OCCASIONAL PAPER

50

Purchasing Managers' Indices and Quarterly GDP Change Forecast

An Exploratory Note Based on Indian Data

Dipankor Coondoo

&

Sangeeta Das

January 2016

INSTITUTE OF DEVELOPMENT STUDIES KOLKATA

DD 27/D, Sector I, Salt Lake, Kolkata 700 064

Phone : +91 33 2321-3120/21 Fax : +91 33 2321-3119

E-mail : idsk@idskmail.com, Website: www.idsk.edu.in

Purchasing Managers' Indices and Quarterly GDP change forecast

An Exploratory Note based on Indian Data

Dipankor Coondoo[1] Sangeeta Das[2]

Abstract[3, 4]

This paper reports on an analysis of a data set comprising Indian quarterly data for overall GDP, Manufacturing GDP and Services GDP for the period January 2006 to July 2014 and the corresponding monthly data on PMI and its 18 components. The objective is to see whether and how the PMIs are related to quarterly growth rate of overall GDP and its chosen components. A MIDAS type regression model is specified in which quarterly GDP growth is related to values of PMI variable(s) of the three months forming the quarter, but there is no autoregressive terms. Because of the small sample size of the data set (only 36 quarterly observations), the time series properties of the variables, if any, are ignored and the regression equation is treated as a cross-sectional regression and estimated by OLS method. The results show that when seasonality of quarterly GDP growth is duly controlled by using quarter dummies, then PMI and its components are significantly correlated with quarterly GDP growth. This is a major finding of this study. Interestingly, the estimated regression equations are seen to perform much better for services GDP growth and overall GDP growth compared to manufacturing GDP growth.

Key words: Purchasing Managers' Index, GDP change, Forecasting

JEL classification numbers:C51, C53, E37

---

1. Retired Professor, Indian Statistical Institute, Visiting Professor, Institute of Development Studies Kolkata.

2. Director, Department of Economic and Policy Research and Department of Communication, Reserve Bank of India.

1. Introduction

Compilation of Purchasing Managers' Index (PMI) was started by the US National Association of Purchasing Management (NAPM) (later named Institute for Supply Management (ISM)) in 1931. In that year NAPM began its monthly survey of member companies on changes in various aspects of business activity relating to manufacturing and using that survey data began compiling monthly indices of different aspects of business activity for the manufacturing sector. In 1980, Theodore Torda of US Department of Commerce introduced the PMI as an equally weighted average of seasonally adjusted diffusion index for five aspects of manufacturing business – viz., new orders, production, employment, supplier deliveries and inventories. PMI and the constituent sub-indices, being diffusion indices, would indicated if the corresponding activity in the current month was better, unchanged or worse compared to the previous month. Following basically the ISM procedure, PMI is now being compiled for over 30 countries. Markit, a global financial information services company, compiles PMI for most of these countries. For India monthly PMI for the manufacturing and the services sector are available from April 2005 and December 2005, respectively.

Today PMI is recognised as a significant indicator of the concerned country's economic activity. It is known to be able to influence financial market movements. PMI and its constituent sub-indices are also found to be effective instruments for tracking and predicting temporal changes of overall and component GDP. For example, for the US, Koenig (2002) notes that the PMI is not only a valuable tool for tracking the manufacturing sector output, it also conveys useful information about real GDP growth. For the euro area and constituent economies, Lombardi and Maier (2011) remark "the parsimonious PMI model provides a 'low tech', fairly accurate way of projecting GDP for both the euro area and national economies,.……" They also mention that compared to other models, a PMI-based model is simpler to estimate and can be updated once a month. In the context of a forecasting exercise for the global economy, Rossiter (2010) notes that the addition of PMI to the forecasting model generally improves forecasts, in some cases considerably. For global output, each additional month of PMI data reduces the forecast RMSE (relative to the benchmarks) with the largest improvement coming from the first month's PMI release. … Overall, the models that include the PMI data outperform the benchmarks during *this* period of high economic volatility[5]. Lahiri and Monokroussos (2011), in their examination of the GDP growth forecasting ability of the PMI data for the US economy, note that both manufacturing and non-manufacturing PMI indices are helpful in improving the GDP growth forecast.

PMI survey is relatively new for India. Manufacturing PMI and Services PMI are being compiled for India and as already mentioned, these are available from April 2005 and December 2005, respectively. Manufacturing PMI has 11 sub-indices – viz., Output Index (*M_OUT*), New Order Index (*M_NORD*), New Export Order Index (*M_NEXORD*), Backlog of Works Index (*M_BACKL*), Finished Goods Stock Index (*M_FG*), Employment Index (*M_EMP*), Output Price Index (*M_OUTP*), Input Price Index (*M_INPP*), Suppliers' Delivery Time Index (*M_SDT*), Quantity Purchased Index (*M_QP*) and Stock of Items Purchase Index (*M_SP*)[6]. The overall Manufacturing PMI (*M_PMI*) is derived as a weighted average of *M_OUT* (0.25), *M_NORD* (0.30), *M_EMP* (0.20), reciprocal of *M_SDT* (0.15) and *M_SP* (0.10)[7].Seven sub-indices of the Services PMI are Business Activity Index (*S_BA*), New Business Index (*S_NB*), Outstanding Business Index (*S_OB*), Employment Index (*S_EMP*), Price Change Index (*S_PRICE*), Input Price Index (*S_INPP*) and Business Expectation Index (*S_BEXP*).

