CEA

Center for Economic Analyses

CEA Journal of Economics

Volume 1

Issue 1

Skopje, May 2006

CEA Journal of Economics

Contents

Foreword

Dear Readers,

This is the first issue of the CEA Journal of Economics. I hope that with this publication, CEA will improve the quality of the economic discourse in Macedonia and in the region. The journal is peer-reviewed and will review papers submitted by all interested economists. This journal will be published twice a year. I am sure that with each new issue the journal will be improving its quality.

The first issue touches a wide area of topics: fiscal policy, current account determination, agricultural policy and entrepreneurship and growth. The insights from the published papers are of great importance to the Macedonian economy, as well as to the economies in south-eastern Europe. Mr. Marjan Nikolov writes about the application of vector autoregression with possibly integrated processes to the budget revenues, expenditures and industrial output. Mr. Aleksandar Stojkov writes on the competing theoretical approaches to current account determination, Ms. Viktorija Andonova writes about the economic effects of the EU's common agricultural policy, while Mr. Filip Blazeski writes about entrepreneurship as a factor of growth.

CEA Journal of Economics accepts papers for review by all interested economists. The submitted papers have to follow the guidelines outlined on the next page. Each submitted paper is given careful consideration. The editorial board replies to each submitter with a conditional acceptance of the paper for publication and with guidelines for improvements.

CEA extends its gratitude to Zito Vardar from Veles for its financial assistance for the printing of this issue of the journal.

Filip Blazeski,

Editor-in-Chief

Call for Papers

CEA announces a call for papers for publication in the second edition of the CEA Journal of Economics. The papers can come from any area of economics.

Although not strictly limited to them, please observe the following guidelines. In case of submitting theoretical papers, please include: abstract, introduction, extensive literature review, theoretical ramifications, conclusion and bibliography. In case of submitting empirical papers, please include: abstract, introduction, short literature review, methodology, empirical findings, conclusion with policy implications and bibliography.

Format: electronic version, A4, Times New Roman, no indentation, single space, one space between paragraphs, APA style, maximum 20 pages.

Deadline: 30 September 2006

Submit to: journal@cea.org.mk

ILLUSTRATION OF VECTOR AUTOREGRESSION-VAR WITH POSSIBLY
INTEGRATED PROCESSES: APPLICATION TO THE BUDGET REVENUES,
EXPENDITURES AND INDUSTRIAL OUTPUT [1]

By Marjan Nikolov, MSc

Abstract

In a VAR estimation the preference for variables to be stationary
exists. The tests for cointegration ranks in Johansen type of ECM
are sensitive to the values of the parameters in finite samples and
hence not very reliable for economic time series consequently and
thus, the strategy for testing economic hypothesis conditioned on
the estimation of a unit root, a cointegrating rank and cointegrating
vectors may suffer from severe pretest biases.

The significance of the fiscal synchronization hypothesis in
Macedonia shows that the Government in the period 1995-2004
was planning the fiscal strategy in a cost benefit framework by
simultaneously comparing the marginal revenues with the marginal
costs. However, a causality relationship between the industrial
output and the Government fiscal operations was not significant.

Introduction

From the econometric time series theory we know that if we are not confident that a
variable is actually exogenous than we should treat each variable symmetrically. That
is how the concept of vector autoregression-VAR is constituted. However, the issue of
whether the variables in a VAR need to be stationary exists. Sims (1980) recommends
against differencing even if the variables contain a unit root. He argues that the goal is
to determine the interrelations among the variables and not the parameters estimates
especially if one tries to estimate a structural economic model.

Park and Philips (1989) have shown that the conventional asymptotic theory is not
applicable to hypothesis testing in levels VAR if the variables are integrated or
cointegrated. The tests for cointegration ranks in Johansen type of ECM are sensitive
to the values of the parameters in finite samples and hence not very reliable for
economic time series consequently and thus, the strategy for testing economic
hypothesis conditioned on the estimation of a unit root, a cointegrating rank and
cointegrating vectors may suffer from severe pretest biases (see more in Toda and
Yamamoto's (1995)).

A way out seems to be the Toda and Yamamoto's approach on how one can estimate
a VAR in levels and test general restrictions on the parameter matrices even if the
process may be integrated or cointegrated of an arbitrary order. They prove that we

---

can apply a usual lag selection procedure to a possibly integrated or cointegrated VAR because the standard asymptotic theory is still valid. In this paper we illustrate the step by step procedure of VAR estimation in Toda and Yamamoto fashion for the causality problem of revenue and expenditure variables within the Macedonian budget.

The IMF position is that the EU candidate countries need to rein in spending because of the growing account gaps and to prevent strengthening exchange rates. The structure of the central budget expenditures in Macedonia has a dominant participation of wages and salaries (around 36 %), goods and services (around 13 %) and interest payments (around 12 %). The rest of 38 % is to the current transfers from the central budget that counts around 70 % on pension fund, employment bureau and social programs transfers. However, the budget expenditures as % of GDP average for the period 1998-2004 is the lowest compared to other countries in transition.

The fiscal deficit is important for the economic growth and the national saving. Macedonia is a budget deficit economy and reducing that deficit can, in long run, induce higher economic growth at least. Raising revenues and/or reducing the expenditures can reduce deficit. Because of that it is relevant to reveal the causal nexus of Government spending and revenues. Namely, the policy makers must know if the government is an unidirectional tax-and-spend or spend-and-tax case or it is bi-directional in accordance with the fiscal synchronization hypothesis of tax revenues and spending decisions made simultaneously. If the government is a tax-and-spend case than the policy makers should control the tax revenues in order to reduce the size of the government expenditures. The spend-and-tax unidirectional case will require from the policy makers to make more frequently expenditures outlooks in order to reduce the deficit. The synchronization hypothesis is bi-directional in the causality between tax and expenditures and the policy makers should actually compare the marginal costs and the marginal benefits of each budget decision.

This study is of special importance to induce debate on fiscal issues because the Government of Macedonia is running fiscal reforms and is building a fiscal strategy documents and is improving the budget process with adoption of methodology for strategic planning in order to improve the fiscal discipline. Other important issue is the IMF position on this topic and the Macedonian commitment to fulfill the newly negotiated SBA agreement. Thus, this paper will test the causality between tax revenues and the expenditures by using the Granger causality test. For the estimation purposes I will use the E-Views.

Casual inspection on data

Data are from the Ministry of Finance and three time series are considered with monthly frequency and time period from 1995-2004:

- Tax revenues;
- Central Government expenditures (including financing);
- Industrial production index as a proxy to the Macedonian output.
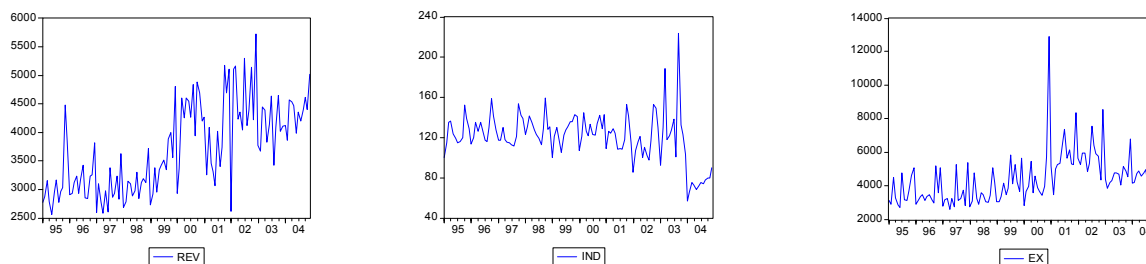
The time plots of these variables are illustrated in the next graphs. The outlier in the expenditure time series is from 2000:12 representing higher capital expenditures in a year that counted budget surplus. The drop in the revenues in 2002:1 is reflecting inconsistency in accounting. The industrial production index-IPI seems to meander around a mean value, but the deficiencies in the weights used for the aggregation of elementary data collected from enterprises, the outdated weighting structure, the incomplete introduction of new products in the index, and the insufficient information available for the control of quality of basic data for calculation of the index were confirmed by the CEA study (see Nikolov, Roberts, Stojkov and Bogov 2004). The state statistical office revised the IPI for 2004 only (with the new weights) and we use them. Anyway, we will continue with our VAR estimation.

Industry production index as a proxy for output

As we said in the introduction, the causality and the referent policy decision on the tax revenues, government expenditures and thus, the budget deficit will have impact on the economic growth. In Macedonia monthly data on VA (Value Added) are not available and I will use the industrial production index as a proxy for the Macedonian output. The dynamic of both variables, the index growth and the GDP growth for the period under observation, are illustrated in the next graph. We can see that, in general, they move together.
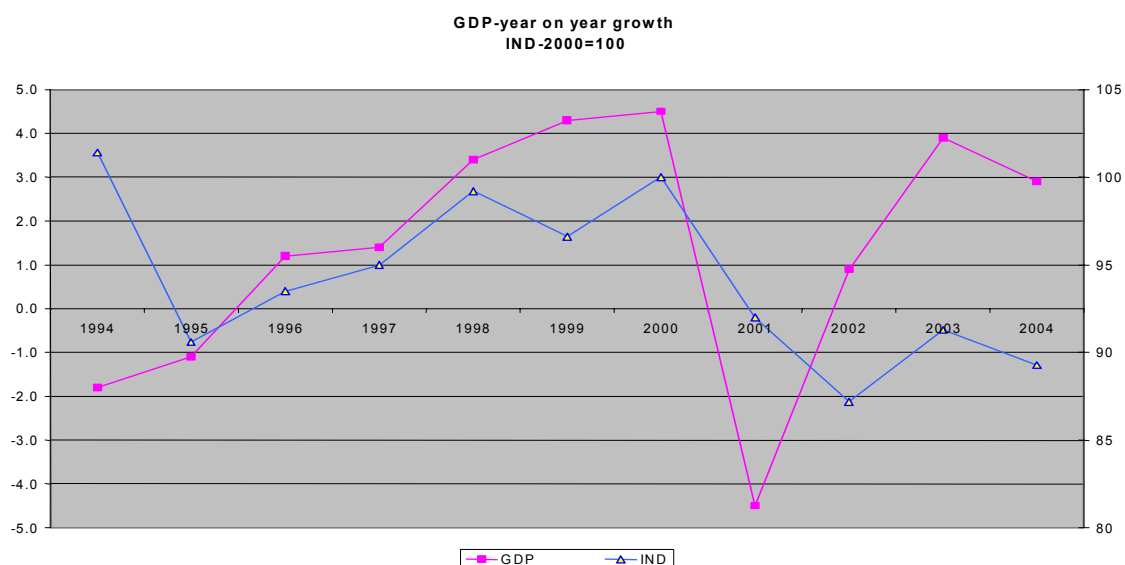
Seasonality and unit roots test

First, I will test the time series for seasonal effects. I will use the X12 adjustment method. At one percent level of significance, the F-test (assuming stability) shows seasonality presence in all three variables. Thus, they were seasonally adjusted and as such will be used further in this paper. The F-test calculations are illustrated in the next table.

	Seasonality X12 (F-test assuming stability)
Tax revenues	Seasonality present at the 0.1 per cent level; F=10.932
Expenditures	Seasonality present at the 0.1 per cent level; F=11.184
Industrial index	Seasonality present at the 0.1 per cent level; F=11.027

In order to find the level of integration and cointegration of the time series, I will test them on unit roots presence. Testing for unit roots is actually estimation of the following least restrictive equation that can model the unknown data generating process:

$$\Delta y_t = a_0 + \gamma \cdot y_{t-1} + a_2 t + \Sigma \beta_i \Delta y_{t-i} + \varepsilon_t$$

This equation is used in the Augmented Dickey Fuller test for unit roots. This equation covers the possible random walk hypothesis and includes a trend and a drift term. In the equation, "y" is any one of the considered variables. The results from the tests (12 lags) are presented in the next table.

Unit roots test on level values	Tax revenues	Expenditures	Industrial index	1% Critical Value 5% Critical Value 10% Critical Value
ADF Test Intercept included	-1.620 (accept null at 1 %)	-4.651 (reject null at 1 %)	-2.658 (reject null at 10 %)	MacKinnon (1996) one-sided p-values.
ADF Test Intercept and trend included	-2.987 (accept null)	-5.981 (reject null at 1 %)	-3.414 (reject null at 10 %)	MacKinnon (1996) one-sided p-values.
Integration order	I (1)	I (0)	I(0)	No cointegration
Unit roots test on first difference	Null rejected (at 1 %)	Null rejected (at 1 %)	Null rejected (at 1 %)	Max suspected order of integration: I (1)

What we can conclude is that these three variables are not cointegrated because they are not integrated of the same order. Namely, tax revenues are integrated of order one – I(1) and expenditures and industrial index are integrated of order-0 i.e. they have no unit roots (at 1 % critical value). Having in mind that the variables that we try to estimate for economic causality is actually testing economic hypothesis conditioned on the estimation of a unit root, our results may suffer from severe pretest biases. That is why we will proceed further in this paper with the Toda and Yamamoto approach.

Methodology for causality testing

Testing causality means if lags of one variable enter in an equation for another variable and thus, it causes the variable and if the lags of one variable do not enter the equation it doesn't cause that variable. In our case we have to deal with three variables VAR and variables that are not cointegrated. The Granger causality test will yield spurious results if the variables on hand are not integrated of the same order, as in our case (see Enders 1995). But with Toda and Yamamoto simple adjustments one can carry out the Granger procedure even when the integration is of different order.

Their procedure is to find what is the maximal order of integration (dmax) that can occur in the model and to construct a VAR in their levels with a total of p = (k + dmax) lags. Here k – is the lag length chosen by using some lag selection criteria. Rambaldi and Doran (1996) are showing how in this case Granger causality can be very simple to test. Namely, each variable is regressed on all variables lagged from one to k + dmax lags in SUR system and then, by using the MWald test; the restriction of causality can be tested.

