Revisiting Mercantilism and Keynesian J-W –Hicks Hansen Synthesis in the Case of Malaysia from 1960 To 2009: The Dynamics of Saving, Investment and Trade Openness

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Abstract

The type of deductive oriented research has delved into the modified version of Keynesian-Hicks Hansen macroeconomics framework to capture the real saving-investment nexus in the case of Malaysia from 1960 to 2009. This study has supported mercantilism tenet on trade surplus in capturing the flow of investment. The utilization of Johansen cointegration has advocated the existence of long run relationship between variables of interest and this has confirmed the validity of Keynesian J-W-Hicks Hansen Approach. The interesting feature captured in this study is the discussions on the role of animal spirits that were developed by Keynes (1936) and Akerlof and Shiller(2009) in capturing investment and saving nexus. Besides that, saving–investment nexus may enhance the level of meso trajectory phases of innovation that can be divided into 3 phases, origination (development of new products), diffusion (adoption and adaptation of the new products into the economic system), and retention (maintenance of existing new products) that has been explored by Dopfer et al. (2004) and this process of innovation is a continuous process. This follows the theory of creative destruction that was developed by Joseph Schumpeter, which postulates that the transition from old innovation to new innovation may enhance the level of knowledge and technological spillovers.

Keywords: Mercantilism, Keynesian, Saving, Investment, Trade, Meso Trajectory

1. Introduction and Review of Literatures

First of all, credit should be given to Solow (1956), Ramsey (1928), Cass (1965) and Koopmans (1965) for opening up the private saving-investment nexus via capital accumulation from the dimension of microeconomics. The complete set of issue of interest can be seen through the introduction of Keynesian J-W and Hicks-Hansen open economy framework into the system. Classical school of economic thought has identified interest rate as the only important factor that can influence the association between saving and investment, but, the degree of validity of the latter statement was questioned by Nelson (2008) through the complexity and dynamics of economic structure and the role of information in monitoring the direction of saving and investment. Classical and Neoclassical school of Economic Thoughts were closely tied up with the concept of symmetrical information and rationality, which was refuted by John Maynard Keynes, through his book, The General Theory of Employment, Interest and Money in 1936 which has captured the real economic situation which explains the major products of macroeconomics. The transition from old economic thinking (classical thoughts) to new

economic thinking (Keynesian and evolutionary economic thoughts) can be seen as a form of innovation that can reveal the underlying conditions and outcomes of higher investment in a nation. It should be realized that lower probability of asymmetric information can strengthen the association between the above mentioned variables of interest in most of the developing nations and the concept of asymmetric information seems to be inconsistent with the concept of invisible hand that was introduced by Adam Smith. The mixture of physiological and economics effects (animal spirits) that was first coined by Keynes (1936) refers to the degree of pessimism and optimism among the economic agents in influencing the real economic activities and the aspects of animal spirits were divided by Akerlof and Shiller (2009) into smaller groups like trust, fairness and etc that can illustrate the movements of saving and investment in an evolutionary economics. Based on the previous literatures, it can be seen that the concept of animal spirits is closely related to the expected rate of return on investment. Higher degree of optimism among the investors may reflect high expected rate of return that can increase the demand for investment, whereas higher degree of pessimism among the investors may reflect low expected rate of return that can lower down the demand for investment. This study differs from Ang (2007), Sinha (2002), Narayan (2005), Schmidt (2003), Kim et al.(2007), Seshaiah and Vuyuri (2005), Vita and Abott (2002) and Mishra, et. al (2010) in terms of the sampling periods, the discussions on animal spirits and asymmetric information, the meso-trajectory phases of innovation and the usage of modified version of Keynesian J-W-Hicks Hansen approach in this research. Most of the literatures have just concentrated on Feldstein and Horioka (1980) model in illustrating the positive link between saving and investment in the developed and developing countries for various years. This study is expected to reveal the relationship between saving and investment from 1960 to 2009 both in the short and long run. The flow of the paper will discuss the conditions for the relationship to hold in the case of Malaysia. To the best of my knowledge, there has not been any study that captures the dynamics of saving and investment in Malaysia via adoption of various elements of evolutionary economics.