As the available literature on Indian studies shows, there are only a few studies that examine usefulness of PMI as indicator of GDP growth. Bose (2015), in her study of the PMI and GDP growth relationship for India, tried to explain quarterly GDP growth in terms of two different regression model specifications. In the first specification quarterly GDP growth is sought to be explained in terms of its one quarter lagged value and PMI for the three months constituting the current quarter. In the other specification the three month-specific PMIs are replaced by quarterly average of Index of Industrial Production and PMI. Following her conclusion, PMI data serves the purpose of providing some additional information on current quarterly GDP growth over that embedded in its own past values and other available higher frequency official indicators like the IIP growth rates. The low explanatory power of the fitted models was however a major concern of her. Bhattacharya *et al* (2011) on the other hand conclude “As to the PMI survey, we find that despite its timeliness, it does not improve the nowcasting of the benchmark AR and Naive models. These findings are in stark contrast with those found in developed countries, where survey dynamics are largely consistent with the one recorded by the official GDP growth rate. This peculiarity may arise from a marked difference in coverage in the reference sample of firms underlying the GDP figures calculated by the CSO (especially for industry and private services) and the ones considered both by the RBI and the PMI surveys.”

In this paper we try to examine carefully the available data set comprising quarterly growth of manufacturing GDP, services GDP, Overall GDP and monthly values of manufacturing PMI and the eighteen sub-indices of manufacturing and services PMI listed earlier. Our objective is to find out if any robust regression relationship relating quarterly GDP growth with (subset of) PMI variables can be identified that may be used for obtaining quarterly GDP forecast. In what follows, in Section 2, we describe the method of data analysis that we have followed; in Section 3, we discuss the results that we have obtained, and finally, in Section 4, we draw some concluding observations.

2. Method of Data Analysis

Our data set is essentially a time series data set comprising observed values of three quarterly growth rate variables[8] (viz., growth rate of manufacturing GDP (*RGMFG*), growth rate of services GDP (*RGSER*) and growth rate of overall GDP (*RGGDP*)) and monthly values of the already mentioned 12 PMI variables for the sample period January 2006 to. July 2014. Since all the regression equations that we have estimated in this exercise have a quarterly GDP growth rate variable as the dependent variable, the sample size is 34 (quarterly) obser-vations. Although all our variables are time-suffixed variables, because of this small sample size we have ignored the possible time series econometric issues in our regression analysis.

The data analysis strategy that we have used is as follows:

Step 1. Factor Analysis: Since the 19 PMI variables are likely to be correlated, we perform an exploratory factor analysis to see how these variables are related to the underlying factors. The varimax rotation method detects 8 statistically significant factors for these 19 PMI variables. The estimated factor pattern matrix is given in Table 1 at the end of the paper. The pattern of correspondence between the PMI variables and factors as suggested by the pattern matrix is as follows:

(1) The set of 8 variables *M_PMI, M_OUT, M_NORD, M_QP, M_SP, S_BA, S_NB* and *S_EMP* are strongly correlated with factor 1;

(2) The variables *S_PRICE* is strongly correlated with factor 2[9];

(3) The variable *M_EMP* is strongly correlated with factor 4,

(4) The variable *M_SDT* is strongly correlated with factor 5.

(5) No clear correspondence with factors is found for the remaining PMI variables (viz., *M_NEXORD, M_BACKL, M_FG, S_OB, S_INPP* and *S_BEXP*). For this reason, these variables are left out in rest of the exercise.

Step 2. Regression Analysis

Step 1 results help us to delimit the set of PMI variables that should be tried as possible explanatory variables of the regression equations for individual quarterly GDP growth rate variables. It may be noted that whereas the 8 variables related to factor1 are likely to be highly correlated among themselves, each of them is supposed to be weakly correlated with each of the variables related to factor 2, factor 4 and factor 5, respectively. This leads us to choose the following strategy for regression analysis –

Suppose

y : quarterly GDP growth;

$x_{11}, x_{12}, ..., x_{18}$: PMI variables related to factor 1[10];

x_2 : PMI variable related factor 2;

x_4 : PMI variable related factor 4; and

x_5 : PMI variable related factor 5.

First, we regress y on one of the first category explanatory variables $x_{11}, x_{12}, ..., x_{18}$ – say, x_{11}. If x_{11} turns out to be significant, we add the second category variable x_2 as the second explanatory variable to the regression equation and check if the result improves. If the result improves, we retain x_2 and next add to the regression equation the next second category explanatory variable x_4 as the third explanatory variable, else drop x_2 and add x_4. In the same manner in the next stage x_5 is tried as an explanatory variable. This process is repeated for each of the 8 first category explanatory variables.

Next, the specification of the regression equation is explained, Denote

$y_t = \frac{Y_t - Y_{t-1}}{Y_{t-1}} \times 100$: per cent growth rate of GDP for quarter t over that for quarter t-1;

$x_{t(1)}, x_{t(2)}, x_{t(3)}$: values of a PMI variable chosen as regressor for the first, second and last month of quarter t, respectively. For example, if t denotes the January – March quarter of a year, $x_{t(1)}, x_{t(2)}, x_{t(3)}$ will be values of the PMI variable x for the months January, February, March of the January – March quarter. Note that (1) depending on their statistical significance, all or some or none of $x_{t(1)}, x_{t(2)}, x_{t(3)}$ may appear in the regression equation and (2) if more than one PMI variables are chosen as explanatory variables, for each chosen explanatory variable at most three regressors may get added to the set of regressors.

D_1, D_2, D_3: Seasonal dummy variables for April – June, July – September and October–December quarter, respectively[11].

The regression equation is of the form

$$y_t = \beta_0 + \sum_{j=1}^{3} \delta_j D_j + \sum_{k=1}^{K} \sum_{j=1}^{3} \beta_{kj} x_{kt(j)} + \varepsilon_t$$

where ε_t is the equation disturbance term. The following point may be noted about this specified regression equation. In its form, this specification belongs to Mixed Data Sampling Regression Models (MIDAS) of Ghysels et al. (2004), because the regression contains time series data sampled at quarterly and monthly frequencies together. However, unlike the general specification of a MIDAS regression equation, it does not contain any autoregressive term of y_t or $x_{kt(j)}$'s. It should be mentioned here that possible time series econometric features of the specified regression equation have been ignored altogether because of the very small sample size of the available quarterly data set. Note however that even if a larger quarterly data set is available, since the data generating processes underlying y_t and $x_{kt(j)}$'s are likely to be stationary processes, issues like co-integrability of the set of variables etc. may not be relevant. Thus for all practical purposes these equations may be treated as cross-sectional regression equations.