VAR model algebra and MWald test on Granger causality

Our three variable (k + dmax) order VAR model is presented in the following equation:

$$
\begin{bmatrix} EX \\ REV \\ IND \end{bmatrix} = A_0 + \sum_{i=1}^{k} A_i \begin{bmatrix} EX_{t-i} \\ REV_{t-i} \\ IND_{t-i} \end{bmatrix} + \sum_{j=k+1}^{k+1+d\,\max} A_j \begin{bmatrix} EX_j \\ REV_j \\ IND_j \end{bmatrix} + \begin{bmatrix} e_{EX} \\ e_{REV} \\ e_{IND} \end{bmatrix} \quad (1)
$$

In our case dmax is 1 since the higher order suspected comes from the tax revenues that are I(1) (see the table on unit roots testing above). In order to find the number of lag length "k" I will specify the maximum lag to "test" for at 12 because I am working with monthly data and suspecting seasonality.

The table below displays various information criteria for all lags up to the specified maximum. The table indicates the selected lag from each column criterion by an asterisk "*". The likelihood ratio (LR) test is carried out as follows. Starting from the maximum lag, we will test the hypothesis that the coefficients on lag are jointly zero using the statistics:

$$ LR = (T\text{-}c)*(\log|\Sigma_r| - \log|\Sigma_u|) $$

where "c" is the number of parameters per equation under the alternative. Note that we employ Sims' (1980) small sample modification, which uses (T-c) rather than T. We compare the modified LR statistics to the 5% critical values starting from the maximum lag (12 in our case), and decreasing the lag one at a time until we first get a rejection. The alternative lag order from the first rejected test is marked with an asterisk. It is worth emphasizing that even though the individual tests have size 0.05, the overall size of the test will not be 5% because with paring down the model at each stage a small amount of explanatory power is lost (see the discussion in Lütkepohl (1992)).

Lag	LogL	LR	AIC	SBC	HQ
0	-2230.683	NA	41.36449	41.43900	41.39470
1	-2144.548	165.8891	39.93607	40.23409	40.05691
2	-2122.908	40.47532	39.70200	40.22352*	39.91346*
3	-2111.639	20.45117	39.65998*	40.40501	39.96206
4	-2107.140	7.915091	39.74333	40.71187	40.13604
5	-2100.500	11.31152	39.78704	40.97910	40.27038
6	-2095.494	8.250744	39.86100	41.27657	40.43497
7	-2090.530	7.906670	39.93573	41.57481	40.60032
8	-2084.791	8.820833	39.99612	41.85872	40.75134
9	-2080.205	6.793233	40.07788	42.16398	40.92371
10	-2075.863	6.191065	40.16414	42.47375	41.10060
11	-2066.114	13.36017	40.15026	42.68339	41.17735
12	-2049.326	22.07306*	40.00604	42.76268	41.12376
* indicates lag order selected by the criterion					

The mechanism of lag length selection criteria is presented in this table.

AIC: Akaike information criterion: $AIC = -2l/T + 2n/T$
SBC: Schwarz Bayesian information criterion: $SBC = -2l/T + 2n\log(T)/T$
HQ: Hannan-Quinn information criterion: $HQ = -2l/T + 2n\log(\log(t))/T$
LogL: log likelihood: $\log l = -\dfrac{T}{2}\{k(1+\log 2\pi)+\log|\Omega|\}$, where $|\Omega|$ is the determinant of the residuals.

From the table above we can see that SBC and HQ choose lag length of 2 while AIC choose 3 and LR choose 12. Two selection criteria select lag length k = 2 and we will accept this result (the SBC will always select the more parsimonious model than the AIC see more in Enders (1995)) thus, in our case the lag length of the VAR will be $p = k + d\max = 2 + 1 = 3$.

The MWald testing will be on SUR estimation of the equation (1) in accordance with the Rambaldi and Doran (1996) suggestion.
The specification of the SUR will be (Aij are the polynomials in the lag operator "L", where the power m = 0, 1 and 2):

$$REV = A10 + A11\,(L^m)*REV(-1) + A12\,(L^m)*EX(-1) + A13\,(L^m)*IND(-1) + e1 \quad (2)$$

$$EX = A20 + A21\,(L^m)*REV(-1) + A22\,(L^m)*EX(-1) + A23\,(L^m)*IND(-1) + e2 \quad (3)$$

$$IND = A30 + A31\,(L^m)*REV(-1) + A32\,(L^m)*EX(-1) + A33\,(L^m)*IND(-1) + e3 \quad (4)$$

MWald testing for Granger causality and the decisions upon the null hypothesis are illustrated in the next table:

k = 2, dmax = 1			
Null Hypothesis for equations 2, 3 and 4:	**Polynomial restriction**	**MWald test** $\chi^2_{0.05} = 7.815$ **(3 df)**	**Decision**
EX does not Granger Cause REV	A12 (L^m) = 0	8.753	Reject
REV does not Granger Cause EX	A21 (L^m) = 0	8.081	Reject
EX does not Granger Cause IND	A32 (L^m) = 0	0.027	Accept
IND does not Granger Cause EX	A23 (L^m) = 0	1.443	Accept
IND does not Granger Cause REV	A13 (L^m) = 0	1.202	Accept
REV does not Granger Cause IND	A31 (L^m) = 0	0.542	Accept

What we can conclude is that there is bi-directional causality at 5 % significance level i.e. the revenues are causing the expenditures and the expenditures are causing the revenues. However, we couldn't find significant causality involving the industrial index. Thus, empirical evidence in Macedonia supports the fiscal synchronization hypothesis and the causality nexus for the Macedonian case is:

$$\mathrm{Re}\,venues \leftrightarrow Expenditures \quad (5)$$

The robustness of the causality results with respect to the lag length

I would like to determine the robustness of the causality results with respect to lag length and because of that I will test the Equations 2, 3 and 4 with k=3 as well. This is more to prevent the AIC finding of three significant lags from the lag length test procedure above. The results of the causality MWald test for the case k = 3 are presented in the following table. Thus, we can conclude that our results are robust in lag length (by comparing the decisions from tables k = 2 above and k = 3 below).

k = 3, dmax = 1 thus, **VAR will be** $p = k + d\max = 3 + 1 = 4$.			
Null Hypothesis for equations 2, 3 and 4:	**Polynomial restriction**	**MWald test** $\chi^2_{0.05} = 5.991$ **(2 df)**	**Decision**
EX does not Granger Cause REV	A12 (L^m) = 0	7.515	Reject
REV does not Granger Cause EX	A21 (L^m) = 0	7.629	Reject
EX does not Granger Cause IND	A32 (L^m) = 0	0.069	Accept
IND does not Granger Cause EX	A23 (L^m) = 0	1.688	Accept
IND does not Granger Cause REV	A13 (L^m) = 0	5.112	Accept
REV does not Granger Cause IND	A31 (L^m) = 0	0.822	Accept

Innovation accounting

The innovation accounting will be illustrated via the impulse responses on the vector moving average (VMA) representation on our VAR and the variance decomposition. To proceed we will need to face the identification problem. This problem can be solved by the Cholesky decomposition (see Enders 1995) and by making correlation inspection of the residuals from the VAR. The correlation matrix is illustrated in the

next table. We can see that the correlation does not exceed 0.2 in absolute numbers (threshold proposed in Enders 1995). Thus, the ordering might not be relevant.

| Correlation matrix	REV	EX	IND
REV	1	0.1322	-0.0427
EX	0.1322	1	-0.0311
IND	-0.0427	-0.0311	1

Impulse responses

The impulse responses to one standard deviation innovation of revenues and of expenditures according the equation 5, here once again presented (industry index is not considered since no causality was significant):

$$Re\,venues \leftrightarrow Expenditures$$

are illustrated in the next graphs. The graphs are illustrating a 1-year dynamics of the causal relationship between the variables.

What we can see in both graphs is the response of the expenditures (left hand graph) and of the revenues (right hand graph) to a one SD (standard deviation) innovation to revenues and expenditures. From the left-hand graph we can see immediate positive response of the expenditures of around 796 units. The revenues are responding with a lag of one month by jumping to around 29 units. Both variables are then gradually converging to the zero value. From the right-hand graph we can see immediate positive response of the revenues of around 402 units and the expenditures of 54 units.

Response of EX_SA to Cholesky
One S.D. Innovations

Response of REV_SA to Cholesky
One S.D. Innovations
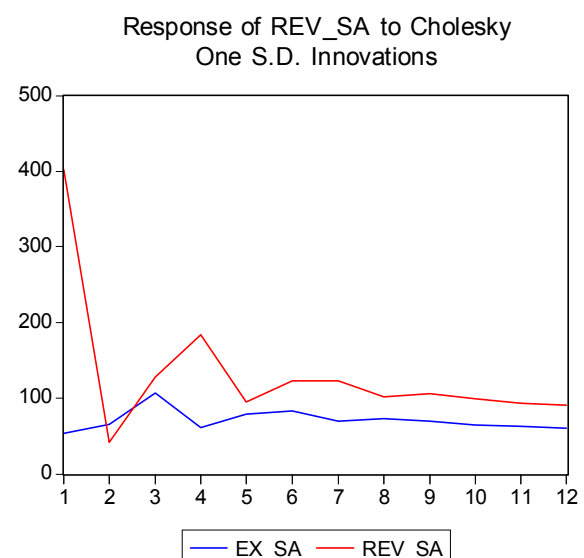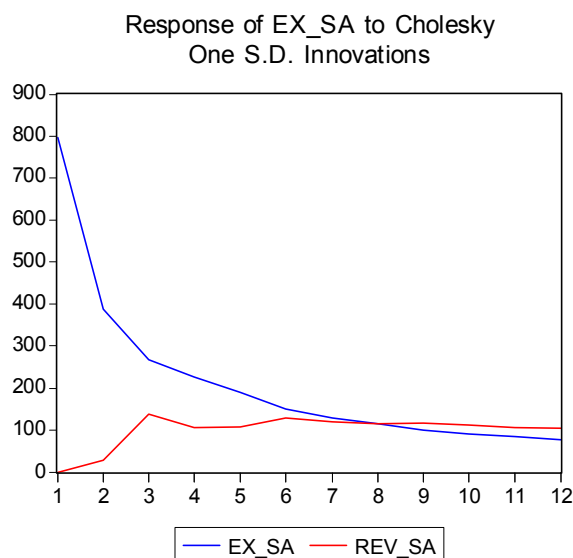
The cumulative effects of the impulse responses in one-year time according the graphs above are presented in the next table.

	Response of revenues	Response of expenditures
1 SD innovation in revenues	1584 units increase	848 units increase
1 SD innovation in expenditures	1181 units increase	2615 units increase

Variance decomposition

The variance decomposition will be illustrated in the next tables. It shows the percentage proportion of the movements in the variables due to its own shocks versus shocks to other variables. First table shows decomposition of revenue variance and the second the decomposition of the expenditure variance. We can see that in the case of the revenues after the one-year period, its own fluctuations are explained 88.6 % from its own variance, 11.4 % is explained by the variance of the expenditures.

Decomposition of Revenues in % Months	Revenues	Expenditures
1	100.0	0.0
3	93.9	6.1
6	91.6	8.4
9	89.8	10.2
12	88.6	11.4

In the case of expenditures, after the one-year period, its own fluctuations are explained 73.21 % from its own variance, 16.93 % is explained by the variance of the revenues and 9.87 % by the variance of the industrial index.

Decomposition of Expenditures in % Months	Revenues	Expenditures
1	1.5	98.5
3	4.7	95.3
6	9.6	90.4
9	13.7	86.3
12	16.8	83.2

Conclusion

We were interested to find the causal nexus of the revenues and Government expenditures in Macedonia. The data used were the tax revenues and the Government expenditures for the period 1995-2004 on monthly frequency. The budget deficit is important for the economic growth so in this framework the industrial index was also considered in the VAR model to proxy the economic output. Straight Granger causality test couldn't be used because the variables were not integrated of the same order. The Toda and Yamamoto (1995) MWald procedure was utilized to avoid the problem of biasness during testing procedure. Finding was that the second order VAR (the third lag is for testing purposes only) represents the true data generating process significantly. The Macedonian case shows, in accordance the fiscal synchronization hypothesis, a bi-directional case in the nexus of revenues and expenditures. The

industrial index neither significantly cause the other two variables nor they significantly cause it at 5 % significance level. Further improvement in the state statistical office operations is recommended related to the IPI production. The ordering in our innovation accounting case is immaterial since the correlation matrix shows no significance (the correlation was less then 20 % in absolute number). The cumulative effect of one SD innovation to revenues and expenditures shows positive responses in both variables.

The significance of the fiscal synchronization hypothesis in Macedonia shows that the Government in the period 1995-2004 was planning the fiscal strategy in a cost benefit framework by simultaneously comparing the marginal revenues with the marginal costs. Thus, one interpretation might be that the IMF's pressure for keeping the low budget deficit is giving results, but on other hand it gives space to relax this policy since the long period of tight fiscal policy could have changed the expectations of the economic agents (including the Government) in a way for anticipating high level of fiscal discipline.

Another issue is that since the Government is already planning in a cost benefit framework, with help of the IMF, it must improve its methodology in planning the fiscal strategy in a context of more extensive medium term fiscal framework. This is one argument more for developing a strong macroeconomic department within the ministry of finance.

Recommendation for the Government is to keep the policy of both ways planning of marginal revenues and marginal costs further. The IMF should continue to work with the Macedonian Government and to help more in the fiscal management issues (maybe a binding debt rule and/or capital borrowing rule in order to improve the fiscal discipline and the management of the budget process should be considered. This will be interesting for Macedonia since the theorists of the new political economy are recommending it for countries with unstable political system and a high degree of polarization between political parties as is the case in Macedonia). Ministry of Finance must, on one hand, make realistic revenue forecasts that will capture the priorities set by the Government and eventual anticipated improvements in the revenue collection efficiency. On other hand, the Ministry of Finance in relation with the agreed with IMF fiscal deficit, the forecasts of revenues and with the Government's priorities in mind must set ceiling to the line ministries' budgets and increase the coordination capacity. The line Ministries must then set their plans for the fiscal years within the budget they will have on hand.

