



# **Social Cost Benefit Analysis Way to Efficient Resource Utilization**

**BY**

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# Introduction

- In recent global financial crises ,we witnessed how private sector decisions can have devastating effect on the rest of the economy.
- If private sector decisions impact the whole nation, then Social Cost Benefit Analysis (SCBA) should be used to evaluate the efficiency of private sector projects.
- SCBA is similar to financial analysis, but: financial analysis identifies the profits accruing to the project operating entity **only**.



## Social Cost Benefit Analysis (SCBA)

- A tool of welfare economics
- SCBA differs from the financial analysis tools (like DCF), as SCBA adopts a social perspective (Brent, 2001)
  - effects on all individuals in the society are included
  - distributional effects are included
  - market prices are not always good indicator
- Social price/shadow price is used instead



# Market Prices versus Shadow Prices

- A shadow price is the market price of a good that is being adjusted to include effects that the market do not record.
- In market economies, prices of goods used in production, generally do not reflect actual costs nor do they consider external costs such as: depletion costs, pollution costs and environmental costs such as flooding and diminished crops
- Art of SCBA : to assign shadow prices to these goods

# SCBA AND THE ENVIRONMENT

- Prices of natural resources : low and reflect mainly the extraction costs but not environmental costs
- Industries that use depleting resources ought to be evaluated with SCBA so that:
  - -industries that are environmentally friendly, are recognize for their contribution to the national economy
  - -industries that pollute the environment would be evaluated for the negative effects so that profits attained are actual profits (I,e. social profits) and not profits at the expense of society's losses.
- In this way, environment is not a free commodity but has a price tag, and would encourage sustainable behaviour from private sector (Anderson, 2007).



# An Exploratory Study Using SCBA

- Study : Uses SCBA to investigate the effect of deregulation on the Malaysian banking sector.
  - Malaysia embarked on financial liberalization in 1978; considered fully liberalized in Feb 1991.
- Method: To conduct an ex-post evaluation of loans allocated by the banking sector for two time period for a sample of private sector firms.
- Objective: To ascertain whether liberalization of the Malaysian banking sector resulted in efficient utilization of resources from the view point of its society



## Little & Mirrlees's SCBA Methodology

- Accepts that the market prices can be modified using shadow/social prices
- Little & Mirrlees's methodology can be undertaken only if country parameters for shadow pricing have been undertaken; e.g. for Malaysia:
  - -Veitch (1984), National parameters for project appraisal
  - Tan (1994), Shadow prices for Malaysia ...



# Data and Actual Computation

Data from 117 companies were obtained from annual reports and keyed into Excel worksheets for various computations to obtain present social value (**PSV**) / (social profits):

- Total loans
- Revenue
- Profit before tax
- Total fixed assets
- Total current liabilities
- Depreciation allowance
- Corporate tax
- Interest payment



# Methodology of Study

- Financial variables are the starting point
- Adjustments are made to the financial variables to reflect the economic worth of a firm
- Derive the stream of benefits (**A**)
- Calculate the stream of capital costs (**B**)
- **Net benefits = (A - B)**
- Discount these **net benefits (NB)** by the economic discount rate and compare it to the initial capital costs to get the present social value (**PSV**)

## COMPUTING PRESENT SOCIAL VALUES (PSV)

$$PSV = (-APPI \times C_0) + \frac{NB_1}{(1+i)^1} + \frac{NB_2}{(1+i)^2} + \dots + \frac{NB_n}{(1+i)^n}$$

$C_0$  = initial capital cost

$NB_n$  = net benefits in year n

$i$  = accounting rate of interest / economic discount rate

$n$  = number of years used in the discounting period

APPI = accounting price of private investment

# Analysis of PSV

- According to liberalization period (Pre and Post ) to evaluate if financial liberalization raised allocative efficiency – Table I
- According to manufacturing subsectors: to determine the sub sectors that perform better after financial liberalization – Tables 2 to 5
- Rank correlation analysis : to determine if the subsectors that received more allocations are the more efficient ones – Tables 6 to 8