3. Regression Results

Following the strategy described above, we have estimated by Ordinary Least Squares (OLS) method a large number of regression equations having RGMFG, RGSER and RGGDP as the dependent variable. In each case, robust standard errors of estimated regression coefficients are obtained along with a number of regression diagnostics measures. The regression diagnostics measures calculated are R^2 and $\bar{R}^2$, Shapiro-Wilks *V* statistic of test of normality of the regression disturbance term (*SW(V)*), skewness-kurtosis test statistic *SK*, Cameron-Trivedi's

IM test statistic for heteroscedasticity (*IMH*) and for skewness (*IMS*) and finally Ramsey's misspecification test statistics relating to functional form and omission of explanatory variables (*Link* and *OV*). To check robustness of these regression equations estimated from a *not so large* data set, we have also performed bootstrapping type of exercise on a selective basis. The results indicate robustness of the estimated regression equations.

Out of a large number of estimated regression equations, we have selected some for presentation in the paper. These are given in Tables 2 – 8 at the end of the paper. Each table presents estimated regression equations for the three dependent variables *RGMFG, RGSER* and *RGGDP* which have one of the first category explanatory variables as the principal explanatory variable. For each set of selected explanatory variables, the estimated regression equations for the three dependent variables are given in a row to facilitate comparison. In each table, for each estimated regression equation reported, the regression diagnostic measures are given in the last 4 columns of the table. The t-ratio of estimated regression coefficients are given just below the estimated coefficients and *p*-value of a reported diagnostic statistic is given in parentheses next to it.

We next make a few overall observations based on the simple regression results we have presented here.

(a) Since the quarterly growth rates are calculated from GDP data which are not seasonally adjusted and there is a fair amount of systematic seasonal component in quarterly movement of real GDP, in all the estimated regression equations the three quarterly seasonal dummy variables are highly significant. In fact, it appears that these dummy variables are the leading explanatory factors of quarterly GDP growth variation.

(b) Given a set of explanatory variables, the estimated equations for *RGSER* and *RGGDP* have much higher (say not less than 0.95) R^2 and $\bar{R}^2$ values compared to those of the *RGMFG* (which are mostly around 0.70). This tends to suggest that in the present case of Indian GDP data, the PMI variables explain temporal variation of services and overall GDP better than that of manufacturing GDP. Interestingly, here out of the 11 PMI variables used, 7 relate to the change in the manufacturing sector of the economy!

(c) As per our regression analysis strategy, all the three monthly values of a PMI variable are first included as explanatory variables in a regression equation. Barring a very few exceptions, it is found that all the three monthly values of a PMI fail to be statistically significant explanatory variables together – in most cases, two of these (e.g., those for the first and the last month of the given quarter) turn out significant. This is not unexpected since the quarterly data on the set of three variables relating to a PMI variable, say, $x_{kt(1)}$, $x_{kt(2)}$, $x_{kt(3)}$, may be correlated.

(d) It is observed that in all the estimated regression equations presented in Tables 2 – 8 whereas the estimated regression coefficient of $x_{kt(1)}$ (being the first-month value of the leading first category explanatory variable of the equation) is positive, the corresponding coefficient of $x_{kt(2)}$ and/or $x_{kt(3)}$ is negative.

(e) As regards the results on regression diagnostics, the Shapiro-Wilks test rejects the null hypothesis of normality of the regression disturbance term in 37 out of 49 cases (the SK test of normality, however, gets rejected in far fewer cases). The other diagnostic tests relating to hetero-scedasticity of regression disturbance term and misspecification of the regression equation do not get much rejection.

4. Concluding Observations

Short run macro-economic policy formulation requires information on GDP. Release of current GDP estimates generally involves time lag, which is often substantial for many countries. This calls for short run GDP forecast a quarter or a few quarters ahead. Popular short run quarterly GDP (or GDP change) forecasting techniques are broadly of two types – (a) naïve forecasting based on univariate time series models like AR model etc. of GDP and (b) forecast based on models that use high frequency indicators of quarterly GDP available with much shorter lag. These latter models can broadly be of three types, viz.

(i) Bridge models which relate quarterly average of monthly indicators (explanatory variables) of GDP or its component to quarterly growth of GDP or its components (see Barhoumi *et al.*, 2012);

(ii) Dynamic factor models which extract a relatively small number of factors out of a data set on a large number of collinear indicators of GDP or its component (that may constitute a mixed frequency data set) and estimate forecast equation for quarterly GDP or component in terms of chosen factors (see Sargent and Sims, 1977; Stock and Watson, 1991; Giannone *et al.*, 2008); and finally

(iii) Mixed Data Sampling (MIDAS) models which directly incorporate high frequency indicator variable(s) as explanatory variables in to the forecast equation along with lagged quarterly GDP or component variables (Ghysels *et al.*, 2004). Needless to mention, a MIDAS model can encompass a wide variety of temporal patterns of movement of quarterly GDP changes.

How would the exercise reported in this paper fit into the literature on quarterly GDP forecasting and what message would this give to practitioners of GDP forecasting, particularly those in India?

The substantive observations that one may draw from these results are perhaps that

(i) Whatever may be the shortcomings of PMI survey for India (e.g., small sample size, coverage of firms belonging to the organised industry sector of the economy alone, nonrepresentative and unbalanced sample of firms and so), the results clearly indicate that PMI and many of its components correlate rather well with GDP change – of services GDP and overall GDP, more specifically. It is somewhat surprising that the results obtained for manufacturing GDP are systematically worse!