References

[1] Lutkepohl, Helmut and Reimers, "Impulse response analysis of cointegrated systems" *Journal of economic Dynamics and Control* (1992).
[2] Enders, "Applied Econometric Tiem Series" *John Wiley* (1995).
[3] Toda and Yamamoto, "Statistical inference in VAR with possibly integrated processes" *Journal of Econometrics* (1995)
[4] Rambaldi and Doran, "Testing for Granger non-causality in cointegrated systems" *Working papers in econometrics and applied statistics* 1996.

[5]Hoppner, "A VAR Analysis of the effects of fiscal policy in Germany" *University of Bonn* 2001.

[6] Demirbas, "Cointegration analysis-causality testing and Wagner's Law: the case of Turkey, 1995-1990" *University of Leicester* (1999).

[7] Hatemi and Shukur, "The causal nexus of Government spending and revenue in Finland: A bootstrap approach" *Lund University and Goteborg University* (1998).

[8] Aziz, Habibullah, Saini, Azali, "Testing causal relationship between tax revenues and government spending in Malaysia" *FEP Seminar* (2000).

[9] Sims, Christopher, "Macroeconomics and reality" *Econometrica 48* (Jan. 1980).

[10] Nikolov, Roberts, Stojkov and Bogov, "Analysis of the Macedonian industrial production index in 2004", *Government of Macedonia internal document* (2004).

A SURVEY OF COMPETING THEORETICAL APPROACHES TO CURRENT ACCOUNT DETERMINATION

Aleksandar Stojkov, MSc.

Abstract

Recent theoretical approaches to current account determination suggest that the appropriate measure of external balance depends on the country's exposition to international asset trade and the structure of national portfolio. Although valuation changes may reach significant fractions of GDP, the external current account still matters, even for the advanced economies that maintain strong links with the international capital market.

The intertemporal (or dynamic-optimizing) model has kept its reputation of workhorse model in new open economy macroeconomics and through its extended versions has preserved its validity at the beginning of the new century, as well. This does not mean that the other approaches have been declared outmoded. The Mundell-Fleming model, for instance, is still a legitimate tool for policy analysis in many countries. There are calls for revisiting the portfolio balance model on the grounds of increasing international asset diversification, as well. Apparently, there is a growing interest in this particular field of international macroeconomics aimed at re-assessing the importance of the concepts of external balance, adjustment and sustainability.

> […] there have been important changes in economists' views on the subject: from "deficits matter", to "deficits are irrelevant if the public sector is in equilibrium", back to "deficits matter", to the current dominant view "deficits *may* matter".
>
> Sebastian Edwards (2000)

On the relevance of the external current account

As an intermediate target, the external current account appears to be a purely technical concept compared to the economic and social relevance attached to the ultimate macroeconomic goals, such as sustainable GDP growth or low unemployment. The usefulness of this summary statistic of the developments in the macroeconomy has been more associated with the policymakers' concern for stability than with the policies to stimulate economic growth.

Recently, prominent authors in international macroeconomics have reaffirmed the idea that the current account is becoming "increasingly inadequate as a summary of the change in country's net foreign assets" (Obstfeld, 2004). They have highlighted the need for rethinking the concepts of "external balance" and "external adjustment" in industrialized countries in order to capture the significant valuation changes

(capital gains or losses on the net external wealth of nations) that occur in a world of increasing international asset diversification. According to the new look on the external balance, the current account remains relevant concept in the long-run, since the external adjustment operates through the trade channel, i.e. changes in net exports. However, in the short and medium run, the standard national income definition of the current account becomes imprecise indicator of the changes in the international distribution of the wealth. This is particularly relevant for advanced economies, where most of the external adjustment operates through the financial channel (exchange-rate and asset-price movements).[2]

The conventional view on the current account as a broad reflection of domestic imbalances has also been questioned. Recent studies argue that the (capital) financial account has often been missing from the external adjustment analysis (Clausen and Candil, 2005). Their findings contend that the ability of the country to sustain large current account deficits has often been associated with the willingness of foreign investors to hold assets in the country. In such episodes, the current account adjustment should be treated as an exogenous event, rather then as an indicator of domestic imbalances, because it is largely driven by the behaviour of non-residents.

These findings are certainly not aimed to discourage future work on the current account determination. On the contrary, they indicate growing interest in this particular field of international macroeconomics and re-assessed empirical importance of the external balance, adjustment and sustainability. Although flawed, the current account balance is still far from a "meaningless concept" in the industrialized countries and still of great significance for credit-constrained developing and transition countries.[3]

The article is organized as follows. Section 2 summarizes the trade-flows models that dominated the early post-war analytical thinking on current account determination. The next section surveys the modern (at that time) theoretical approaches that emerged in a world of increased capital mobility. The new open-economy models of current account behaviour that have been developed in a forward-looking setting with strongly articulated microfoundations are discussed in Section 4. The last section offers a brief conclusion on the relevance of contemporary theoretical approaches.

Traditional models of current account determination

Early open-economy macroeconomic analysis has investigated the current account behaviour in a partial equilibrium and comparatively static framework. These traditional (also known as trade-flows) models, most notably the elasticity and absorption approaches to the balance of payments, were primarily concerned with the impact of exchange-rate changes on the trade variables. The central idea behind the **elasticity approach** has been that the effect of devaluation on the current account will

---

[2] Obstfeld (2004) offers very illustrative example of the importance of valuation changes for the country's net foreign wealth. A firm may decide not to pay the dividend to the foreign shareholders, but to retain the earnings. Although this will not be reflected in the balance-of-payments statistics under the net investment income position in the current account balance, the firm's stock market price will rise and the overall effect on the net external wealth will be the same.

[3] As reported by Obstfeld (2004), the former US Treasury Secretary Paul O'Neill has bravely declared that the current account balance has become a "meaningless concept".

depend on the elasticities of demand for exports and demand for imports.[4] In its technical exposition, the Marshall-Lerner condition states that the sum of the elasticities has to be greater than one in order to expect improvement in the current account. Since devaluation works through price and volume effect, in a short-run, it is conceivable that the price effect could overwhelm (the well-known J-curve) and that initially, the current account could deteriorate. Indeed, the policy debates until mid-1970s were dominated by the two camps of 'elasticities pessimists' and 'elasticity pessimists' regarding the success of devaluation.

The **absorption** approach, whose origins were in the early 1950-s in Sidney Alexander's work, was designed to complement the former approach by incorporating the interactions between exchange rate and income in the adjustment process. Its central message is that the effects of devaluation on the current account depend upon how it affects national income relative to domestic absorption. The net effect on the current account, as suggested by this approach, is often ambiguous, because diverse and conflicting channels are at work and because the economy may (not) operate under full employment.[5] In light of subsequent approaches, the inspiring work of Harberger, Laursen and Metzler (H-L-M effect) in early 1950s is worth commenting. They conjecture that changes in terms of trade following a devaluation can have two effects on absorption: an income effect and substitution effect.[6] Adverse terms of trade shock can either induce deterioration or improvement in the current account, depending on whether the income effect (decreased current level of real income and lowered savings) would outweigh the substitution effect (increased consumption of domestically produced goods). Even in its synthesized version, the approach did not succeed to thoroughly investigate the roots of payments imbalances beyond external sector, most notably, to examine the role of monetary factors.

Modern theoretical approaches to the current account

The delineation between the traditional and modern current account theories is usually associated with the introduction of international capital mobility in open economy analysis of Keynesian type. While the former have been primarily concerned with the devaluation effects, modern approaches have broaden the analytical framework by allowing greater role for the implications of monetary and fiscal policy on the overall balance of payments. The landmark work that opened the modern era of open economy macroeconomics is the celebrated joint (theoretical) venture made by Mundell (1962, 1963) and Fleming (1962). Later theories have embraced the role of monetary factors and broader spectrum of assets in explaining the current account behaviour.

Constructed as Keynesian application in an international setup, the **Mundell-Fleming model** is comparatively static model with sticky prices and output that is demand

---

[4] The elasticity approach was pioneered by Alfred Marshall, Abba Lerner and later extended by Joan Robinson and Fritz Machlup.
[5] Sidney Alexander and Fritz Machlup have identified the following effects of devaluation on the national income and domestic absorption: employment (or idle-resources) effect, terms-of-trade effect, real-balance effect, income-redistribution effect, money-illusion effect and expectational effects.
[6] The conclusions were derived on the basis of one-good open economy model.

determined. The theoretical advance in comparison with previous models of current account determination is that it has incorporated the international capital flows in the famous IS-LM model, making a distinction between the current and capital account transactions. The model operates in the short-run and courageously assumes that the Marshal-Lerner condition holds true, despite its empirical validity in medium and long run.

Although exchange rate, output and employment are the primary concern of the model, it does offer policy prescriptions with regard to the external current account position (Razin, 1995). For instance, it suggests that under flexible exchange rates, an expansionary fiscal policy, ceteris paribus, will induce rise of the domestic income and subsequent deterioration of the current account. Depending on the responsiveness of the capital flows to interest rate variations this may lead to either an exchange-rate depreciation or an exchange-rate appreciation. Under fixed exchange rates, fiscal expansion will raise the output (since it is demand determined) and will cause worsening of the external imbalance, other things being equal.[7] On the other side, an expansionary monetary policy will lower the domestic interest rate and induce a rise in output thereby worsening the current account. The main recommendations however are that by combining monetary and fiscal policy both internal and external balance can be achieved, while the principle of effective market classification depends on the type of exchange rate regime.[8]

There are shortcomings of the model, though. It does neglect the distinction between stock and flows, leaving aside the current stock of productive capital or the level of indebtedness that often may discourage capital inflows. Since it is focused on short-term considerations, the model neglects the long-run budget constraints that govern both the private and the public sector (Frenkel and Razin, 1987). For instance, private sector may increase its savings as a response to higher government expenditure today. Moreover, Obstfeld and Rogoff (2002) underline the inability of the model to predict "how incipient gaps between aggregate demand and output are resolved" under assumptions of sticky prices as well as to include various policy lags. Notwithstanding these shortcomings, the model has been upgraded in various directions and has served for many decades as a convenient framework for policymakers in analyzing current account movements under different macroeconomic policies.[9] Because of its simplicity, the M-F model is still legitimate tool for policy analysis in many countries.

Increased financial linkages among countries have shifted the research interest from trade relationships to financial variables and the role of capital markets (Salvatore, 2001). In this respect, the monetary and portfolio balance approaches that are concerned with the overall balance of payments rather than the current account *per se*, gained a prominent place in international economics textbooks. The former has been widely used in field work of the international financial institutions (most notably, the

---

[7] In addition, increased domestic interest rate will attract capital inflows thereby leaving the overall effect on the balance of payments indeterminate.

[8] The 'rule' that we need at least two instruments to achieve two targets was introduced by the famous Dutch economist, Jan Tinbergen in 1962, while the principle of effective market classification owes its origins to the work of Robert Mundell in 1968.

[9] A unified analytical framework of the various extensions of the Mundell-Fleming model has been offered in Frenkel and Razin (1987).

International Monetary Fund), mainly because of its simplicity and low data requirements.

Monetary approach to BoP views the economy's balance of payments as an essentially monetary phenomenon. Its origins can be found in the numerous works of Frenkel, Johnson, Mundell, Polak etc. Money plays a crucial role in the long run both as a disturbance and as an adjustment mechanism, but it is improper to locate the approach under the premises of monetarism.[10] This does not mean that the approach neglects the role of real factors; rather their influence is felt through the effects they generate on money supply and demand. The logic behind the monetary approach is that any stock disequilibrium on the money market produces an effect on the aggregate expenditure. Proponents of the monetary approach argue that surplus in the balance of payments results from an excess in the stock of money demanded that is not satisfied by the monetary authorities and a deficit results from an excess in the stock of money supplied that is not corrected by the monetary authorities.[11] Unlike Keynesian models, the monetary model follows the so called 'bottom-up' approach in the analysis of the combined current and capital account, while treating the current account transactions as accommodating items.

There has never been lack of criticism for the monetary approach. The assumption that money is the only asset in existence does not conform to reality with rich menu of assets. In addition, it is unrealistic to expect that the assumptions of full employment and purchasing power parity hold in the short-run. Also causality may lead from expenditure decisions to changes in money demand, rather then vice versa (Pilbeam, 1998). Finally, it does not explain the monetary transmission link to the real sector.

The portfolio-balance approach (or asset market) approach expands the monetary approach by incorporating plurality of financial instruments. Its origins are in the mean-variance theory of Markowitz (1952) and Tobin (1969) which postulates that investors create their portfolios by holding risk-free assets and optimal combination of risky assets. The shares in the portfolio depend on the degree of risk aversion of the investors and the distribution of asset returns.

The traditional portfolio view on the current account has been that countries invest marginal unit of savings in foreign assets, under the assumptions that investment risk is weak and the diminishing returns on domestic capital are stronger (Kraay and Ventura, 2002). Hence, variations in savings are expected to be translated into variations of the current account of the same magnitude. Recent theoretical work has found the traditional portfolio-balance approach inconsistent with the long-run behaviour of the external position. Therefore the proponents of the 'new' portfolio-based theory have offered reconciliation of the apparent contradictions, by analyzing the current account as a reflection of changes in the size and in the composition of the country portfolio. The latter is defined as sum of all productive assets (capital stock) located within the country and its net foreign assets (Ventura, 2001). Current account adjustment may operate through changes in the size of the portfolio (portfolio growth) or through changes in the composition of country portfolio (portfolio rebalancing).

---

[10] In the seminal IMF working paper "Theoretical Aspects of the Design of Fund-Supported Adjustment Programs" (September 1987), the editors emphasize the eclectic nature of this approach.
[11] Under fixed exchange rate, (the current account) deficit draws down the foreign exchange reserves, while under floating exchange rate it causes depreciation of the home currency.