## Table I: Summary According to Strata and Liberalization Period

Strata	Absolute PSV (total) RM('000)	Absolute PSV (average) RM('000)	Percentage of Co. with Positive PSV	PSV per unit of loan(total) RM('000)
I (Pre)	4419,007	129,973	91%	94.02
II (Post)	565,527	10,282	58%	-46.67
III (Pre)	2742,944	97,962	93%	86.89
(Post)	6929,364	247,477	71%	36.68
All (Pre)	7162,201	115,516	92%	180.91
All (Post)	7494,891	90,300	63%	-9.79

## Table 2: Results of SCBA According to Sectors

Sub Sector	Total PSV (per sector) RM('000)	Av. PSV (per sector) RM('000)	Av. PSV (Pre-Lib) RM('000)	Av. PSV (Post-Lib) RM('000)	Better Period
Fabricated Metals	1,311,849	69,045	77,143	61,756	Pre lib
Palm-oil Processing	1,352,146	150,238	161,833	135,745	Pre lib
Chemical Prod.	315,321	13,710	31,683	2,155	Pre lib
Non-Metallic Min.	2,182,947	109,147	63,747	154,548	Post lib
Food & Beverage	4,462,196	212,486	196,700	226,830	Post lib
Wood & Wood Prod	636,324	57,848	1,443	(80,802)	Pre lib
Electronic & Elec.	1,958,249	139,875	64,404	170,063	Post lib
Textile & Garments	20,067	1,338	29,831	(17,658)	Pre lib
Transport Equip	3,624,853	604,142	509,866	792,693	Post lib
Iron & Steel Prod	307,826	76,957	144,911	9,002	Pre lib

## Table 3: PSV for Non Metallic Mineral Products Sector

<u>Company</u>	<u>Period</u>	<u>Base</u>	<u>n(yrs)</u>	<u>CF</u>	<u>Initial I</u>	<u>PSV</u>
HUM	Post	1992	7	0.91	822,742	1,351,749
HUM	Pre	1984	7	0.88	247,148	156,954
TS	Pre	1982	7	0.92	197,322	151,482
CM	Pre	1989	7	0.92	301,240	137,572
CI	Pre	1987	6	0.88	100,302	113,239
MG	Post	1992	7	0.91	93,395	103,622
YTC	Post	1993	7	0.91	31,804	97,698
KH	Post	1994	6	0.88	260,274	48,122
ML	Pre	1978	6	0.88	10,364	26,673
CEP	Post	1993	6	0.87	50,866	20,856
GB	Pre	1986	6	0.87	27,582	20,778
MAI	Post	1992	6	0.98	86,792	18,542
MG	Pre	1984	7	0.92	26,580	17,048
TJ	Pre	1988	6	0.89	15,723	9,995
MUL	Post	1994	6	0.89	50,160	4,525
PM	Pre	1986	6	0.91	118,094	(3,984)
POL	Post	1993	7	0.91	39,743	(50,420)
KC	Post	1992	7	0.92	597,267	(56,948)
Total			117			2,167,505
Average			6.5			108,375

## Table 4: PSV For Rubber Sector Products

<u>Company</u>	<u>Period</u>	<u>Base</u>	<u>n(yrs)</u>	<u>CF</u>	<u>Initial I</u>	<u>PSV (RM'000)</u>
KR	Post	1994	6	0.95	25,266	18,410
LP	Post	1994	6	0.95	45,281	(2,575)
LB	Post	1993	6	0.95	20,428	(40,024)
AT	Post	1993	6	0.95	19,861	(167,446)
Total			24			(191,634)
Average			6			(47,909)

## Table 5: PSV for Wood & Wood Products Sector

<u>Company</u>	<u>Period</u>	<u>Base</u>	<u>n (yrs)</u>	<u>CF</u>	<u>Initial I</u>	<u>PSV</u>
AS	Pre	1988	6	0.97	110,305	27,588
SEL	Pre	1984	7	1.01	50,628	(7,445)
LON	Post	1993	7	1.00	40,745	(10,600)
MG	Pre	1989	6	1.04	6,711	(15,814)
TEN	Post	1992	7	1.00	18,233	(21,828)
SW	Post	1993	6	1.04	35,100	(26,457)
FUR	Post	1992	7	1.00	29,904	(27,122)
CH	Post	1992	7	1.01	113,253	(92,831)
GL	Post	1994	6	1.01	53,998	(112,094)
SEL	Post	1992	7	1.01	107,103	(157,125)
TIM	Post	1993	6	1.02	35,710	(192,595)
Total			72			(636,324)
Average			6.5			(57,848)