(ii) As our results suggest, PMI and its leading components (i.e., those related to factor 1) show more or less similar strength of correlation with GDP change such that one may possibly choose any one of the leading PMI explanatory variables and use that as the primary indicator of GDP change. Of course, one may find and use additional secondary indicator(s) out of the second category PMI variables which relate to factor 2, factor 4 or factor 5.

(iii) A regression model specified as a cross-sectional model and estimated on the basis of a data set which comprises data on essentially time series variables, ignoring the time series properties of the variables (like we have done here) cannot be advisable. From this point of view it is not clear if one should make use of the kind of regression equations estimated here for forecasting purpose. As already mentioned, the regression equation we have specified here is a special case of the MIDAS model, as it does not include any autoregressive term for neither GDP change nor the explanatory PMI variables. When the PMI data have accumulate enough over time such that time series features can be meaningfully modelled and examined, the possibility of building proper forecast model for GDP change based on PMI data should be explored.

Notes

3. Data analysis help rendered by Ms. Poulomi Lahiri is gratefully acknowledged.

4. Views expressed in this paper are those of the authors and do not necessarily reflect the views of the institutions with which they are affiliated.

5. This comment relates to the forecast of GDP for the recent great

depression period, in particular, 2008Q4 to 2009Q2).

6. The abbreviated index names are in parentheses. These are used as variable names in the later part of this paper.
7. Figures in parentheses are the weights.
8. These are quarterly growth rates of GDP at factor cost at constant prices, (Base: 2004-05).
9. Two more PMI variables *M_OUTP* and *M_INPP* also fall under this category. However we have missed out these two possible secondary explanatory variables in our regression exercise. This omission will be taken care of when we revise this paper.
10. Since this set of PMI variables are related to factor 1, which accounts for the largest part of the observed variation of all PMI variables together, in what follows we refer to them as the first category explanatory variables and the PMI variables related to factor 2, factor 4 and factor 5 are referred to as the second category explanatory variables.
11. Data on quarterly GDP growth rate, being derived from seasonally unadjusted real GDP, have seasonal variations and hence use of these seasonal dummy variables become necessary.

References

1. Barhoumi, K., O. Darne, L. Ferrara and B. Pluyaud (2012): Monthly GDP Forecasting using Bridge Models: Application for the French Economy, *Bulletin of Economic Research*, 64:S1, 2012, s53 – s70.
2. Bhattacharya, R., R. Pandey and G. Veronese (2011): Tracking India Growth in Real Time, Working Paper No. 2011 – 90, July 2011, National Institute of Public Finance and Policy, New Delhi.
3. Bose, S. (2015): Is the Purchasing Managers' Index a Reliable Indicator of GDP Growth? : Some Evidence from Indian Data, *Money & Finance*, March 2015, pp. 39 – 66.
4. Ghysels, E., P. Santa-Clara and R. Valkanov (2004): The MIDAS Touch: Mixed Data Sampling Regression Models (mimeo).

5. Giannone D., L. Reichlin and D. Small (2008): Nowcasting: the real-time informational contents of macroeconomic data, *Journal of Monetary Economics* 55(4): 665-676.

6. Koenig, E. F. (2002): Using the Purchasing Managers' Index to Assess the Economy's Strength and the Likely Direction of Monetary Policy, *Economic & Financial Policy Review*, Federal Reserve Bank of Dallas, Vol. 1, No.6, 2002.

7. Lahiri, K. and G. Monokroussos (2011): Nowcasting US GDP: The role of ISM Business Surveys, electronic copy downloaded from http:/ssrn.com/abstract=1977270.

8. Lombardi, M. J. and P. Maier (2011): Forecasting Economic Growth in the Euro area during the Great Moderation and the Great Depression, Working Paper Series: No. 1379, September 2011.

9. Rossiter, J. (2010): Nowcasting the Global Economy, Bank of Canada Discussion Paper 2010 – 12, September 2010.

10. Sargent, T. and C. Sims (1977): Business cycle modelling without pretending to have too much a-priori economic theory, in C. Sims (ed.), *New Methods in Business Cycle Research,* federal Reserve Bank of Minneapolis.

11. Stock, J. and M. Watson (1991): A probability model of the coincident economic indicators, in K. Lahiri and G. Moore (eds.), *Leading Economic Indicators: New Approaches and Forecasting Records,* Cambridge University Press, pp. 63 – 89.

Table 1. Estimated Factor Pattern for 19 PMI variables obtained by Varimax Factor Rotation Method

PMI variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
M_PMI	0.921	0.230	0.249	0.110	-0.085	0.037	0.109	0.066
M_OUT	0.922	0.255	0.239	0.019	-0.007	-0.020	0.120	0.002
M_NORD	0.926	0.203	0.240	0.100	-0.059	0.041	0.035	0.129
M_NEXORD	0.611	0.159	0.583	0.108	-0.018	0.195	-0.054	-0.189
M_BACKL	0.005	0.362	0.574	0.141	-0.185	0.188	0.000	-0.229
M_FG	0.109	0.095	0.472	-0.007	0.025	-0.006	0.048	0.093
M_EMP	0.305	0.134	0.097	0.910	0.154	0.146	-0.015	-0.001
M_OUTP	0.264	0.845	0.215	0.169	-0.045	0.016	0.006	-0.018
M_INPP	0.166	0.803	0.252	0.000	-0.134	-0.037	0.118	-0.169
M_SDT	-0.117	-0.140	-0.038	0.123	0.964	-0.006	-0.034	0.001
M_QP	0.868	0.226	0.263	0.045	-0.144	0.080	0.105	0.166
M_SP	0.724	0.138	0.304	-0.075	-0.213	0.154	0.515	-0.023
S_BA	0.874	0.194	-0.011	0.187	-0.009	0.320	-0.070	-0.099
S_NB	0.810	0.262	0.026	0.210	-0.036	0.404	0.000	-0.049
S_OB	0.343	0.100	0.189	0.163	-0.001	0.502	0.048	0.008
S_EMP	0.758	0.077	-0.063	0.312	0.014	0.223	-0.104	-0.104
S_PRICE	0.331	0.721	0.130	0.021	-0.053	0.296	-0.046	0.360
S_INPP	0.539	0.593	-0.023	0.065	-0.037	0.340	-0.133	0.171
S_BEXP	0.536	0.310	-0.173	0.181	-0.015	0.236	0.016	0.081