They argue that the traditional view is valid for the short-run: when transitory (positive) income shock occurs, increased savings is not immediately translated into investment, because the adjustment costs would be high and the expected return to domestic capital would decline. Hence, short run variations in the current account are dominated by portfolio rebalancing towards foreign assets, since economic agents prefer to smooth their consumption.

In the long run, the main assumption is that country portfolios remain stable. The new portfolio-based theory predicts that after the initial shock, countries gradually rebalance their portfolios back to the initial composition. Current account behaviour in the long run is therefore dominated by the portfolio growth component.

The asset market approach has attracted the academic and policy interest mostly in the countries with deep capital markets. Since most of the asset trade takes place among advanced economies, transition and developing economies have found it pre-mature to rely on in their open-economy analysis. The model has not been widely employed for the industrial countries either, because of empirical difficulties. Therefore it is not surprising that Obstfeld (2004) calls for revisiting the portfolio balance model on the grounds of increasing international asset diversification. Rapid growth of cross-border asset trade and lessening of the home equity bias has widened the other channel for current account adjustment, the one through capital gains or losses on gross foreign assets and liabilities. The validity of his argument, at least for the short and medium horizon, has been empirically documented for the industrial countries by Gourinchas and Rey (2004).

Driven by empirical considerations, the International Monetary Fund (the IMF) has developed methodology that relies on the **macroeconomic balance approach**. The main purpose of the so called CGER's analytical framework [12] is to assess the extent of misalignment of exchange rates with respect to their estimated medium-run equilibrium level and the 'underlying' external balance (Isard et al., 2001). Initially, the external balance had been defined in terms of balanced or normal capital flows, but given their assessment difficulties, recently the attention has been shifted toward the "underlying", or normal current account position. The latter is defined as the "value of the current account balance that would emerge at prevailing exchange rates if all countries were producing at their potential output levels […]"(Isard et al., 2001, p. 7). The comparison of this measure with the country's equilibrium saving investment position, which is used as a benchmark (or so called saving-investment norm), reveals the deviation of prevailing exchange rate from the level consistent with the macroeconomic fundamentals.

The New Open Economy Macroeconomics and the Current Account

New open economy macroeconomics can be distinguished from what has been considered as modern international macroeconomics on the basis of its strongly

---

[12] CGER stands for the Coordinating Group on Exchange Rate Issues, which is an inter-departmental group within the International Monetary Fund, established to assess the exchange rates and current account positions of the major industrial countries and emerging market economies (see more in Isard et al., 2001).

articulated microeconomic foundations combined with imperfect competition and nominal rigidities. Although the theoretical advance has been impressive, there has been a growing concern among international macroeconomists that not much empirical meat has been put on the theoretical bones (Lane, 2001; Bergin, 2004).

The **intertemporal approach** to current-account analysis makes impressive conceptual advance with respect to the traditional approaches through its recognition that private savings and investment result from forward-looking dynamic decisions (Sachs, 1981; Obstfeld and Rogoff, 1994; Razin, 1995), which are driven by expectations of future productivity growth, interest rates and other factors. Underlying assumption of this approach is the possibility of intertemporal trade, which is enabled by capital mobility. Without international lending and borrowing, a country cannot engage in intertemporal substitution in order to smooth its consumption. Therefore, as Razin (1995) points out, the dynamic-optimizing (or intertemporal) approach is expected to be more suitable framework for explaining current account behaviour in the developed economies than in the developing and transition economies that are faced with credit constraints.[13]

Diferentia specifica with respect to earlier models of current account determination are the strong microfoundations of the dynamic-optimizing approach. While this has provided "additional" realism in the assumptions compared to the previous open economy models, the "unfortunate" outcome of the collaboration with the advanced microeconomics has been the import of tedious algebra. Nevertheless, in the most comprehensive survey and work on new theories of current account determination, Obstfeld and Rogoff (2002) present several classes of intertemporal models:

a. Deterministic vs. stochastic current account models (in the latter, the uncertainty is introduced. For instance, the consumption is no longer constant, but it fluctuates with movements in permanent income - Lubik, 2003).
b. Finite vs. infinite-horizon intertemporal models.
c. 'Partially-complete-markets' vs. 'complete-markets' models, where the complete-market model is constructed on the basis of Arrow-Debreu paradigm, which states that there is a market for insuring any type of risk. On the other side, the 'incomplete-markets' model assumes that intertemporal trade takes form in riskless bonds only, while 'complete-markets' model allows for cross-border trading with much richer menu of assets.
d. Representative-consumer (homogenous-population) vs. over-lapping generations (heterogeneous-population) models.

By combining certain classes of intertemporal models through partial relaxing of some key assumptions, the theoretical literature has offered eclectic array of models, like for instance, the synthesis of the representative-agent and overlapping generations approaches (Weil, 1989; Obstfeld and Rogoff, 1996). Another strand of literature has flourished by offering more analytical intertemporal models constructed by allowing for distinctions between tradable and nontradable goods (in an attempt to merge it with the real-exchange-rate analysis), liquidity constrained (non-Ricardian) and

---

[13] It is the liberalization of the capital account that matters, not the type of the country.

unconstrained (Ricardian) consumers (Gali, Lopez-Salido and Valles, 2002), incorporation of habit formation (Gruber, 2002) etc.[14]

In its simpler versions, the intertemporal approach assumes incomplete asset markets (free trade with riskless bond only), representative national consumer (homogenous population) and perfect competition in the goods market of a small and open economy. The intertemporal budget constraint is given by the transversality condition (also known as the *no-Ponzi-game* condition), which states that present value of the economy's resources (for consuming and investing) cannot exceed the sum of the initial net foreign wealth and the present value of its output.[15] It also implies that the outstanding net foreign debt has to be equal to the discounted value of future trade surpluses.

The representative consumer with perfect foresight and complete information maximizes (two-period) lifetime utility (U^i_1) in accordance with the Friedman's permanent-income hypothesis:

$$U^i_1 = u(c^i_1) + \beta * u(c^i_2), \quad 0 < \beta < 1,$$

where β is the subjective discount factor (time-preference factor), measuring the individual's impatience to consume.

The fundamental insights of the intertemporal model, as presented by Obstfeld and Rogoff (2002), can be elaborated in the special case that occurs when the subjective discount factor is equal to the market discount factor or $\beta = 1/(1+r)$:[16]

$$CA_t = B_{t+1} - B_t = (Y_t - \hat{Y}_t) - (I_t - \tilde{I}_t) - (G_t - \hat{G}_t)$$

where, B stands for Net foreign assets, Y for output, I for investment and G for government expenditure and the corresponding letters with cap represent the permanent level of the variables.[17]

It predicts that when present output exceeds its permanent level, the economy will run current account surplus in order to smooth its consumption. Financing higher investment (than the permanent level) would turn the current account into deficit (or lower surplus), because the residents would acquire foreign saving so that they do not cut their consumption. And finally, higher government expenditure (above the permanent level) would worsen the current account position.

If the assumption of flat consumption path is abandoned, then the model offers additional predictions by introducing the so called consumption-tilt factor:

---

[14] In order to preserve space, the author has decided to skip the technical exposition of more complex stochastic intertemporal models.

[15] A country cannot indefinitely roll over existing debts by issuing new debt, as Boston faker, Charles Ponzi tried to do in the 1920s.

[16] In this case, the representative consumer desires a flat lifetime consumption path, since $u(c^i_1) = u(c^i_2)$.

[17] The permanent level of variable is defined as the annuity value of the variable at prevailing interest rate or "hypothetical constant level of the variable with the same present value as the variable itself" (Obstfeld and Rogoff, 2002).

$$CA_t = B_{t+1} - B_t = (Y_t - \hat{Y}_t) - (I_t - \tilde{I}_t) - (G_t - \hat{G}_t) + (r_t - \check{r}_t) B_t + \xi$$

where, $(r_t - \check{r}_t) B_t$ is the consumption-tilt factor, r is the world interest rate, which is not constant any more, $\check{r}_t$ is its permanent level and ξ is consumption-adjustment factor that does not alter the main implications. The role of the consumption-tilt factor is to reveal that if the country is net creditor and the present world interest rate exceeds its permanent level, it is expected that the current account would improve (and vice versa), because the sacrifice of consumption units today is being rewarded by exceptionally high world interest rate.

At the central stage in the dynamic-optimizing approach are the expectations of economic agents on how current shocks affect key future economic variables (Sachs, 1981a). Therefore, the distinction between permanent and temporary disturbances is crucial one, since they have different effects on the current account position. The general rule states that economic agents adjust their behaviour to permanent shocks, i.e. they do not borrow against their future income, but smooth their consumption, when temporary shocks occur. For instance, the current account position is unaffected when a permanent rise in output is expected, because the households increase the current level of consumption.

The inclusion of the productivity (shocks) in modelling the current account behaviour represents a path-breaking theoretical work. While the importance of real factors (such as terms-of-trade shocks) has certainly not been ignored in the past theoretical work, the productivity as a long-term determinant has never been explicitly stated. From the intertemporal perspective, the current account is expected to respond to (positive) productivity shocks *directly*, by raising the expected path of future output (in case, they are positive) as well as *indirectly*, by inducing investment and "thereby raising expected future output even further" (Obstfeld and Rogoff, 2002, p. 86).

Glick and Rogoff (1995) have underscored the distinctive effects of global vs. country-specific (or idiosyncratic) productivity shocks. The delineation is an important one: if a shock would hit all economies symmetrically, the effect on the current account would be much smaller than if it hits only a small and open economy. Country-specific productivity shocks may affect the current account more than investment, because both consumption and investment may respond to changes in productivity inducing an even larger response by the current account. Hence, it is possible to decompose current account response to productivity shocks into consumption smoothing effect and investment effect.

Extensions of the intertemporal model have incorporated the earlier applications of Keynesian open-economy models by Harberger and Laursen (1950) and Metzler (1950) in a forward-looking framework (Sachs, 1981; Svensson and Razin, 1983; Obstfeld and Rogoff, 1995). When introducing a three-good (exportables, importables and nontradables) model, the implications from change in terms of trade in an intertemporal perspective become much more complicated, because of the greater role of the substitution effects. On one side, adverse transitory terms of trade shock may induce deterioration of the current account, because the H-L-M (income) effect lowers the current income relative to the permanent and thus, induces consumption-

smoothing response by the economic agents (for more elaborate version, see Cashin and Dermott (1998)). On the other side, the current account may improve because of:

e.   the intertemporal substitution in consumption, caused by the rise of current price of importables relative to the future price of imports that increases current aggregate saving (consumption-tilting effect), and

f.   the intratemporal substitution of consumption, caused by the increase of price of importables relative to the price of nontradables (the real exchange rate effect).

Despite these extensions, the ambiguity of theoretical predictions of the intertemporal model with respect to terms-of-trade shocks remains, leaving the resolution for the applied work.

Earlier intertemporal models have overestimated the 'self-corrective' role of the private sector in shaping the optimal current account. The main argument goes that current account deficits are not a cause of concern as long as they are driven by private sector behaviour, which has come to be known as the Lawson doctrine.[18] The idea of decentralised private decisions maintaining an optimal saving-investment gap, when balanced-budget policy is pursued, was reaffirmed in mid-1990s by Corden (1994).[19] Such views may have been inspired by the popular twin-deficit problems, but from today's perspective, it appears that they have overstated the significance of the fiscal deficits. Most macroeconomists do believe that the Lawson doctrine is discredited and that even private-sector decisions may lead to suboptimal current account outcomes, pointing to the recent experiences with the Mexican and Argentinean crises in mid-1990s and the financial turmoil in emerging markets in Asia in 1997. These events have brought to the fore the notion of sustainability of current account deficits.

A strand of theoretical literature on intertemporal models has incorporated the demographic profile of the country as a determinant of the external imbalance. The so called **overlapping generations model** investigates the current account behaviour as a reflection of the country's intergenerational structure, demographic trends, generational incidence of taxes etc.[20] The core of this approach is captured by the life-cycle theory of consumption and saving, pioneered by Modigliani and Brumberg (1954). Its underlying assumption is that finitely-lived individuals and households smooth their consumption through youth, middle-age and retirement.[21]

The fundamental insights of the overlapping generations approach can be seen from a simple model built around small open economy with two types of economic agents, elaborated by Obstfeld and Rogoff (2002). The model is primarily concerned with the

---

[18] The former British Chancellor of the Exchequer, Nigel Lawson, in September 1988 has identified the fiscal deficits as the crucial determinant of the external imbalances in UK and stated that the latter are never private-sector driven.

[19] Max Corden (1994), Economic Policy, Exchange Rates and the International System, Clarendon Press, Oxford, cited in: Reisen (1998).

[20] Obstfeld and Rogoff (2002) trace back the origins of the overlapping generations model to the work of Allais (1947) and Samuelson (1958).

[21] It certainly sounds odd to stress that agents are "finitely-lived", but the theory has worked with the antonym, as well.

savings behaviour of the young population (savers) and old population (dissavers) that live for two periods. The population is assumed to have the following two-period logarithmic utility function:

$$U(c^Y_t, c^O_{t+1}) = \log(c^Y_t) + \beta \log(c^O_{t+1}),$$

So that c^Y_t and c^O_{t+1} refer to consumption of the young and old population, respectively.

Young population starts with no wealth, while the old population consumes its wealth accumulated during the working age (the first period). The young generation is born at date t and has N_t members that can change over time $N_t = (1+n)N_{t-1}$, so that n is the growth rate of generations and also of total population, $N_t - N_{t-1}$. If Y is the total GDP, then the aggregate private saving rate is given by:

$$\frac{S^P_t}{Y_t} = \frac{N_t - N_{t-1}) s^Y}{N_t y^Y + N_{t-1} y^O} = \frac{n\, s^Y}{(1+n) y^Y + y^O}$$

so that,

S^P_t = aggregate saving
s^Y = saving of a typical member of young generation (individual saving)
Y_t = total GDP
y^Y = per capita endowment of the young generation, and
y^O = per capita endowment of the old generation.