2. The Dynamics of Saving and Investment in the Case Of Malaysia
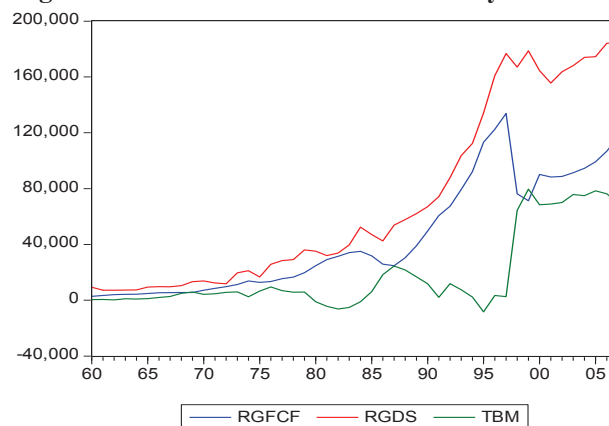
Note: RGFCF= Real gross fixed capital formation, RGDS= Real gross domestic saving, TBM= real trade balance.
Source: World Development Indicators.

Figure 1 Real Gross Fixed Capital Formation Real Gross
Domestic Saving and Real Trade Balance in Malaysia

In general, it can be seen that real saving outweighs the real investment from 1960 to 2007 in the case of Malaysia. The latter statement has clearly indicated that the level of real saving is sufficient enough to finance the productive activities. Global recession in 1985 and Asian Financial Crisis in 1997/1998 has reduced saving and investment and this is due to the asymmetric information and animal spirits (macroeconomic uncertainties). Based on the graphical approach, it can be observed that the real gross national saving and trade balance can vapture the level of investment in Malaysia. Some of the Malaysian economists feel that poor financial management among the households can cause the movement of the variables of interest in two different ways. Higher level of national saving can be used to finance more public private partnership projects such as health care, infrastructure, insurance projects and etc in a balanced way that can reduce the economic risks. Through this, the gap of convergence between saving and investment can be increased. The role of information and reformation of financial system are crucial in determining the positive side of investment and this can enhance the level of growth rate of economic growth in Malaysia. The trust that economic agents have on the stability of financial system in Malaysia can lead to the movement of the variables of interest along the same line.

3. Analytical Framework

Keynesian-Evolutionary Economics, Schools of Economic Thoughts, And Innovation
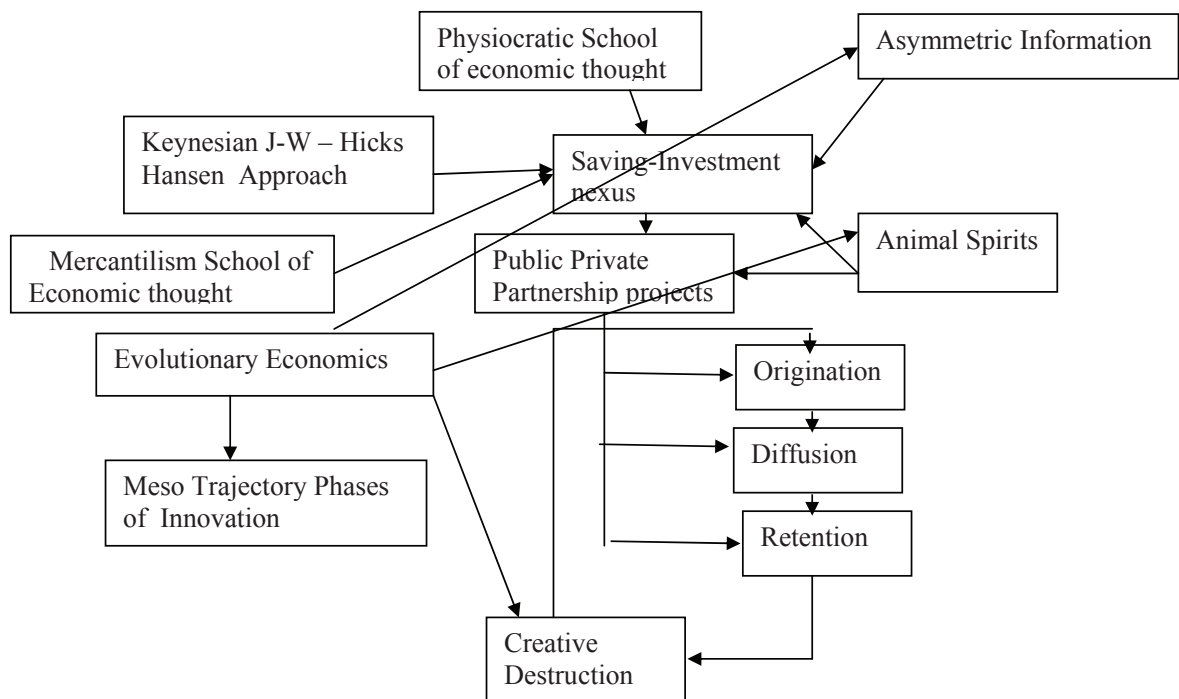
Sources: Author, Dopfer et al. (2004), and Nelson (2008)