Table 2. Estimated Regression Equations for Quarterly GDP growth rates with M_PMI as the leading explanatory variable.

eqn. No.	dep. var.	estimated coefficient of									regression diagnostics			
		const.	DMAPR	DMJUL	DMOCT	M_PMI_1	M_PMI_2	M_PMI_3	M_SDT_1	M_SDT_3	$R^2/\bar{R}^2$	SW(V)/SK	IMH/IMS	Link/OV
1	RGMFG	4.71	-10.86	-5.88	-5.08	0.71		-0.67			0.72	2.08(0.06)	23.79(0.04)	-0.8 (0.43)
		0.41	-7.07	-5.89	-4.71	3.54		-2.05			0.67	1.92(0.38)	6.5 (0.26)	0.99(0.41)
2	RGSER	4.3	-14.12	-4.58	-6.49	0.33		-0.25			0.96	4.38(0.00)	14.80(0.39)	-0.04(.96)
		1.11	-24.29	-9.59	-12.8	5.05		-2.65			0.96	4.91(0.08)	10.86(0.05)	0.20(0.89)
3	RGGDP	2.06	-9.45	-3.96	6.22	0.42		-0.39			0.97	2.49(0.03)	16.28(0.29)	0.41(0.68)
		0.5	-18.26	-8.63	12.09	5.89		-4.12			0.97	4.55(0.10)	7.10(0.21)	0.96(0.42)
4	RGMFG	-29.6	-11.14	-6.20	-5.42	0.77		-0.71		0.67	0.74	1.90(0.09)	28.16(0.13)	-0.59(0.56)
		-1.05	-7.97	-4.41	-3.72	3.53		-3.06		1.28	0.68	2.44(0.23)	6.69(0.35)	1.21(0.32)
5	RGSER	18.5	-14.04	-4.46	-6.42	0.34		-0.29	-0.26		0.96	4.22(0.00)	22.80(0.35)	0.03(0.97)
		2.01	-24.17	-9.89	-13.1	4.96		-2.88	-1.68		0.96	5.13(0.08)	11.56(0.07)	0.45(0.01)
														0.46 0.65)
6	RGGDP	15.3	-9.589	-4.02	6.18	0.31	0.19	-0.52	-0.22		0.98	2.29(0.04)	31.76(0.33)	
		1.48	-15.32	-9.24	13.53	2.14	1.17	-4.67	-1.29		0.97	3.91(0.14)	9.50(0.21)	0.52(0.67)

Table 3. Estimated Regression Equations for Quarterly GDP growth rates with M_OUT as the leading explanatory variable.

eqn.	dep.	estimated coefficient of										regression diagnostics			
No.	var.	const.	DMAPR	DMJUL	DMOCT	M_OUT_1	M_OUT_2	M_OUT_3	S_PRICE_1	S_PRICE_2	M_SDT_3	$R^2/\bar{R}^2$	SW(V)/SK	IMH/IMS	Link/OV
1	RGMFG	4.47	-10.92	-5.92	-4.99	0.41		-0.37				0.72	1.55(0.18)	24.78(0.04)	-0.91(0.37)
		0.76	-7.72	-4.17	-3.41	3.14		-2.7				0.67	1.43(0.49)	8.88(0.11)	0.84(0.48)
2	RGSER	6.47	-14.34	-4.75	-6.57	0.14	0.12	-0.22				0.96	4.09(0.00)	20.23(0.51)	-0.11(0.92)
		2.33	-23.25	9.34	-12.76	1.63	1.18	-3.16				0.96	4.69(0.10)	13.00(0.04)	0.45(0.72)
3	RGSER	5.68	-14.15	-4.62	-6.49	0.20		-0.15				0.96	4.16(0.00)	13.04(0.52)	-0.20(0.85)
		2.21	-24.97	-8.99	-12.53	4.95		-2.84				0.96	4.74(0.10)	12.42(0.03)	0.35(0.79)
4	RGGDP	0.38	-9.78	-4.20	6.14	0.15	0.19	-0.33				0.97	2.37(0.04)	24.91(0.25)	0.61(0.55)
		1.18	-18.02	-8.58	12.15	1.82	1.71	-4.13				0.97	4.73(0.09)	0.861(0.20)	1.53(0.23)
5	RGMFG	23.90	-11.25	-6.29	-4.86	0.44		-0.29		-0.47		0.76	0.89(0.59)	29.45(0.10)	-0.98(0.34)
		2.19	-8.35	-4.64	-3.5	3.51		-2.2		-2.07		0.70	1.14(0.57)	12.91(0.04)	1.14(0.35)
6	RGSER	8.45	-14.16	-4.64	-6.46	0.22		-0.15	-0.07			0.96	4.067(0.00)	15.70(0.79)	-0.18(0.86)
		1.84	-24.51	-8.51	-12.02	4.47		-2.92	-0.91			0.95	4.79(0.09)	12.57(0.05)	0.26(0.85)
7	RGGDP	5.91	-9.50	-4.02	6.31	0.27		-0.22	-0.10			0.97	2.34(0.04)	20.20(0.51)	0.29(0.77)
		1.26	-21.46	-8.27	11.01	4.97		-4.24	-1.04			0.97	4.57(0.10)	5.94(0.43)	1.87(0.16)
8	RGMFG	-7.00	-11.47	-6.54	-5.16	0.47		-0.33		-0.43	0.58	0.77	0.91(0.58)	33.39(0.26)	-0.97(0.34)
		-0.24	-8.47	-4.79	-3.68	3.69		-2.41		-1.89	1.14	0.70	1.08(0.58)	14.16(0.05)	0.83(0.49)
9	RGSER	-0.69	-14.22	-4.69	-6.55	0.21		-0.16		-0.01	0.14	0.96	4.10(0.00)	32.94(0.28)	-0.12(0.90)
		-0.06	-23.96	-7.9	-12.61	4.44		-2.93		-0.15	0.57	0.95	4.77(0.09)	12.64(0.08)	0.27(0.85)
10	RGGDP	60.5	-9.96	-4.39	6.08	0.16	0.20	-0.32		-0.13	0.16	0.98	2.13(0.06)	34.00(0.42)	0.67(0.51)
		0.05	-20.17	-8.59	12.35	1.99	2.06	-4.47		-1.88	0.73	0.97	4.28(0.12)	6.85(0.55)	1.37(0.28)