If the last expression is differentiated and if s^y is positive:

$$\frac{d(S^P/Y)}{d\,n} = \frac{s^Y (y^Y + y^O)}{[(1+n)y^Y + y^O]^2} > 0$$

it can be seen that when the population growth rate increases, the savings rate goes up, because the number of young people (savers) rises relative to that of the old generation (dissavers).

The predictions of the overlapping generations models have shed more light on some counter-intuitive findings by the representative-consumer models. For instance, the latter predicts that fast-growing economies tend to have lower savings and run current account deficits. It is the overlapping generations model that allows heterogeneity in the consumer's population and states that if these countries have high portion of active population, it is plausible that they have higher savings and run current account surpluses. Further theoretical work on overlapping generations models has also integrated the important issues of intergenerational altruism and bequests into the analysis of current account determination (Obstfeld and Rogoff, 2002).[22]

---

[22] Bequests are defined as motives that arise when individuals care about the welfare of future generations.

Empirical work devoted to testing the predictions of the intertemporal approach, most notably the present-value tests (for instance, Sheffrin and Woo, 1990), has provided important feed-back information for further theoretical modifications. Predicted current account values or debt-GDP ratios have been much higher than the observed one leaving the uncomfortable conclusion that most of the countries are engaged in sub-optimal intertemporal trade. For instance, Obstfeld and Rogoff (1996) following a simple intertemporal approach found that the optimal current account response in the case of Spain was deficit of 60% of GDP, while the actual deficit was 3.4% of GDP.[23] Hence, empirically richer intertemporal models that are tailored to the country's specifics have been recommended. For instance, Ventura (2002) proposes amendments to the intertemporal approach with respect to industrial countries, by giving prominence to the investment risk and adjustment (or capital installation) costs. He stresses the different behaviour of current accounts in short and long-run, which may be explained by the adjustment costs of installing new capital.

The dynamic general-equilibrium setting with solid microfoundations and the crucial role of the expectations are by no means strong advantages of the intertemporal approach. On the shortcomings side, the assumption of rather strong financial linkages among countries remains questionable. Although there is a clear post-war trend of reduced transport costs, dramatically fallen tariffs and increased international asset diversification, the empirical research still confirms the presence of home bias in trade and equities (Obstfeld and Rogoff, 2000).[24] The approach fails to take into account short-run price rigidities and assumes complete pass-through of exchange rate changes to import prices (Obstfeld, 2001).

2. In addition, the highly sophisticated intertemporal models are being transformed with obvious difficulties into tractable equations in the applied work, which points to a serious disconnect between the theory and the empirics. Another set of problems arises from the empirical hunger for large set of data and longer time series that is severely felt in many developing and transition economies. It is not surprising therefore that the empirical work on dynamic-optimizing models is far behind the recent theoretical advance and has not penetrated the discussions in the policy circles, thereby leaving more breath space for previous and simpler open economy models.

Eclectic theoretical approaches have followed 'broad-brush characterization' of the structural factors behind the current account behaviour (Chinn and Prasad, 2000). The research has used set of country-specific macroeconomic variables (such as, real exchange rate, output growth, fiscal balance etc.) and exogenous variables (terms of trade, global GDP growth, world interest rate). The message that models of eclectic nature have sent to the empirical work is that the joint endogeneity of the external imbalances and other macroeconomic variables must not be overlooked.

Mainstream neoclassical theory focuses on the negative consequences of volatility of terms of trade and capital flows on economic growth (Razin and Rubinstein, 2004), considering growth as purely a supply-side phenomenon. Albeit not a mainstream theory of international economics, **the balance-of-payment constrained growth**

---

[23] Cited in Edwards (2000).
[24] We refer to J. McCallum's home bias in trade puzzle and the French-Poterba equity home bias puzzle.

models stress that countries cannot grow faster than the rate consistent with balance of payments equilibrium on current account (Thirlwall, 2000). The view differs from standard neoclassical models, by recognising the fact that aggregate demand and balance-of-payments constraints are essential determinants of long-run economic growth.

Concluding remarks

New theoretical approaches to current account determination have converged towards consensus that the appropriate measure of external balance depends on the country's exposition to international asset trade and the structure of national portfolio. Although valuation changes may reach significant fractions of GDP, the external current account still matters, even for the advanced economies that maintain strong links with the international capital market. The intertemporal model has kept its reputation of workhorse model in new open economy macroeconomics and through its extended versions has preserved its vitality at the beginning of the new century, as well. This does not mean that the other approaches have been declared outmoded. On the contrary, the empirical difficulties with the dynamic-optimizing framework have confirmed that the evolution of analytical thinking on current account dynamics has been divided on competing paths.

References

Bergin, P. (2004). How Well Can the New Open Economy Macroeconomics Explain the Exchange Rate and Current Account? NBER Working Paper 10356. National Bureau of Economic Research, Cambridge, Mass.

Chinn, M., and E. Prasad (2000). Medium-term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration. *IMF Working Paper*, Washington D.C., March.

Clausen, J.R. and M. Kandil (2005). On Cyclicality in the Current and Financial Accounts: Evidence from Nine Industrial Countries. *IMF Working Paper* WP/05/56, Washington D.C., March.

Edwards, S. (2000). Does the Current Account Matter? [draft].

Frenkel, J. and A. Razin (1987). The Mundell-Fleming Model: A Quarter Century Later. NBER Working Paper 2321. National Bureau of Economic Research, Cambridge, Mass.

Gourinchas, O. P. and H. Rey (2004). International Financial Adjustment. Berkeley and Princeton (draft).

IMF (1987). Theoretical Aspects of the Design of Fund-Supported Adjustment Programs. IMF Occasional Paper.

Isard, P., et al. (2001): Methodology for Current Account and Exchange Rate Assessments. *IMF Occasional Paper No. 209*, Washington D.C.

Knight, M., and F. Scacciavillani (1998). Current Accounts: What is their Relevance for Economic Policymaking. IMF Working Paper, May.

Kraay, A. and J. Ventura (2002). Current Accounts in the Long and Short Run. NBER Working Paper 9030. National Bureau of Economic Research, Cambridge, Mass.

Lane, P. and G.M. Milesi-Ferretti (2005). A Global Perspective on External Positions, IMF and CEPR, May.

Lubik, T. (2003). The Intertemporal Approach to the Current Account. *Teaching notes in International Monetary Economics,* John Hopkins University.

Obstfeld, M. and K. Rogoff (2000). The Six Major Puzzles in International Macroeconomics: Is There a Common Cause? *Institute of Business and Economic Research Paper C00-112,* Center for International and Development Economics Research, University of California, Berkeley.

Obstfeld, M. (2001). International Macroeconomics: Beyond the Mundell-Fleming Model, Center for International and Development Economics Research, Working Paper No. C01-121, University of California, July.

Obstfeld, M., and K. Rogoff (2002). Foundations of International Macroeconomics, 5th Edition, The MIT Press.

Obstfeld, M. (2004). External Adjustment. Bernhard Harms Lecture, Kiel Institute for World Economics.

Razin, A. (1995). The Dynamic-Optimizing Approach to the Current Account: Theory and Evidence, in: *Understanding Interdependence: The Macroeconomics of the Open Economy*, pp. 168-198, Peter Kenen ed, Princeton University Press, New Jersey.

Razin, A. and Y. Rubinstein (2004). Growth Effects of Exchange-Rate Regimes and Capital-Account Liberalization, (Razin's home page), September, (forthcoming).

Reisen, H. (1998). Sustainable and Excessive Current Account Deficits, Research Programme on Macroeconomic Interdependence and Capital Flows, OECD Development Centre, Working Paper 132.

Sachs, J. (1981a). The Current Account and Macroeconomic Adjustment in the 1970s, Brookings Papers on Economic Activity, vol. 1, pp. 237-53.

Salvatore, D. (2001). International Economics, 7th Edition, John Wiley & Sons, Inc., New York.

Svensson, L. and A. Razin (1983). The Terms of Trade and the Current Account: The Harberger-Laursen-Metzler Effect. *Journal of Political Economy,* No. 91, pp. 97-125.

Pilbeam, K. (1998). International Finance, 2nd edition, Macmillan Press Ltd.

Thirlwall, T. (2000). Alternative Approaches to the Analysis of Economic Growth (Based on Lectures given at the National University of Mexico), September.

Ventura, J. (2001). A Portfolio View of the U.S. Current Account Deficit. *Brookings Papers on Economic Activity*, vol. 1, pp. 1-13.

ECONOMIC EFFECTS OF THE EU'S COMMON AGRICULTURAL POLICY

Viktorija Andonova

Abstract

Since its initiation, the Common Agricultural policy has made a profile as one of the most important policies in the EU. This paper will give an outline of the historic influences over CAP as well as the process of further reforms in order to gain a sustainable agricultural production. The economic effects, which were supported by subsidies and import limitations, have led the European union towards self-sufficiency, which certainly had an implication on the world trade flows. As a result of these situations, changes were necessary, in order to create a successful policy for reasonable leadership in agricultural industry through the maze of enlargement and trade negotiations guaranteeing healthy and safe food supply for the consumers and industries that rely on agricultural products. The economic effects of the policy are analyzed and the future impact on Macedonia is discussed.

Where did the high profile of agriculture come from?

Firstly, at the time when the Treaty of Rome was signed, the agriculture had a contribution of 12% in the GDP and 20 % from the labor force was engaged in agriculture and as a result of these conditions it was highly rated on the political agendas of many European governments. Also production was low because of the war and it was an essential to raise the productivity and production. People were suffering as a result of a decline in food consumption (Foreman - Pack), a high level of dependency on food imports was seen as political weakness, and finally foreign currency and especially dollars were a scarce source (Hoffmeyer, overview). Many farms in the 60-ties were small and vulnerable; so many national governments have made programs for protection of agriculture, which from political point of view could not have been stopped.

Secondly, agriculture as a key element in the trade flows between France and Germany when the EEC negotiations started. France believed that the Single Market, would have positive effects on German economy while the French economy would have less advantages, plus having in mind that in that period France had big and efficient agricultural sector in mid 50-ties which encouraged the French government to insist on a system of protectionism.

Thirdly, agricultural prices are more variable compared to the prices of other products and since Europeans spend about a quarter of their incomes on food, these variations can induce serious effects on economy. The increase of prices can cause inflation,

while price reduction can make farmers debtors that probably can result with bankruptcy and unemployment.

	Agriculture´s share of GDP, percent		Agriculture´s share of total employment, percent		Agriculture´s share of total trade, percent (average 1955-59)		Net foreign trade in agricultural products. in 1960 US$ (average 1955-59)
	1955	1960	1955	1960	Export	Import	
Belgium[a]	7.9	7.3	9.3	7.6	5.4	17.2	-386.4
Lux.	9.3	7.6	19.4	16.4			
Holland	11.4	10.5	13.2	11.5	33.6	19.6	+310.0
Germany	8.0	6.0	18.5	14.0	2.8	32.9	-2,124.6
France	11.4	9.7	26.9	22.4	14.9	29.2	-836.0
Italy	20.7	15.1	40.0	32.8	22.6	20.6	-114.2
EEC (6)	11.5	9.0	21.2	17.5	15.9	23.9	
UK	4.8	4.0	4.6	4.3	6.5	41.8	-4,013.6
Denmark	18.4	14.4	24.9	21.2	65.7	20.3	+502.2

a) In the last three columns, the trade data for Luxembourg are included in the data for Belgium.

From 1962 to 1992 the CAP relied on a managed market system that relied on import restrictions so as to maintain internal market prices above a pre-determined administrative price; intervention buying to guarantee that every quantity produced would be sold at least at a pre-determined price; subsidies to export or to destroy access supply would have caused the internal price far below this administrative price. These mechanisms have succeeded to make the EU less dependant on foreign supply and to stabilize prices, avoiding a risk premium that would eventually been paid by consumers. The market management prevented major market crises, thanks to the open-ended intervention buying. Also the positive effect that CAP caused was the successful accompanying of one of the most dramatic economic transition in Western Europe, i.e. the rapid shift from an agrarian society to an economy of industries and services

However, many economists and researchers who are focused on this subject have long acknowledged that the Common Agricultural Policy, still mostly directed to support production, no longer fulfills the needs of a society that has changed more rapidly than the agricultural policy instruments. For years critiques have focused on the costs that the CAP imposes to consumers through extra food prices and even those who agree that farmers must be supported acknowledge that the CAP policy instruments are inappropriate and in spite of recent reforms, still lead to the production of large quantities of low quality products that are disposed with high cost on the world market. This creates conflicts with other exporting countries and these subsidized exports oppose the growth of the developing world by competing unfairly with local producers. In addition, the CAP arrangements disproportionably benefit a small number of producers. That is, the CAP has questionable distributional impacts in addition to a poor record in terms of economic efficiency. However, among the traditional explanations, it is often underestimated that in many EU countries there is a strong willingness to support the farm sector in the public opinion. The CAP would not have persisted for long if politicians had followed the vested interests of farmers only. Many citizens have seen the CAP as a successful story that made it possible to maintain small farms, while eradicating the ghost of food scarcity.