This section touches on various schools of economic thoughts, namely Mercantilism, Physiocratic, and Keynesian schools of economic thoughts in highlighting the underlying conditions of saving and investment nexus. The concept of animal spirits doesn't really work in Classical school of economic thought, because economic agents were assumed to be rational in the classical market and the latter statement is inline with Akerlof and Shiller (2009) and Schwartz (2010). Mercantilism school of economic thought (1500-1776) has favored the trade surplus in explaining the positive side of investment.(Brue and Grant, 2007) The connectivity between Physiocratic and Keynesian schools of economic thought can be seen through the Tableau Economique that was introduced by Francois Quesnay (physiocratic scholar), and the latter table can illustrate the role of surplus and deficit units in an economic system. The symmetrical concept of information is not applicable in reality and the components of asymmetric information (adverse selection and moral hazard) can be well explained by animal spirits. In the case of Malaysia, the investment in public private partnership projects, namely, Trust Mark, Mass Rapid Transit, water supply and etc can enhance the level of innovation through origination (development of new products/system/projects), diffusion (adaptation and adoption of the new products/system/projects into the economic system) and retention (maintenance of existing new products/system/projects until the arrival of new ones) and the latter statement can be supported by Dopfer et al.(2004). This follows the theory of creative destruction, that was introduced by Joseph Schumpeter, where old innovation will be replaced by new innovation. Knowledge and technological spillovers can be generated through high tech projects in Malaysia.

Empirical Models

Econometric models (Based on Modified Keynesian J-W-Hicks Hansen approach in appendix)

$$LRGFCF_t = \beta_0 + \beta_1 LRGDS_t + \beta_2\ LREX_t + \varepsilon_t \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(1.1)$$

$$RGFCF_t = \beta_0 + \beta_1 RTB_t +\ \varepsilon_t\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1.2)$$

where,

LRGFCF= Natural logarithm of real gross fixed capital formation.
LRGDS = Natural logarithm of real gross domestic saving.
LREX = Natural logarithm of real exports of goods and services.
RGFCF= Real Gross fixed capital formation
RTB = Real Trade balance
 t = represent time period (denotes the time series data)
β_0, β_1, β_2 = Parameters
ε = denotes the error term.

* RGFCF = proxy of domestic investment and RGDS = proxy of domestic saving

Sources of Data

Secondary data have been utilized in this study. Time series data on real gross fixed capital formation, real gross saving and real exports of goods and services from 1960 to 2009 were obtained from World Development Indicators. Real trade balance was computed by using the difference between real exports and imports of goods and services.

4. Econometrics Methodologies

A) Univariate Test: Unit Root Test

In this present study, unit root test will be an important ladder to another test, namely, the Cointegration test. Unit root test is crucial in ensuring the fulfillment of the Johansen-Juselius cointegration test properties on the integration of variables. Unit root test can be used to capture the characteristics of mean and variance of the variables. Unit root test is important in determining whether the time series variables are stationary or non-stationary. The construction of equations for the ADF Unit root test at the level form (without the incorporation of drift) are as below:-
For lag length =0,
(Level form)

Augmented Dickey Fuller (ADF(0)) Equation
$$(1-L)Y_t = \mu + Y_{t-1}(\theta-1) + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots(1.3)$$

Note: $(1-L) = \Delta$ and $L = $ Lag operator.

$H_0: \varnothing - 1 = 0$ (Y_t has a unit root)

$H_1: \varnothing - 1$ is not equal to zero (Y_t has no unit root)

(First difference form)

Augmented Dickey Fuller (ADF(0)) Equation
$$(1-L)^2 Y_t = \mu + (1-L)Y_{t-1}(\theta-1) + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots(1.4)$$

Note: $(1-L) = \Delta$ and $L = $ Lag operator.