Table 4. Estimated Regression Equations for Quarterly GDP growth rates with M_NORD as the leading explanatory variable.

eqn. no.	dep.var.	const.	DMAPR	DMJUL	DMOCT	M_NORD_1	M_NORD_2	M_NORD_3	S_PRICE_3	M_SDT_1	M_SDT_3	$R^2/\bar{R}^2$	SW(V)/SK	IMH/IMS	Link/OV
1	RGMFG	5.72 1.04	-10.64 -7.47	-5.65 -3.97	-4.97 -3.38	0.40 3.11		-0.38 -2.71				0.71 0.66	2.11(0.06) 1.64(0.44)	25.96(0.03) 7.32(0.20)	-0.68(0.50) 0.63(0.60)
2	RGSER	7.37 2.6	-14.49 -22.74	-4.79 -11.84	-6.64 -12.45		0.22 5.3	-0.20 -3.55				0.96 0.95	4.44(0.00) 5.01(0.08)	22.01(0.08) 11.55(0.04)	0.39(0.700) 1.91(0.154)
3	RGGDP	3.76 1.34	-9.65 -14.1	-4.06 -8.39	6.12 11.85	0.1231 1.19	0.169 1.46	-0.29 -4.99				0.97 0.96	2.60(0.02) 4.67(0.10)	31.23(0.07) 12.39(0.05)	0.62(0.54) 1.43(0.26)
4	RGMFG	-8.43 -1.44	-11.02 -7.72	-6.17 -4.28	-5.41 -3.65	0.41 3.12		-0.36 -2.49		0.51 1.03	0.55 0.99	0.74 0.70	1.18(0.37) 0.98(0.61)	33.63(0.25) 10.78(0.15)	-0.69(0.50) 0.36(0.78)
5	RGSER	12.36 2.49	-14.56 -24.82	-4.87 -10.26	-6.54 -11.81		0.22 5.54	-0.16 -2.87	-0.14 -1.51			0.96 0.95	4.23(0.00) 5.04(0.08)	27.51(0.16) 13.29(0.04)	-0.08(0.94) 0.21(0.89)
6	RGGDP	7.44 0.59	-9.43 -17.87	-3.89 -7.83	6.35 12.69	0.25 5.42		-0.19 -3.17	-0.15 -1.9	-0.26 -1.33	0.28 1.21	0.97 0.97	2.20(0.05) 3.74(0.14)	34.00(0.41) 8.76(0.36)	0.35(0.73) 0.56(0.65)

Table 5. Estimated Regression Equations for Quarterly GDP growth rates with M_QP as the leading explanatory variable.

eqn. no.	dep. var.	const.	DMAPR	DMJUL	DMOCT	M_QP_1	M_QP_3	S_PRICE_2	S_PRICE_3	M_SDT_1	$R^2/\bar{R}^2$	SW(V)/SK	IMH/IMS	Link/OV
1	RGMFG	6.02	-11.01	-5.46	-4.85	0.43	-0.41				0.70	1.97(0.08)	22.89(0.06)	0.07(0.94)
		0.93	-7.59	-3.76	-3.23	2.79	-2.61				0.65	1.79(0.41)	4.81(0.44)	0.93(0.44)
2	RGSER	5.05	-14.20	-4.43	-6.38	0.22	-0.16				0.96	4.16(0.00)	17.43(0.23)	0.44(0.67)
		1.83	-23.19	-11.05	-12.69	3.69	-2.29				0.95	4.89(0.09)	5.99(0.31)	0.90(0.46)
3	RGGDP	1.99	-9.55	-3.72	6.36	0.28	-0.25				0.97	2.21(0.05)	18.93(0.17)	0.66(0.52)
		0.63	-16.03	-9.48	12.83	4.53	-3.37				0.96	3.95(0.14)	4.86(0.43)	1.57(0.22)
4	RGMFG	24.19	-11.35	-5.90	-4.60	0.46	-0.32	-0.48			0.74	1.48(0.21)	27.14(0.17)	-0.44(0.66)
		2.15	-8.13	-4.2	-3.2	3.12	-2.0	-1.7			0.68	2.99(0.23)	10.04(0.12)	0.33(0.80)
5	RGSER	8.85	-14.25	-4.52	-6.27	0.22	-0.12		-0.12		0.96	4.23(0.00)	24.02(0.29)	0.22(0.83)
		1.88	-24.28	-10.03	-12.45	3.78	-1.5		-1.18		0.96	5.01(0.08)	7.83(0.25)	0.18(0.91)
6	RGGDP	7.49	-9.62	-3.85	6.52	0.28	-0.18		-0.17		0.97	2.16(0.06)	17.35(0.69)	0.37(0.72)
		1.76	-19.32	-10.14	12.63	4.83	-2.45		-2.08		0.97	3.65(0.16)	5.31(0.51)	0.72(0.55)
7	RGMFG	-27.11	-11.69	-6.54	-4.88	0.49	-0.25	-0.53		0.99	0.78	0.57(0.88)	33.00(0.28)	-0.63(0.54)
		-1.05	-8.87	-4.84	-3.61	3.5	-1.66	-2.29		2.17	0.72	0.51(0.78)	12.09(0.09)	0.68(0.58)
8	RGSER	12.21	-14.19	-4.40	-6.33	0.22	-0.16	-0.03		-0.11	0.96	4.12(0.00)	31.98(0.32)	0.42(0.68)
		1.2	-22.33	-9.54	-12.41	3.4	-2.34	-0.34		-0.67	0.95	5.02(0.08)	7.04(0.42)	0.65(0.59)
9	RGGDP	10.63	-9.60	-3.77	6.44	0.29	-0.24	-0.11		-0.08	0.97	2.14(0.06)	31.75(0.33)	0.49(0.63)
		1.09	-16.21	-8.98	12.11	4.3	-3.19	-1.16		-0.5	0.96	3.70(0.16)	8.24(0.31)	1.60(0.22)