## Table 6 : Ratio of Loans Obtained for Two Periods According to Sectors

	Sub sectors	Total loans		Total loans		Average loan per co.		Ratio
		Pre	n	Post	n	Pre	Post	Post/Pre
1	Fabricated	211,023	7	841,930	12	30,146	70,161	2.3
2	Palm-oil Processing	226,728	5	393,539	6	45,346	65,590	1.4
3	Chemical & Chem. Prod.	36,280	4	569,393	16	9,070	35,587	3.9
4	Non-Metallic Mineral	236,829	9	1,655,803	14	26,314	118,272	4.5
5	Food & Beverage	177,211	9	1,261,802	16	19,690	78,863	4.0
6	Wood & Wood Products	8,238	1	468,816	10	8,238	46,882	5.7
7	Electronic & Electrical Appl	51,197	3	655,570	10	17,066	65,557	3.8
8	Textile & Garments	82,050	4	383,370	10	20,513	38,337	1.9
9	Transport Equipment	548,019	3	1,577,764	4	182,673	394,441	2.2
10	Iron & Steel Products	292,180	2	2,802,524	3	146,090	934,175	6.4

## Table 7 : Ratio of PSV for Two Periods

Sub Sector	Total PSV (per sector) RM('000)	Av. PSV (per sector) RM('000)	Av. PSV (Pre-Lib) RM('000)	Av. PSV (Post-Lib) RM('000)	Ratio <u>Av. PSV(Post)</u> Av. PSV (Pre)
Fabricated Metals	1,311,849	69,045	77,143	61,756	0.80
Palm-oil Processing	1,352,146	150,238	161,833	135,745	0.84
Chemical	315,321	13,710	31,683	2,155	0.07
Non-Metallic Mineral	2,182,947	109,147	63,747	154,548	2.42
Food & Beverage	4,462,196	212,486	196,700	226,830	1.15
Wood Products	636,324	57,848	1,443	(80,802)	(55.99)
Electronic & Elec. Appl.	1,958,249	139,875	64,404	170,063	2.64
Textile & Garments	20,067	1,338	29,831	(17,658)	(0.59)
Transport Equipment	3,624,853	604,142	509,866	792,693	1.55
Iron & Steel Products	307,826	76,957	144,911	9,002	0.06

## Table 8: Rank Correlation Analysis

Manufacturing Sub sector	PSV(Post) PSV(Pre)	Loan(Post) Loan(Pre)	Ranking for loan $r_L$	Ranking for PSV $r_P$	d = $r_L - r_P$	$d^2$
Fabricated Metals	0.80	2.3	7	6	1	1
Palm-oil Processing	0.84	1.4	10	5	5	25
Chemical & Products	0.07	3.9	5	7	(2)	4
Non Metallic Mineral	2.42	4.5	3	2	1	1
Food ,Beverage	1.15	4.0	4	4	0	0
Wood & Wood Products	(55.99)	5.6	2	10	(8)	64
Electronic & Electrical Appl.	2.64	3.8	6	1	5	25
Textile & Garments	(0.59)	1.9	9	9	0	0
Transport Equipment	1.55	2.2	8	3	5	25
Iron & Steel	0.06	6.4	1	8	(7)	49
Sum						194

## Spearman Rank Correlation Coefficient Test

- $H_0$  : There is no correlation between the PSV value and the loan value
- $H_1$  : There is a positive correlation between the PSV value and the loan value

- $$r_s = 1 - \frac{6(\sum d^2)}{n(n^2-1)}$$
$$= 1 - \frac{6(194)}{10(100-1)} = -0.18$$

- $H_0$  is accepted at 0.05 level of significance

Results showed that there is no correlation between the two set of values tested.

The sectors that received more loans are not the more efficient sectors.

# Concluding Remarks

- SCBA is used here to evaluate the contribution of a sample of private sector firms to the country's social profits.
- Results showed :
  - no evidence of improved allocative efficiency after financial liberalization had occurred.
  - the sectors that received more credit from the banks were not the more efficient ones.
  - The sectors that contributed positively to the country's in terms of net economic benefits are : non-metallic mineral product, food & beverage, electrical & electronics and transport equipment.



**Thank you**



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