$H_0: \varnothing - 1 = 0$ (ΔY_t has a unit root)

$H_1: \varnothing - 1$ is not equal to zero (ΔY_t has no unit root)

For lag length ≥ 1,

(Level form)

$$(1-L)Y_t = \mu + \beta t + \delta Y_{t-1} + \sum_{i=1}^{n} \alpha_i (1-L) Y_{t-i} + \varepsilon_t \dots\dots\dots\dots\dots(1.5)$$

(First difference form)

$$(1-L)^2 Y_t = \mu + \beta t + \delta (1-L) Y_{t-1} + \sum_{i=1}^{n} \alpha_i (1-L)^2 Y_{t-i} + \varepsilon_t \dots\dots\dots\dots\dots(1.6)$$

Table 1 Results of Augmented Dickey Fuller (ADF) Unit Root tests based on the level form.

Country	Variables	Unit root test	
		ADF	
		H_0 : A variable has a unit root H_1 : A variable has no unit root	
Middle income country			
Malaysia	LRGFCF	-1.37(1)	
	LRGDS	-0.96(2)	
	LREX	-0.08(0)	
	RGFCF	-0.88(0)	
	RTB	-0.78(0)	

Note: The numerical values in ( ) represent the lag lengths that are selected through Schwarz Info Criterion (SIC).

Table 2 Results of Augmented Dickey Fuller (ADF) Unit Root Test based on the first difference form.

Country	Variables	Unit root test	
		ADF	
		H_0 : A variable has a unit root H_1 : A variable has no unit root	
Middle income country			
Malaysia	LRGFCFM	-4.84(0)**	
	LRGDSM	-7.57(1)**	
	LREXM	-5.30(0)**	
	RGFCF	-8.24(0)**	
	RTB	-5.14(0)**	

Note: Asterisk (**) indicate that the individual variables are significant at the level of significance (5%). The numerical values in ( ) represent the lag lengths that are selected through Schwarz Info Criterion (SIC).

Based on Table 1 and Table 2, it can be inferred that all the variables of interest are integrated of order 1 at their level form in the case of Malaysia. The explained and explanatory variables are integrated of order 0 at their first difference form. The former statement has fulfilled one of the Johansen cointegration test requirements.

B) Johansen Cointegration Test

In general, Johansen cointegration test were developed by Johansen (1988) and Johansen (1991).. According to Johansen (1991), the Johansen multivariate cointegration test involves the identification of rank of m by m matrix:-

$$(1-L)Y_t = \delta + \sum_{i=1}^{k-1} \Gamma_i (1-L)X_{t-i} + \Pi X_{t-k} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1.7)$$

where,

$(1\text{-}L) = \Delta$.

Y_t = column vector of m variables.

δ = constant

L = Lag operator.

Δ.= first difference operator
For example, $(1-L) Y_t = Y_t − Y_{t-1} = \Delta Y_t$
Γ and Π = coefficient matrices.
k= represent the lag length.

If Π has zero rank, the variables in Y are not cointegrated and there is no identification of stationary linear combination. If Π has rank that is greater than zero, then, there will be some possible linear combinations and the variables are cointegrated. (there will be a long run relationship).
Π can be the product of multiplication (α and β)
$\Pi = \alpha\beta^{'}$
β = r cointegrating vectors that captures the stationary of $\beta^{'} X_t$.
α = represents the speed of adjustment coefficient in the decomposition of Π .
(Masih and Masih,1999).
The main rationale of the Johansen-Juselius Cointegration test usage in this study is to investigate the relationship between the variables of interest in the long run. The existence of the long run relationship will infer a situation in which the residuals are integrated of order 0. Table 3 has summarized the result of Johansen Cointegration test. Two likelihood ratio (LR) namely the trace test and the maximum eigenvalue (λ- max) test is used in Johansen procedure.