EU Self-Sufficiency
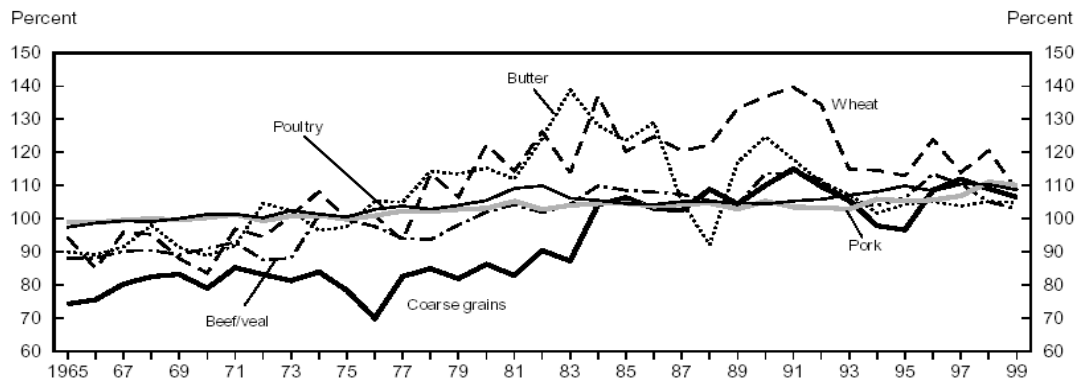
Source: Economic Research Service, USDA.
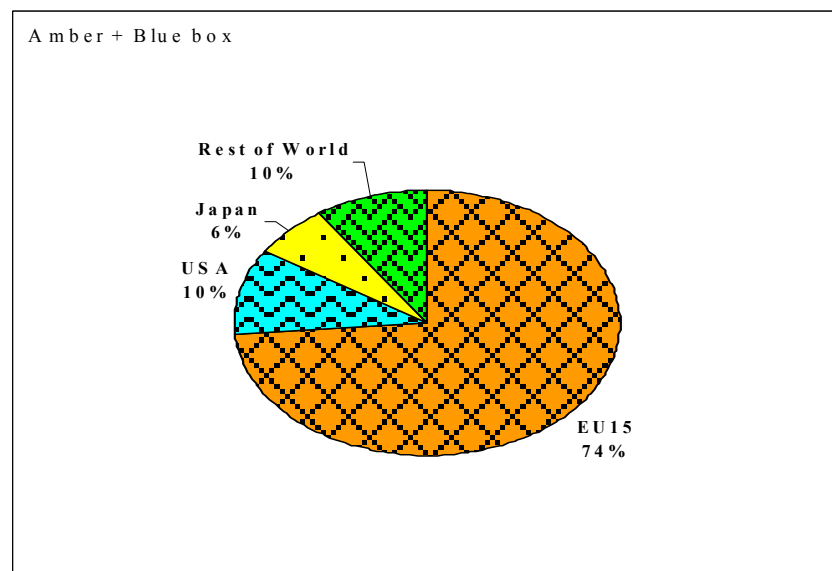
Some Important Reforms

MacSharry's Reform

There have been a number of 'reforms' of the Common Agricultural Policy. Some progress has been made. The CAP accounts for a smaller share of the EU budget, down from two-thirds at one time to around 46%. A start has been made on trying to reduce its trade distorting effects and discuss its environmental impact.

Under increasing pressure from the Uruguay Round, the first reversal reform-MasSharry Reform was initiated in 1992. For the first time, the basis for support has been changed fundamentally from price support to direct payment. The measures included: reduce guaranteed prices by up to 30% over 4 years; switch the CAP policy from price support to compensatory payment in the form of direct income supplements links to farm size and average yields.[25] All who produce more than 92 tones of cereals must set aside 15% of their arable land.

---

[25] Guide to the European Union, Agrigulture,P154

There were a number of supply controls. The farmers were compensated for historic yields, thus no bonus for increased productivity and compensation for less intensive production methods, the agro-environmental program encouraging farmers to introduce conservation of reserves, ponds, hedgerows etc.

There are two gains for the EU with the expenditure under the new system. First, the expenditure will be much more stable and predictable than that on export refunds and intervention storage. Second, the total expenditure of CAP support will now be much more direct under the control of the EU.[26] Budgetary impact was positive at the beginning due to higher costs from compensation. In addition, the aim of long-term structural change was not achieved; the only success lied in reducing the export subsidies. The contradictions of price and market policy remained unresolved.[27] Much of the failure can be explained by the political obstacles to reform. Agricultural groups still had a strong lobby and thus prevented the effective execution of the policies.

Agenda 2000
The European Council of Berlin adopted the second major CAP reform as part of the Agenda 2000 package in March 1999. The European Commission set the guidelines for the medium-term future evolution of CAP through the Agenda 2000 proposals. With Agenda 2000 the Commission called for the biggest shake-up of the CAP since its birth in 1962. Under the new proposals, from the year 2000 cereal support prices will be cut by 20 per cent, beef by 30 per cent and dairy products by 10 per cent.

Main elements of the CAP reform under Agenda 2000 are: increasing competitiveness of agricultural products; ensuring a fair standards of living for the farmers; creation of substitute jobs and other sources of income for farmers; introducing a new policy for rural development (the second pillar of the CAP); more environmental and structural considerations; improvement of food quality and safety; simplification of agricultural legislation and decentralization of its application.[28]

Agenda 2000 is an extensive reform covering several commodities and areas (rural development, environment, modulation). The main thrust of Agenda 2000 is based on a continuation of the 1992 reform strategy: a further shift from price support to direct income support. It brought further reductions in support prices, offset by increasing direct payments. The aim is to reduce the price support mechanism, and shift into direct payments as a safety net for low-income farmers. Further decentralization will mean that funds can be distributed according to national preference. There are also further financial ceilings being introduced and lots of bureaucratic simplification.

One of the major challenges in future to the EU is agricultural enlargement to the countries of Central and Eastern Europe (CEEC). With the prospect of further enlargement of the EU to include CEECs with large agricultural industries, further

[26] Rober Ackrill, The common agricultural policy: its operation and reform. "The Economics of the new Europe" p217
[27] The MacSharry Reform 1992-1996. The common agricultural polity, continuity and change. 1997 Rosemary Fennell P172
[28] 'The Agenda 2000 for a stronger and wider Union', part 4 ' Further reform of the Common Agriculture Policy', europa.eu.int/ comm/ agenda 2000/ overview/en

reforms to reduce price support cost have become urgent. Agenda 2000 supposed to deal with the issue of eastern enlargement, laid out a budgetary framework for enlargement to support the new member countries through 2006. A new financial framework for the period 2000-06 was adopted in order to enable the Union to meet the main challenges of the beginning of the 21st century, in particular enlargement, while ensuring budgetary discipline.

Preparations must be made for the accession. CEECs are facing major difficulties in adapting to a rather complex Community acquis and completing the institutional process of privatization and transformation of agricultural structures. In Agenda 2000 the strategy of convergence between the EU and the CEECs has been stepped up. Responding to the challenge of enlargement new pre-accession instrument, SAPARD and ISPA were introduced. These two financial mechanisms were set up to strengthen the pre-accession strategy for applicant countries: a pre-accession structural instrument (ISPA) to support improved transport and environmental protection infrastructures and a pre-accession agricultural instrument (SAPARD) to facilitate the long-term adjustment of agriculture and the rural areas of the applicant countries.

This reform was supposed to pave the way for a smooth enlargement to the east. However the issue of direct payments to the farmers in the CEECs has not been solved in these negotiations.

	Original CAP	Current CAP	"Emerging model" for future of CAP
Type of support	Price supports Linked to production	Direct payments Linked to production	Direct payments Decoupled from production
Environmental and rural economy aspects	No environmental conditions No rural development & environmental measures	Some environmental conditions Some rural development measures	Many environmental conditions More rural development & environmental measures
Trade aspects	Export subsidies Import barriers	Export subsidies Import barriers	No export subsidies Reduced import barriers
Administration	Centrally run Less bureaucratic	Centrally run, with some national and regional discretion More bureaucratic	More national and regional discretion More bureaucratic
Who pays?	Shoppers	Shoppers and taxpayers	Taxpayers
Visibility of support levels	Low	Medium	High
Objectives	Increase food production; ensure stable prices; boost farm incomes	Boost farm incomes; encourage environmental protection	Develop rural economies; protect rural environment; reward good farming practices
Economic distortion	High	Medium to High	Low
WTO green box compatible	No	Partially	Yes
EU food prices	Above world prices	Above world prices	Closer to world prices
Budgetary cost	Low to medium	High	Medium to high
Financial Commitment	Open-ended	Budget ceilings	Budget ceilings

The economic effects on new Member States from CAP reform

One major development is the introduction of a new direct payment system, i.e. a single farm payment or a single regional payment. Nearly all Member States decided to implement a single area payment system, resulting from a similar simplification.

The Decoupling of payments from farmers' production decisions makes the sector more market-oriented and allows farmers greater freedom to adjust production to market requirements. This is fundamentally important for the majority of new Member with their entry to the Single Market. Simultaneously it will make the sector more economically effective and competitive, making better use of the opportunities created by European integration.

Agricultural holdings in the new Member states should not encounter huge problems adjusting to the requirements introduced by the cross-compliance rule as their production is less intensive than in the EU –15. The application of the modulation mechanism in the EU-15(it is not applicable to new Member States while full direct payments are being phased in) will reduce differences in direct support intensity among Member States as small farm are excluded from the payment reduction. This favors countries with a disadvantageous agrarian structure and less intensive production. In addition, part of the saved funds will be redistributed according to cohesion principles, which will also benefit these countries. Compared to the original European Commission proposals, the effectiveness of the modulation mechanism has been reduced significantly and with it the amount of fund reallocated from countries with intensive agriculture to those with more extensive agriculture. For new Member States the application of modulation will facilitate a more rapid reduction of differences in direct support between the existing member states and new members n the period of phasing in direct payments. As n the case of modulation it is also vital that the financial discipline mechanism is applicable in new Member States until full direct payments are introduced in 2014. In the coming year agriculture n the new Member State will face numerous challenges in the field of restructuring and developing rural areas, including the creation of non-agricultural jobs. In this context, new Member States feel positive about the proposal to increase thee volume of funds available under CAP to be distributed among the Member States. These are granted according certain criteria, in particular, the area of agricultural land, the level of employment and affluence in the Member States concerned.

Increasing the volume of funds available under CAP creates new challenges for the new Member State with respect to their administrative and financial capacity to absorb them efficiently. The scale of these challenges is indicated by difficulties in the full use of funds in existing Member States. In this context, each proposal aiming at an easier absorption of funds should be supported.

It was thought that the extension of the CAP to new member states in the CEECs would both incur very substantial additional budgetary costs and also encourage production in those countries, leading to new surpluses. According to estimates by Commission (Agenda 2000) the budgetary impact in the hypothetical scenario of al ten accession countries and fully applying the CAP in its current form would be an additional cost to the Guidance Section of FEOGA by 2005 of approximately 11 billion ECU per year, in direct payment, arable and heading payment close to 7 billion ECU and 1.5 billion ECU in accompanying measures. Market support measures to the CEECs would cost up to 2.5 billion ECU, largely absorbed by the dairy sector. It was recognized that long transition periods would be necessary for the new member states.

The integration of the accession countries into the CAP is one of the most difficult problems of EU Enlargement. EU enlargement will greatly increase the agricultural area of the EU. It would add 60 million hectares to the agricultural areas of Union, bringing the total to nearly 200 million hectares. The number of people working in the agricultural sector estimated at 6.6 million in the current EU in the year 2000- would at least double. However the relatively high workforce and the small average farm size in the CEECs will result in a reduction in the average available area per person

employed in the sector. [29]

The EU is the most important agro-food trade partner for many of the accession countries. All of the CEECs, except Hungary, are increasing net importers of agricultural food products from the EU. If significant price differentials between acceding countries and the EU prevail at the time of accession, the sudden introduction of CAP price levels would result in higher consumer prices in the CEECs, where a relatively large proportion of household budgets is already spent on food. In addition, the food industry in these countries would encounter increased raw material costs at the same time, as they had to face increased competition from existing member states.

Extension of the CAP to the CEECs without prior reform would expect to result in increased surpluses in production for most commodities. In addition, constraints on subsidized exports by the World Trade Organization (WTO) would prevent the EU from disposing these surpluses on the world markets.

A serious problem for the EU15 is that the cost of operation of the EU's CAP could very nearly after the enlargement. Expansion of production and the decline in consumption could lead to a steep rise in the cost of disposal of surplus production. That is clear is that the EU will not be able to apply the policies operating in the EU15 to EU 25 without serious increasing production and budgetary burdens.

In order to help the countries prepare for accession, EU introduced two new financial instruments into the EU budget, these will be discussed in more detail below.