Table 6. Estimated Regression Equations for Quarterly GDP growth rates with M_SP as the leading explanatory variable.

eqn. no.	dep. var.	const.	DMAPR	DMJUL	DMOCT	M_SP_1	M_SP_2	M_SP_3	S_PRICE_2	M_SDT_1	M_SDT_2	$R^2/\bar{R}^2$	SW(V)/SK	IMH/IMS	Link/OV
1	RGMFG	-5.90	-11.20	-6.17	-5.71	0.76		-0.51				0.70	1.43(0.23)	19.68(0.14)	-0.06(0.95)
		-0.53	-7.65	-4.17	-3.61	2.85		-1.73				0.65	1.56(0.46)	5.99(0.31)	0.22(0.88)
2	RGSER	3.14	-14.28	-4.71	-6.79	0.33		-0.23				0.96	4.16(0.00)	16.43(0.29)	0.39(0.70)
		0.68	-24.74	-10.57	-11.63	2.62		-1.64				0.95	4.89(0.09)	7.17(0.21)	0.72(0.55)
3	RGGDP	0.40	-9.70	-4.17	5.79	**0.43**		-0.37				0.96	2.42(0.03)	13.33(0.50)	0.65(0.52)
		0.08	-16.29	-9.04	10.31	**3.42**		-2.46				0.96	4.71(0.10)	4.41(0.49)	1.28(0.30)
4	RGMFG	13.58	-11.48	-6.51	-5.51	0.81		-0.42	-0.50			0.75	0.96(0.54)	23.83(0.30)	-0.72(0.48)
		1.02	-8.42	-4.71	-3.74	3.25		-1.53	-2.35			0.70	1.86(0.40)	11.40(0.08)	0.33(0.80)
5	RGSER	4.25	-14.29	-4.73	-6.78	0.33		-0.22	-0.03			0.96	4.15(0.00)	23.95(0.30)	0.35(0.73)
		0.57	-23.97	-9.52	-11.45	2.54		-1.68	-0.3			0.95	4.91(0.09)	9.17(0.16)	0.58(0.64)
6	RGGDP	5.01	-9.77	-4.25	5.84	0.45		-0.35	-0.12			0.97	2.29(0.04)	22.85(0.35)	0.50(0.62)
		0.7	-16.78	-8.77	9.47	3.27		-2.4	-1.29			0.96	4.49(0.11)	3.63(0.73)	0.79(0.51)
7	RGMFG	-42.33	-11.67	-6.92	-5.70	0.80		-0.27	-0.51	0.99		0.79	0.67(0.80)	30.93(0.37)	-0.69(0.49)
		-1.52	-9.15	-5.31	-4.13	3.43		-1.03	-2.54	2.23		0.74	0.47(0.79)	14.62(0.04)	0.45(0.72)
8	RGSER	13.31	-14.26	-4.66	-6.74	0.34		-0.25	-0.03	-0.16		0.96	4.09(0.00)	28.93(0.47)	0.35(0.73)
		0.97	-23.33	-9.21	-11.41	2.53		-1.98	-0.28	-0.88		0.95	4.99(0.08)	7.53(0.38)	0.52(0.67)
9	RGGDP	-22.99	-9.68	-4.23	5.91	0.33	0.26	-0.48			0.42	0.97	2.17(0.05)	30.63(0.38)	0.34(0.73)
		-1.66	-17.83	-8.1	9.72	1.99	1.76	-3.76			1.76	0.96	4.12(0.13)	8.36(0.30)	0.69(0.57)

Table 7. Estimated Regression Equations for Quarterly GDP growth rates with S_BA as the leading explanatory variable.