Table 3 Results of Johansen Cointegration Test

Country	Variables	Null hypothesis	Alternative hypothesis	Trace test		Maximum eigenvalue	
Middle income country							
Malaysia	LRGFCFM,	r = 0	r = 1	43.64**	(29.80)	22.04**	[21.03]
	LRGDSM	r = 1	r = 2	11.60	(15.49)	11.50	[14.26]
	& REXM	r = 2	r = 3	0.10	(3.84)	0.10	[3.84]
	RGFCF, &	r=0	r=1	22.32**	(15.49)	22.22**	[14.26]
	RTB	r=1	r=2	0.11	(3.84)	0.11	[3.84]

Note : Asterisk(**) indicate that the variables are cointegrated at the level of significance (5%) . The numerical values in ( ) represent the critical values of trace test. The numerical values in [ ] represent the critical values of Maximum eigenvalues. Lag length for Johansen multivariate cointegration test is one.

Based on Table 3, it can be seen that there is a long run relationship between LRGFCF, LRGDS and LREX for Malaysia. Besides that, there is a long run relationship between RGFCF, and RTB. These findings may shed some lights towards the eradication of the spurious relationship between the variables of interest. The existence of long run relationship between the variables may indicate the causal relationship between the variables at least in one direction. (Granger, 1986). We may proceed to Vector error correction model (restricted VAR test) for Malaysia, because the variables were found to be cointegrated.

C) Vector error correction model (VECM)

Error correction term is obtained from the cointegration relationships. In general, the short-run vector error correction model can be written as follows:

$$\Delta LRGFCF_t = b_0 + \sum_{i=1}^{1} b_{1i} \Delta LR\,GFCF_{t-i} + \sum_{i=1}^{1} b_{2i} \Delta LR\,GDS_{t-i} + \sum_{I=1}^{1} b_{3i} \Delta LREXt - i$$

$$+ \sum_{i=1}^{1} b_{6i} ECt - i_{ti} \quad ....(1.8)$$

$$\Delta RGFCF_t = b_0 + \sum_{i=1}^{1} b_{1i} \Delta R\,GFCF_{t-i} + \sum_{i=1}^{1} b_{2i} \Delta RTB_{t-i}$$

$$+ \sum_{i=1}^{1} b_{6i} ECt - i_{ti} \quad ....(1.9)$$

Error correction term (EC_{t-1}) represents the proportion of long run disequilibrium that need to be corrected in order to restore the economic back to the long run equilibrium. Significant error correction term indicate the existence of speed of adjustment and the significant error correction term shows that the economic theories have been satisfied in the model.

Long run equation

$$LRGFCFt = b_0 + \sum_{i=1}^{1} b_{1i} LR\,GFCF_{t-i} + \sum_{i=1}^{1} b_{2i} LR\,GDS_{t-i} + \sum_{I=1}^{1} b_{3i} LREXt - i$$

$$+ \varepsilon t...(2.0)$$

$$RGFCFt = b_0 + \sum_{i=1}^{1} b_{1i} R\,GFCF_{t-i} + \sum_{i=1}^{1} b_{2i} RTB_{t-i}$$

$$+ \varepsilon t...(2.1)$$

Table 4 Results of Long Run Estimates

Country	Intercept/variables	Coefficients	Test-statistics	Degree of elasticity
Middle income country				
Malaysia	Intercept	-1.25	-	
	LRGDSM$_{t-1}$	**+ 1.49**	**-8.51**	**elastic , Significant**
	LREXM$_{t-1}$	**-0.39**	2.52	Inelastic , significant

Note: Asterisk (**) indicate that the variables are significant at the level of significance (5%)

Table 5 Results of Long Run Estimates

Country	Intercept/variables	Coefficients	Test-statistics	Degree of significance
Middle income country				
Malaysia	Intercept	+32595.23	-	
	RTB$_{t-1}$	**+1.03****	**-6.16**	**Significant (5%)**

Note: Asterisk (**) indicate that the variables are significant at the level of significance (5%)

The positive and significant connectivity between savings and investments can be seen clearly for Malaysia and the latter statement has confirmed the validity of Keynesian J –W-Hicks Hansen Approach. Positive association between saving and investment were supported by Ang(2007), Narayan (2005), and Sinha (2002). Higher level of real exports can negatively affect the real domestic investment in Malaysia. It can be inferred that higher; level of trade balance can capture the positive flow of domestic investment and this is inline with mercantilism school of economic thought.

Table 6 Results of Short Run Estimates

Country	Intercept/variables	Coefficients	Test-statistics
Middle income country			
Malaysia	Intercept	0.03	0.98
	Δ LRGFCFM$_{t-1}$	0.37**	2.22
	Δ LRGDSM$_{t-1}$	**0.05**	**0.32**
	Δ LREXM$_{t-1}$	**0.13**	0.33
	ECT$_{t-1}$	-	-

Note: Asterisk (**) indicate that the variables are significant at the level of significance (5%). Lag length = 1.

