credits and improved provision of welfare services in the form of a social security safety net.

Whilst there are attendant costs with redistribution [16], it is more likely to reduce income inequality than economic growth. The reduction of inequality can also reduce the poverty elasticity of national income so that future growth can have a greater impact on reducing poverty levels [54,55]. The reduction of inequality also encourages social inclusion which, in itself, has potential welfare benefits [56–60].

3.3 Other domains emphasised

Adjusted income measures of welfare were initially developed on the implicit understanding that society is systems-based and that the interrelationships between sub-systems or domains have a significant impact on social welfare. By adopting this approach to welfare measurements – made explicit in the application of the ISEW to Thailand in this paper (also see Clarke and Islam [23]) – the importance of non-economic domains in determining welfare becomes apparent.

Public policies that enhance the social, political, environmental, or spiritual sub-systems can have positive effects on social welfare. It is true that some such policies may compromise efforts to achieve economic growth (i.e. tighter control over environmental resource depletion and improved labour market conditions can increase production costs and, in doing so, impede the rate of economic growth in the short run); however, the positive welfare impact may prove to be more beneficial than the foregone or lost economic growth.

4 Robustness of these policy implications

Analysis of the results of the Thai ISEW suggests the need for certain policy guidelines. Having identified these guidelines, it is important to understand how robust they actually are. The suggested policy frameworks based on the ISEW results set out above have two distinct weaknesses. They also have two obvious strengths. This section will briefly

review each of them before drawing the conclusion that policy implications based upon ISEW results are valuable and increase the likelihood of sustainable development being achieved in developing countries.

4.1 Construction and uncertainty

As with all economic measures, the ISEW is a constructed number. Starting with personal income, the ISEW is calculated by making certain adjustments that reflect both the costs and benefits of pursuing a policy of economic growth. These adjustments are based on value judgements. Whilst these value judgements are explicit (and more explicit than the value judgements that underpin the standard national accounts, such as GDP), the final ISEW estimate is highly dependent upon the analysts' arbitrary values, choices, and preferences [23].

Perhaps of equal importance are the value judgements made to determine what potential adjustments should be excluded from the calculation of the ISEW. This is a significant criticism of the ISEW [61]. The decision to exclude or include an adjustment to income is often dependent on the analysts' opinion on whether an activity associated with achieving economic growth can be considered a 'regrettable'. As opposed to an expense that specifically yields a welfare benefit, a 'regrettable' is an expense that is necessary to avoid incurring a welfare cost either now or in the future (e.g., a security alarm that is fitted to a house following a rise in the rate of household break-and-entry). Lebergott's [62] criticism of this approach centres on the exclusions of regrettables and whether other goods, such as food, clothing, transport, driver education, and insurance, could be also labelled regrettable. "Regret is a word of seismic potency. It can be applied to a thousand facets of the real world" [62, p.8]. Extending the work of Sen [63] in which food does not directly provide utility but the functioning of food does, it may be legitimate to argue that food is a regrettable given that it must be purchased to facilitate its functioning, in the same manner that commuting is necessary to acquire income. Likewise, the concept of a regrettable can be extended so that acknowledgement of the Second Law of Thermodynamics – the Entropy Law – results in all consumption ultimately leading, not to utility or functioning, but to waste. The ISEW results upon which policy implications are based are thus heavily indebted to the value judgements of the analyst. As an uncertain and constructed number, a level of hesitancy should accompany consideration of the development policies it suggests.

4.2 Systems analysis

The original development of income-adjusted measures of welfare [2,24,64] was an implicit acknowledgement that the economy is part of a larger interrelating system. This general approach highlights the positive and negative consequences that achieving economic growth has on other domains within society. This recognition is an important tenet of this framework. Systems analysis must also be considered when drawing policy implications from ISEW results. It should be assumed that, just as economic growth impacts upon other domains, a focus on, for example, the environmental domain will also impinge upon other domains once feedback effects begin to manifest themselves throughout the total system. It should also be recognised that these interrelating consequences can either be positive or negative. While the ISEW attempts to account for systems-based feedback effects, it clearly performs this function in an imperfect manner.

Thus, before policies based upon ISEW results are adopted and implemented, a more thorough systems analysis of their impact must be undertaken.

4.3 Capturing sustainability paths

Ecological sustainability cannot be adequately reflected within a single index number, such as the ISEW. However, as “sustainability is a property of the path the economy is on and not of the state of the system at any given time” [65, p.62], indicators such as the ISEW can provide insights into this ‘sustainability’ path. Enhancing this sustainability path is a distinct strength of the policies emanating from the ISEW results. Such policies can improve a nation’s likelihood of achieving sustainable development.

4.4 Encouraging alternative development prescriptions

In much the same manner as the Human Development Index [30], the ISEW is an alternative measure of development to traditional representative indicators, such as GDP per capita. By defining development more widely than simply income, the value of the ISEW in terms of its policy implications lies in its questioning of development orthodoxy and the creation of a space in which alternative development prescriptions are encouraged. Given the current predilection with economic growth objective, it is unlikely that many policy implications suggested by the ISEW results will be fully implemented in the near future. However, by proposing wider development prescriptions, the ISEW, like the Human Development Index (HDI), should impact on the policy debate by encouraging dissent from the orthodoxy. Over the long term, this impact on policy prescriptions may be quite significant.

5 Conclusion

This paper has empirically applied an ISEW to Thailand over a twenty-five year period, 1975–1999. The results show that Thailand has begun to experience diminishing and negative welfare returns from economic growth. While these results are not unique, they have only been previously estimated for developed countries (barring one exception). That Thailand has begun to experience these diminishing returns at such low-income levels should be of great concern to policy makers responsible for development planning. Further work is required in a number of developing countries to determine whether the experiences of Thailand are unique or common. If diminishing and negative welfare returns from economic growth can be reached prematurely, then alternative theories of development must be found.

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