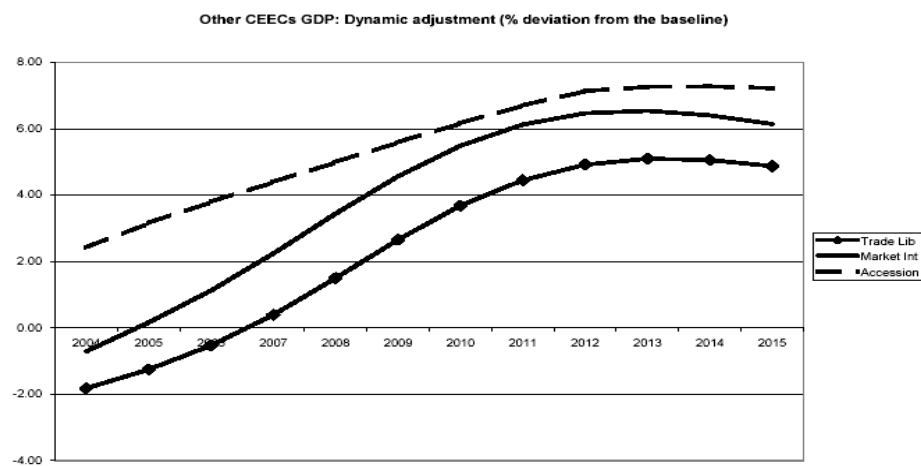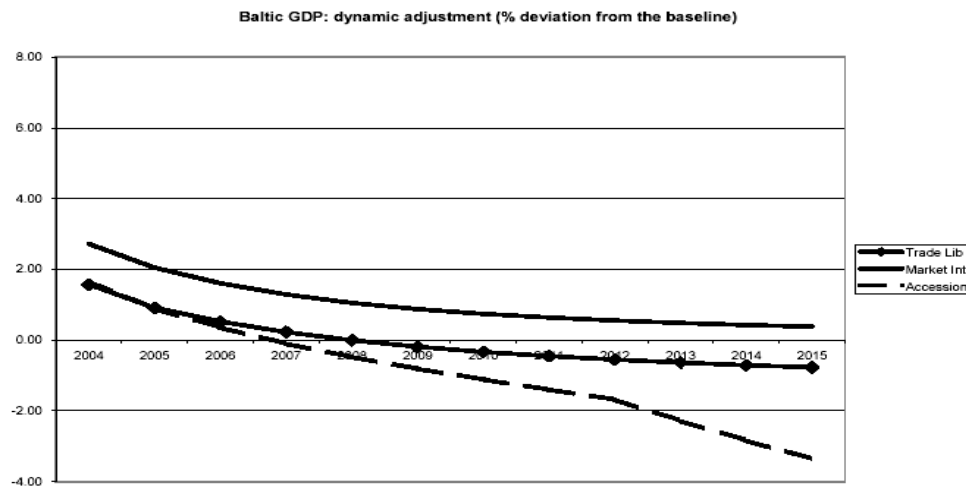| Year 2000	Unit	Czech R.	Estonia	Hungary	Latvia	Lithuania	Poland	Slovakia	Slovenia
Population	1000	10278	1439	10043	2424	3699	38654	5399	1988
Utilised Agricultural Area (UAA)	1000ha	4282	1001	5854	2488	3489	18220	2444	491
Employment in griculture	1000	244	42	246	140	281	2711	145	85
GDP (PPS)	€bn	139	12	119	16	24	338	58	32
Share of agriculture in GDP	%	3.4	5.7	3.9	3.9	2.5	2.9	2.7	4.3
Share of agric. in employment	%	5.3	7	7.2	14.4	18.4	18.7	7.5	9.6
Share of analysed agric. production	%	77%	74%	89%	67%	64%	57%	82%	80%
% househod consumption in food	%	23.2	30.7	25	34.6	39.3	31.2	27.7	21.2
Year 2000	Unit	Cyprus	Malta	CC8	CC10	CC8/CC10	EU15	CC8/EU15	C10/EU15
Population	1000	755	388	73924	75067	98.5%	376455	19.6%	19.9%
Utilised Agricultural Area (UAA)	1000ha	11	101	38269	38381	99.7%	130443	29.3%	29.4%
Employment in griculture	1000	27	2	3894	3923	99.3%	6770	57.5%	57.9%
GDP (PPS)	€bn	14	5	738	756	97.5%	8526	8.7%	8.9%
Share of agriculture in GDP	%		9.1				1.7		
Share of agric. in employment	%	8.9	1.6				4.3		
Share of analysed agric. production	%			67%					
% househod consumption in food	%	17.0	21.5	29.2			17.0		
Source = EU Commission DB, internet http://europa.eu.int/comm/agriculture/agrista/2001/table_en/index.htm, and OECD Database									

---

[29] EU Enlargement Implications on the Common Agricultural Policy

Table 7. Trade Liberalisation: effects on the rest of CEECs

« Market integration » : Output per firm

Sector	Eurozone	Rest of EU15	Poland	Hungary	Baltics	Rest of CEEC
Agriculture	-	-	-	-	-	-
Machine and tools	-0.37	-0.05	-0.65	3.8	0.11	-0.94
Automobile	-2.51	-1.61	2.35	12.93 ns		6.77
Textile clothing	-0.01	-0.08	-0.92	1.49	0.12	1.23
Wood	-0.3	-0.05	8.25	23.41	22.25	32.85
Electronics	-0.29	-0.21	0.95	1	-0.03	-1.35
Chemicals	-0.05	-0.15	1.15	6.76	1.22	-4.64
Metal products	-0.8	-0.21	15.3	24.43	4.11	24.31
Transport	0.76	0.49	0.51	1.83	-2.67	-13
Other industry	0	-0.02	1.6	6.07	2.33	3.27
Other Services	-0.03	-0.03	24.97	24.7	22.49	23.09

% deviation from baseline

Baltic GDP: dynamic adjustment (% deviation from the baseline)

Other CEECs GDP: Dynamic adjustment (% deviation from the baseline)

Table 17. The agriculture in accessing countries

	Agricutlural land		Agricultural production		Agricultural employment		Trade in agricultural and food products	
	millions ha	% total surface	millions euros	% GDP	millions	% total employment	% total exports	% total imports
Poland	18.4	59%	4.4	3%	4.0	25%	11%	11%
Hungary	6.2	66%	2.7	6%	0.3	7%	18%	5%
Czech Republic	4.3	54%	2.0	4%	0.2	5%	6%	8%
Slovenia	0.5	24%	0.7	4%	0.1	7%	4%	8%
Estonia	1.5	32%	0.3	6%	0.1	9%	16%	16%
PECO-1	31.0	56%	10.1	4%	4.6	18%		
in % EU-15	21%	-	8%	-	56%			
Romania	14.8	62%	5.1	16%	3.4	38%	9%	8%
Bulgaria	6.2	56%	1.7	15%	0.8	23%	19%	8%
Slovakia	2.4	50%	0.7	4%	0.2	8%	5%	9%
Lituania	3.2	49%	0.9	9%	0.4	24%	13%%	17%
Lettonia	2.5	39%	0.2	4%	0.2	15%	17%	13%
PECO-2	29.1	55%	8.7	11%	5.6	28%		
in % EU-15	20%	-	7%	-	68%			
PECO-10	60.1	56%	19	6%	10.2	22%		
in % EU-15	41.5%		15%		125%			
UE-15	144.9	45%	122.6	2%	8.2	6%	7%	10%

source : national, world bank, compiled by M.Girard-Vasseur and E.Vergniaud. Based on 1999 Figures.

Why should we be prepared?

- As a member of EU the agriculture sector would face an environment that is very different from now. Macedonia would be exposed to a very severe competition of producers from 25 or more member states at that time. The EU sanitary and phyto-sanitary regulation had to be followed and the institution foreseen in the *acquis communautaire*, chapter of agriculture, needed to b in place.

- Macedonia would have access to a market of 460 million consumers with a considerable purchasing power. Macedonia would benefit of the CAP, especially from the organised markets. They could use buying-in schemes to sell products for a guaranteed price and could use direct subsidies for farmers as stated in the relevant organised markets at that time.

- The idea to be exposed to such severe competition without having any possibility of national protection looks frightening, as some areas of agricultural production in nowadays Macedonia do not have a chance to sustain in such an environment. It is task of the agriculture policy and the agriculture industry and of all people who want to live on agriculture to identify the areas in which Macedonia can become competitive. These areas are to be developed during the next years. The funds have to be focused on the promising areas. Doing so Macedonia has a very good chance to sustain as the natural resources are very good and the people know how to work in agriculture. The strategy should support exactly that process.

- Stability and Association Agreement is a good opportunity for Macedonia to define the legal and economic environment for the development of the agriculture industry during the period of transition between signing the SAA

and the full membership in thee EU. It can buy time to develop its competitiveness in a more protected environment.

Conclusion

The beginning of the CAP was considered as a great success. However, after a decade high costs from overproduction and storage of surpluses arose. There have been four major attempts to reform the CAP, but the changes are very small. After 30 years, the policy still has the same problems.

The CAP is suffering from internal conflict of interest. There is a desire and even a commitment for sustainable development, but at the same time there is a promotion for increasing the. The original objectives need to be reviewed and updated to face with new challenges. The EU eastern enlargement is motivated by a range of economic and political factors. The enlargement facing the EU today is without precedent in terms of scope and diversity. In particular, the EU has never before faced the proposition of the new member states and their agricultural sector. For their part, these countries still have work to do in preparing for accession. Further, reform and modernization of the agricultural sector are necessary. In order to ease the burden of adjustment, changes of CAP have to occur. The experience of the EU and CEECs in reforming their agriculture suggests that this is a long and difficult process. Although liberalization of agricultural policies would lower the adjustment burden of the CEECs and increase the economic gains in the EU, this scenario is rather unlikely. Political forces are more likely to lead to a further adjustment of the CAP rather than a complete liberalizing.

References

1. Henrik Zobbe "The Economic and Historical Foundation of the Common Agricultural Policy in Europe"
2. Hellen Nilsson : "European Common Agricultural Policy"
3. Brian Gardner (1996) "European Agriculture, Policies, production and trade"
4. Marek Dabrowski and Jacek Rostowski(2001) "The eastern enlargement of the EU"
5. Hubert Gabrish, Ruediger Pohl(1998) "EU enlargement and its macroeconomic effects in eastern Europe, Currencies, Prices, Investment and Competitiveness"
6. Magazine, Informationen zur politischen Bildung. Europaeische Union. 279
7. Dick Leonard (2002) "Guide to the European Union, Agriculture"
8. EU Enlargement: Implications for New Member Countries, the United States, and World Trade. Nancy Cochrane and Ralph Seeley
9. Jean-Cristophe Bureu "Enlargement and reform of the EU Common agricultural policy"

ENTREPRENEURSHIP – THE OVERSEEN DETERMINANT OF ECONOMIC GROWTH IN MODERN ENDOGENOUS GROWTH THEORY

Filip Blazeski, M.Phil.

Abstract

Modern growth theory does not incorporate entrepreneurship. This paper introduces entrepreneurship as key to economic growth. It starts by explaining the development of the theory of entrepreneurship, reviews several versions of modern endogenous theory and introduces the concepts of entrepreneurship on the level of the individual and on the level of the firm. The paper explains why growth theory requires the notion of entrepreneurship, in order to be more truthful. The paper derives some policy recommendations.

Entrepreneurship today is mostly understood as starting a new business by registering a firm (enterprise). This concept is wrong because it does not embody the whole nature of entrepreneurship, which is: perceiving a business opportunity and seizing it through innovative behavior and through taking risks. If observed in this way, entrepreneurship becomes crucial factor to economic growth. This paper explains how. The paper also investigates modern endogenous growth theory, which omits the issue of entrepreneurship. This paper shows how entrepreneurship is complementary to it. The incorporation of entrepreneurship in modern growth theory will inevitably result with better policy recommendations. Examples of such policies are given in the conclusion.

Entrepreneurship

Entrepreneurship today is defined in two ways: (1) as starting a new business i.e. enterprise by establishing a new firm, and (2) as perceiving a new business opportunity and undertaking risk to seize it. In this paper, I will follow the second way of defining entrepreneurship, following the tradition of Cantillon (1755), Say (1803), Thünen (1875), Schumpeter (1911), Mises (1949), Penrose (1958), Baumol (1968), and Kirzner (1973).

The author that is usually accredited for the first use of the term entrepreneurship in a work on economics is Richard Cantillon (Baumol, 1993). Cantillon describes the entrepreneur as a person that engages in production or merchandise by buying inputs at fixed prices and selling outputs at unknown prices. The entrepreneur has grounded expectations that the buyer will be ready to provide some surplus on top of the costs, but bears significant risks because of not knowing how much that surplus will be.

J. B. Say (1803) defines entrepreneurship as combining labor (l'industrie humaine) with capital and natural resources into production or commerce. Some authors like Barreto (1989) argue that Say's concept also covers shifting resources from an area with lower to an area with higher profit yields. Say's concept does not directly deal with the issue of risk attached to entrepreneurship.

Unlike the representatives of the French school, like Cantillon and Say, most of the classical English economists like Smith, Ricardo, as well as Marx, did not distinguish between the entrepreneur and the capitalist. Most probably, this was because in the periods when they were working, the "prevalent business ownership was the small- to medium-sized family firm, the capital funds being provided by the owner, his relatives, or his friends" (Blaug, 1996). Schumpeter in this respect says, "most economists up to the time of the younger Mill failed to keep capitalist and entrepreneur distinct because the manufacturer of a hundred years ago was both" (Schumpeter, 1911, edition 1961, p.77).

Thünen, defines entrepreneurship as a function of taking risks. Thünen (1875, edition 1966) explicitly, and Cantillon (1755, edition 1931) implicitly assume that the entrepreneur possesses all the necessary knowledge about conducting his business, and therefore abilities to extract the most out of his resources.

In all the theories presented so far, with exception of Say's, the authors define entrepreneurship as an agent's willingness to engage and invest in an undertaking with only a vague idea of what the distribution of the payoffs might be. Underlying this risk-taking is the agents' strong belief that their undertakings can bring them profits, if not higher-than-average profits. However, these theories do not answer to following questions: "Why do these agents believe that their investments will bring them profits, if not higher-than-average profits? What makes their undertakings so special that they are so optimistic about them?"

Schumpeter (1961) argues that reasonable entrepreneurs are optimistic about their investments because they are introducing an innovation, or as he called it, a "new combination of resources". This new combination of resources can take the form of introducing a (1) new good, (2) new method of production, (3) new market, (4) new source of supply of raw materials or a (5) new organization of an industry.

There are two grounds on which an entrepreneur can realize high profits according to this theory. Firstly, he can improve the production process of an existing product and achieve lower production costs, which deducted from a stable (equilibrium) price would yield pure profits. Secondly, the entrepreneur might introduce a superior new product, for which the customers would be willing to pay a high price. In this second instance, the new product will also create a new market, where at least temporarily, the entrepreneur will hold a monopolistic position and will be able to extract monopolistic rents.

The theories before Schumpeter were in a way stipulating that all businessmen perceive the same opportunities, but only a small number of them take the risks attached to using them. Schumpeter added the notion of innovation. For example, he argues that one person can be an entrepreneur at one point of time and lose that status

later on "when he settles down to running (his business) as other people run their businesses" (Schumpeter, 1961, p.78).

Like Schumpeter, Kirzner describes the entrepreneur as a person that identifies and uses a business opportunity to improve his present position (following Mises's theory of human action). Kirzner argues that markets are often in disequlibrium, which is "a situation of widespread market ignorance" (Kirzner, 1979, p.8). Because of this, the markets offer business opportunities to people that can perceive them. The real entrepreneurs perceive these opportunities and combine their knowledge with the knowledge of other people in order to use them.