Table 7 Results of Short Run Estimates.

Country	Intercept/variables	Coefficients	Test-statistics
Middle income country			
Malaysia	Intercept	-1891.75	-0.66
	Δ RGFCF$_{t-1}$	1.10**	2.20
	Δ RTB$_{t-1}$	**0.81**	**1.78**
	ECT$_{t-1}$	**-0.19****	-2.68

Note: Asterisk (**) indicate that the variables are significant at the level of significance (5%). Lag length = 1.

Positive and insignificant saving-investment nexus in the short run can be observed for Malaysia. Based on Table 7, It can be seen that error correction term is significant for the case of Malaysia at the level of significance (5%) in terms of the connectivity between real trade balance and real investment.This shows that -19% of disequilibrium need to be corrected in order to restore back the equilibrium.

5. Conclusion

Based on voluminous discussions on the flow of Keynesianism, we can infer that Keynesian economics is still alive in today's world from various aspects, namely the dynamics of savings and investments, and the mixed economy system. So, I don't really believe in the statement that *"Keynesianism is fully dead both in developed and developing countries"*. Based on the study, it can be asserted that Keynesianism has served the aspects of interest in evolutionary economics well and this is consistent with the statement below:-

*"The theory of economics does not furnish a body of settled conclusions immediately applicable to policy. **It is a method rather a doctrine**…"*

(John Maynard Keynes).

In this study, the study has captured some elements of evolutionary economic theory such as the concept of uncertainty, asymmetric information and meso trajectory phases of innovation in analyzing the validity of Keynesianism in reality. Objective and subjective judgments on the issues of interest are crucial in deciding the economic policies. The studies on the connectivity between saving and investment should incorporate the mixed analysis of psychological and economic effects (animal spirits). Positive association between saving and investment can increase the mixed role of economic agents (private and government sectors), namely, public private partnership that can enhance the meso trajectory phases of innovation., Keynesian economics can serve as a benchmark to improve the countries competitiveness and resilience of financial system although it has been said that Keynesian economics is a short run process and we are all dead in the long run and the latter statement were supported by Kurihara (1959) and Klein (1994).This study has also supported the connectivity between mercantilism and Keynesianism in terms of trade surplus in illustrating positive flow of investment. Policymakers in Malaysia should take the concept of animal spirits into consideration for public private partnership projects.

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Appendix

Conversion from Keynesian income identity approach to Modified Version of Keynesian J-W Approach

Keynesian income-identity approach

$Y = C + I + G + (X-M)$
In 4 sector economy,

Let $Y = C + S + T$., where $Yd = C + S$ in Equation 1.1
$C + S + T = C + I + G + (X-M)$
$S + T = I + G + (X-M)$

Keynesian J-W approach

$I + G + X = S + T + M$

Note: $J = I + G + X$ and $W = S + T + M$

Modified Version of Keynesian J-W approach

$I + (X-M) = S + (T-G)$
$I + TB = (Y-C-T) + (T-G)$
$I + TB = Y-C-T+T-G$
$I + TB = S^T$
$S^G = (T-G)$
$S^P = Y - C - T$
$S^P = Y - C - (T^D + T^I)$
$S = S^P + S^G = (Y-C-T) + (T-G)$
$= Y - C - G$
$Y - C - G = I + (X-M)$
Let $S^T = Y-C-G$.
$S^T = I + (X-M) = I + TB$
Let $I = I^P + I^G$.
$I + TB = S^T$
$(I^P + I^G) + (X-M) = S^T$
$(I^P + I^G) = S^T - (X-M) = S^T - X + M$

where,

Y = Real Gross domestic Product
C = Real Household Consumption
I = Real Gross fixed capital formation
G = Real Government expenditure
X = Real Exports of goods and services

M = Real Imports of goods and services

(X-M) = RNX (Real Net exports)

S^T = Real gross saving

S^G = Real gross government saving

S^P = Real gross private saving

I^P = Real private gross fixed capital formation.

I^G = Real public gross fixed capital formation.

So,

$I = S^T - X +,$ M (Modified version of Keynesian J-W Approach)