Following the reviewed theories, I define entrepreneurship as ability of some market agents (individuals and firms) to perceive opportunities for innovation or for improvement of the supply of certain products or services, and willingness to take risks on behalf of the assets they control in order to take advantage of the perceived opportunities.

Economic Growth

Economic growth is the growth of the value added by all entities in a country. For example, the UK Office for National Statistics uses the measure Gross Value Added (GVA) in estimating the Gross Domestic Product (GDP) - the most commonly used indicator for measuring economic growth. The Office defines GDA as a measure of the contribution to the economy of each individual producer, industry or sector.

So far, a number of theories of economic growth have emerged. The cornerstone of prevalent neoclassical theories is the work by Sollow (1956) and Swan (1956). In their models, Sollow and Swan used labor and capital as key determinants, while keeping technology as a constant and exogenously determined factor. Present growth theory (Romer, 1990; Aghion and Howitt, 1992; Grossman and Helpman, 1991) treats parts of technology as endogenous determinants of growth.

According to the Solow-Swan model, the output in one economy is produced with the help of two factors of production, capital (K) and labor (L), whose rate of input is L(t).

$Y = F(K,L)$

Technological possibilities in their model are represented by a production function. The mostly used one is the Cobb-Douglas production function:

$Y = AK^{\alpha}L^{1-\alpha}$, where A>1 is the level of technology and α is a constant with $0<\alpha<1$

In this model, technology is a constant. The higher it is, the higher the output. However, the constant level of technology and its exogenous nature are a main reason why this theory lacks empirical certification.

Romer's (1990) model is representative of the modern endogenous models with expanding variety of products. It is specified as:

$$Y(H_A, L, x) = H_y^{\alpha} L^{\beta} A \bar{x}^{1-\alpha-\beta}$$

Where, Y is the output, H is total human capital, H_A is total human capital employed in research and H_Y is the total human capital employed in direct production of output Y. H_Y is directly positively affected by H_A due to spillover effects. L represents labor services like skills such as eye-hand coordination that are available from a healthy physical body. The constants α and β determine the level of different intermediate capital goods (technology intensive and technology non-intensive), which are not totally substitutable. Therefore, $0<\alpha<1$; $0<\beta<1$ and $\alpha+\beta<1$. The notation x represents all intermediate goods used to produce output Y. Romer keeps the available intermediate goods constant, and therefore uses the notation $\bar{x}$.

As can be seen from the above, output is indirectly positively affected by the output of the employed human capital in research. This makes this model endogenous and fairly realistic.

In defining this theory, Romer starts from three presumptions. The first is that technological change—improvement in the instructions for mixing together raw materials—lies at the heart of economic growth. Technological change provides the incentive for continued capital accumulation, and together, capital accumulation and technological change account for much of the increase in output per hour worked.

The second premise is that technological change arises in large part because of intentional actions taken by people who respond to market incentives. Thus the model is one of endogenous rather than exogenous technological change.

The third and most fundamental premise is that instructions for working with raw materials are inherently different from other economic goods. Once the cost of creating a new set of instructions has been incurred, the instructions can be used over and over again at no additional cost. Developing new and better instructions is equivalent to incurring a fixed cost. This property is taken to be the defining characteristic of technology (Romer, 1990).

The theory of endogenous economic growth with improvements in the quality of products, according to Barro and Sala-i-Martin, (2001) can be stated with the following formula:

$$Y = AL^{1-\alpha} \cdot \sum_{j=1}^{N} (q^{kj} \cdot X_{jk_j})^{\alpha}$$

Here, Y represents the output, A the technology, $0<\alpha<1$, while q is the quality grade of each intermediate good employed in the production of j-th good. Here q expands exponentially determined by the quality rung k, which is always positive. X is the quantity of intermediate goods employed in the production of j-th good. The economy uses X_{jk_j}, because k identifies the highest quality level of the intermediate goods for the production of j-th good.

This formula notation determines that output grows with the improvements of the intermediate products, noted as k. In this theory, the growth of k is determined by the

incentive to innovate, which is the flow of profit from making the improvement (for details see Barro, Sala-i-Martin, 2001)

Entrepreneurship on The Level of the Individual

As we can see, expanding the variety of products, as well as, improvements in the quality of the present products play a massive role in explaining growth in modern endogenous growth theory. The key to these improvements is innovation. However, modern growth theory assumes that the aggregate level of successful innovation can be modeled according to the incentive to innovate without taking into consideration psychological and sociological factors embedded in the theories of entrepreneurship.

The entrepreneurial behavior seems to be a function of intelligence, knowledge, and cultural and psychological factors. Mises acknowledges this in his "Human Action".

> "…Various individuals do not react to a change in conditions with the same quickness and in the same way. The inequality of men, which is due to differences both in their inborn qualities and in the vicissitudes of their lives, manifests itself in this way too. There are in the market pacemakers and others who only imitate the procedures of their more agile citizens".
> (Mises, 1949, p.256)

The entrepreneurial profits are not the only possible source of motivation for the entrepreneur. His need for achievement, need to earn respect from other people, need for self-realization, or something else, might also motivate a person to perceive and act upon a business opportunity. For example, the psychologists Zaleznik and Kets de Vries (1974) locate the roots of entrepreneurial behavior in the psychology of people with a distant or absent image of their father. "(The entrepreneur) needs social support, the esteem and the admiration that have been denied him for so long, in order to compensate for feelings of rejection centered on the father image. He is forced to realize his idea, and the enterprise becomes a tangible means of acquiring the self-esteem he desires" (Zaleznik & Kets de Vries, 1974).

Entrepreneurship on the level of the individual is very well treated in the classical literature on entrepreneurship. Actually, all of this literature focuses on the individual entrepreneur, mostly because of the small size of the firms in the past and the key roles played in them by their owners/managers. However, today's economic landscape is entirely different, due to the enormous size of the modern corporation. This explains why the theory of entrepreneurship has to be expanded to accommodate for the entrepreneurial behavior of the modern firms.

Entrepreneurship on the Level of the Firm

"(In the USA)…90% of all business sales are made by corporations…(they) hire 97% of all workers…account for 98% of all capital expenditures…produce 98% of all the value added" (Carlton and Perlof, 1999, p.14). As in a modern corporation the ownership and management are usually separated, the theory of entrepreneurship has to be modified so that it can apply completely. An entrepreneurial individual in a modern corporation usually has limited opportunities for action even if he/she is the

highest authority in the organization (CEO). This person usually cannot appropriate all of the entrepreneurial profits but also does not bear all the risks involved in acting upon his/her entrepreneurial foresight.

However, this does not mean that the employees of a corporation (including CEOs) cannot be entrepreneurs. They can still be alert to opportunities that their firm can pursue and can take action within the organisation to advocate their use. The difference that occurs in the theory of entrepreneurship with the separation of ownership and management is the differentiation between two distinct types of entrepreneurship: entrepreneurship on the level of individuals, and entrepreneurship on the level of firms.

On the level of the individual, there are two types of entrepreneurship, entrepreneurship of an employee and entrepreneurship of a firm-owner, which was covered previously. The employee entrepreneurship is necessary for a firm to behave as an entrepreneur, because the firm itself, just as a legal entity, is incapable of generating new ideas. Therefore, the firms employ entrepreneurs, who are individuals or groups that provide them with entrepreneurial services (Penrose, 1958). The entrepreneurial services are introduction of new ideas and advocating their acceptance within the firm (Penrose, 1958, p.31).

> "Innovation begins with the activation of some person or persons to sense or seize a new opportunity. Variously called "corporate entrepreneurs" (Kanter, 1983), "intrapreneurs", "idea generators" or "idea champions" (Galbraith, 1982), such individuals are able to initiate a process of departing from the organizations's established routines or systems" (Kanter, 1988, p. 171).

However, at this point, we have to acknowledge one additional factor that determines the ability of an employee to affect the functioning of his/her firm. The higher the employee is in the organizational hierarchy, the more authority he/she has to take advantage of a perceived opportunity. Therefore, the entrepreneurship of the upper management has a very high influence on the performance of every firm. Covin and Slevin (1988), for example, found that top management's entrepreneurial orientation had a positive effect on the financial performance of organically structured firms.

The importance of the upper management is even more accentuated as it has authority to accept or deny subordinate's ideas that could contribute to firm's entrepreneurship.

> "Rarely do bosses in tradition-bound organizations actually have to say "No" directly to a subordinate's idea. A few well placed frowns or eyebrow raises, some pregnant pauses, a reiteration of the real assignment, and citation of accumulated years of company wisdom can be enough to make it clear to people that new ideas are not welcome." (Kanter, 1983, p. 69)

Because of the high authority to implement their own entrepreneurship and to channel and use the entrepreneurship of the other employees, the personality of the top manager is very important to the competitive success or failure of a firm.

Entrepreneurship as determinant of growth

At the heart of entrepreneurship lie the following three notions: perception, innovation and risk. As we saw, expanding the variety of products and improving the quality of the present products play a massive role in explaining growth in modern endogenous growth theory. However, these processes require human action.

The human action, which results in improvement of the variety of products or in the quality of the present products, is characterized by perception, innovation and risk. The perception is necessary to identify the possibility for improvement. The innovation is necessary to determine the way for improvement. The risk is necessary in order to implement the improvement.

Basically, the process of improvement i.e. of expanding the variety of products or improving the quality of present products is entrepreneurship. If an individual performs this process, then we have entrepreneurship on the level of the individual. If a firm performs this process of improvement, then we have entrepreneurship on the level of the firm.

There is abundant evidence that entrepreneurial behavior is determined by psychological and sociological factors. This makes the models, which determine growth as a function of innovation, which is a function of material incentives, such as modern endogenous growth theory, not entirely correct. This is why entrepreneurship is an overlooked determinant of economic growth in modern endogenous theory.

Conclusion

Mathematical modeling of a complex phenomenon, such as economic growth, depends on making assumptions. Due to the assumptions it starts from, today's endogenous growth theory overlooks an important growth factor – entrepreneurship. Entrepreneurship is an ability of some market agents (individuals and firms) to perceive opportunities for innovation or for improvement of the supply of certain products or services, and willingness to take risks on behalf of the assets they control in order to take advantage of the perceived opportunities.

Economic growth depends on expanding the variety of products and the quality of the present ones. However, in order for an economy to achieve this, it requires entrepreneurs, both as SME-owners and as corporate employees. "Entrepreneurs are agents of change and growth in a market economy and they can act to accelerate the generation, dissemination and application of innovative ideas. In doing so they not only ensure that efficient use is made of resources, but also expand the boundaries of economic activity" (OECD, 1998, p. 11). The entrepreneurial behavior is rare and is determined by intelligence, knowledge, and cultural and psychological factors.

As a policy recommendation for countries, which seek avenues for economic growth, it appears from this theory that it is important to nurture, assist and reward entrepreneurial talent. Putting the entrepreneur in the pedestal of pop culture and propagating its value throughout the educational system is important for securing long run growth. The entrepreneur is simply a vehicle for implementing innovations. Its place in the economy has to be recognized and celebrated.

References

1. Aghion, P and Howitt, P (1992). A Model of Growth through Creative Destruction. *Econometrica,* 60, 2 (March), 323-351.
2. Barreto, H. (1989). *The Entrepreneur in Microeconomic Theory: Disappearance and Explanation.* London, Routledge.
3. Barro, R.J. and Sala-i-Martin, X (2001). *Economic Growth*. Cambridge, Mass. MIT Press.
4. Baumol, W. (1968). Entrepreneurship in Economic Theory. *American Economic Review* (papers and proceedings) 58, 64 – 71.
5. Baumol, W. (1993): *Entrepreneurship, Management, and the Structure of Payoffs*, Cambridge, Mass., MIT Press.
6. Blaug, M. (1996). *Economic Theory in Retrospect.* Cambridge, Cambridge University Press.
7. Cantillon, R. (1755, ed. 1931). *Essay sur la nature de commerce en general.* London, Macmillan.
8. Carlton, D. Perloff, M. (1999). *Modern Industrial Organization*, 3rd Edition, Addison-Wesley Longman, Inc.
9. Grossman, G. and Helpman, E (1991). *Innovation and growth in the global economy*. The MIT Press, 1991.
10. Kanter, R.M. (1983). *Change Masters: Corporate Entrepreneurs at Work.* London : Allen & Unwin
11. Kanter, R.M. (1988). When Giants Learn to Dance: *Mastering the Challenge of Strategy, Management, and Careers in the 1990s.* New York ; London : Simon and Schuster.
12. Kirzner I.M. (1973). *Competition and Entrepreneurship.* Chicago, University of Chicago Press.
13. Kirzner I.M. (1985). *Discovery and the Capitalist Process.* Chicago, University of Chicago Press.
14. OECD (1998). *Human Capital Investment.* Paris, OECD.
15. Penrose, E. (1959). *The Theory of the Growth of the Firm.* Oxford, Blackwell.
16. Romer, P.M. (1990). Endogenous Technological Change. *Journal of Political Economy,* 98, 5 (October), part II, S71-S102.
17. Say, J.B. (1803, ed. 1979). *Traité d'economie politique.* Paris, Callman-Levy.
18. Schumpeter, J. A. (1911, ed. 1961). *Theory of Economic Development.* Cambridge Mass. Harvard University Press.
19. Sollow, R.M. (1956). A Contribution to the Theory of Economic Growth. *Quarterly Journal of Economics*, 70:65-94.
20. Swan, T.W. (1956). Economic Growth and Capital Accumulation. *Economic Record.* 32 (November), 334-361.
21. Thünen, J.H. (1975, ed. 1966). *Isolated state.* Oxford, Pergamon.
22. Von Mises, L. (1949). *Human Action; A Treatise on Economics.* London, W. Hodge.
23. Zaleznik, A and Kets de Vries, M (1974). *Power and the Corporate Mind.* Boston, Mass. Houghton Mifflin.