eqn. no.	dep.var.	const.	DMAPR	DMJUL	DMOCT	S_BA_1	S_BA_3	S_PRICE_1	S_PRICE_2	S_PRICE_3	M_SDT_1	$R^2/\bar{R}^2$	SW(V)/SK	IMH/IMS	Link/OV
1	RGMFG	6.00	-10.53	-6.41	-3.80	0.48	-0.46					0.70	0.96(0.53)	24.55(0.04)	- 1.09(0.28)
		1.14	-7.28	-4.33	-2.52	2.86	-2.84					0.65	1.96(0.37)	10.90(0.53)	1.92(0.15)
2	RGSER	7.29	-13.99	-4.82	-5.97	0.21	-0.19					0.96	4.08(0.00)	14.29(0.43)	0.13(0.90)
		2.85	-21.69	-9.61	-8.82	3.27	-3.05					0.95	5.02(0.08)	8.55(0.13)	0.07(0.97)
3	RGGDP	2.29	-9.27	-4.28	6.95	0.28	-0.26					0.97	2.38(0.04)	25.39(0.03)	0.17(0.86)
		0.82	-16.4	-9.21	9.33	3.99	-3.7					0.96	4.57(0.10)	10.84(0.06)	0.46(0.71)
4	RGMFG	18.83	-10.74	-6.55	-3.88	0.45	-0.34			-0.33		0.73	0.83(0.65)	29.54(0.10)	- 0.95(0.35)
		1.92	-7.57	-4.52	-2.63	2.72	-1.96			-1.54		0.67	1.51(0.47)	12.05(0.06)	0.87(0.47)
5	RGSER	3.63	-13.68	-4.6	-5.80	0.28	-0.24	-0.27	0.59	-0.28		0.97	3.73(0.00)	34.00(0.42)	0.38(0.71)
		0.71	-22.41	-10.24	-10.77	4.1	-3.57	-1.54	2.87	-2.23		0.95	4.68(0.10)	20.78(0.01)	0.46(0.71)
6	RGGDP	2.35	-9.22	-4.23	6.95	0.28	-0.22		0.29	-0.33		0.97	2.05(0.07)	28.66(0.48)	0.44(0.66)
		0.45	-19.43	-8.98	11.86	4.73	-3.79		2.14	-2.58		0.97	4.27(0.12)	16.80(0.02)	0.93(0.44)
7	RGMFG	-13.00	-11.00	-6.85	-4.25	0.40	-0.79			-0.37	0.65	0.75	0.92(0.57)	33.17(0.27)	- 0.73(0.47)
		-0.5	-7.78	-4.73	-2.87	2.44	-1.47			-1.74	1.33	0.68	0.69(0.71)	14.38(0.05)	0.49(0.69)
8	RGSER	17.87	-13.57	-4.55	-5.64	0.29	-0.26	-0.26	0.57	-0.25	-0.28	0.97	3.69(0.00)	34.00(0.42)	0.31(0.76)
		1.66	-21.77	-1.56	-10.91	4.71	-4.02	-1.5	2.5	-1.95	-1.58	0.96	4.94(0.08)	17.36(0.04)	0.48(0.70)
9	RGGDP	14.76	-9.13	-4.12	7.09	0.30	-0.25		0.28	-0.30	-0.25	0.97	2.07(0.07)	34.00(0.41)	0.29(0.78)
		1.48	-17.09	-8.78	11.98	4.96	-3.97		1.92	-2.34	-1.43	0.066	4.04(0.13)	17.99(0.02)	0.65(0.59)

Table 8. Estimated Regression Equations for Quarterly GDP growth rates with S_NB as the leading explanatory variable.

eqn. no.	dep.var.	const.	DMAPR	DMJUL	DMOCT	S_NB_1	S_NB_2	S_NB_3	S_PRICE_2	S_PRICE_3	M_SDT_1	$R^2/\bar{R}^2$	SW(V)/SK	IMH/IMS	Link/OV
1	RGMFG	9.68	-11.09	-5.90	-4.28		0.68	-0.73				0.72	1.20(0.35)	30.02(0.01)	- 0.59(0.56)
		1.72	-7.82	-4.15	-2.9		3.1	-3.14				0.66	1.91(0.39)	13.31(0.02)	1.21(0.33)
2	RGSER	6.21	-13.92	-4.71	-5.93	0.22		-0.19				0.96	4.28(0.00)	15.09(0.37)	0.10(0.92)
		1.94	-20.26	-9.13	-8.69	3.68		-3.1				0.95	5.22(0.07)	8.16(0.15)	0.09(0.96)
3	RGGDP	0.91	-9.17	-4.15	7.03	0.31		-0.27				0.97	3.34(0.04)	20.58(0.11)	0.23(0.82)
		0.26	-14.68	-8.35	9.68	4.21		-3.81				0.96	4.48(0.11)	10.70(0.06)	0.63(0.61)
4	RGMFG	- 26.58	-11.3	-6.27	-4.62		0.66	-0.68			0.70	0.74	1.06(0.45)	31.60(0.06)	-0.49(0.63)
		-1.34	-7.08	-6.02	-5.43		3.9	-3.47			1.68	0.68	1.33(0.52)	13.63(0.03)	1.21(0.33)
5	RGSER	2.09	-13.81	-4.6	-5.91	0.23		-0.19	0.29	-0.21		0.96	3.94(0.00)	32.96(0.28)	0.11(0.91)
		0.35	-21.35	-9.42	-9.24	3.79		-2.73	2.08	-1.66		0.95	5.06(0.08)	13.85(0.05)	0.10(0.96)
6	RGGDP	0.91	-9.15	-4.09	6.99	0.30		-0.21	0.26	-0.30		0.97	2.12(0.06)	31.22(0.36)	0.25(0.80)
		0.16	-16.06	-8.28	11.55	4.78		-3.14	1.75	-2.53		0.96	4.02(0.13)	16.35(0.02)	0.59(0.63)

OCCASIONAL PAPERS

1. *Keynes, Kaldor and Development Economics* by Amiya Kumar Bagchi, July 2004.
2 *Epar Ganga Opar Ganga - A creative statement on displacement and violence* by Subhoranjan Dasgupta, July 2004.
3. *Samkhya and Vyanjanii: Understanding Underdevelopment* by Prasanta Ray, July 2004.
4. *Gender, History and the Recovery of Knowledge with Information and Communication Technologies: Reconfiguring the future of our past* by Bamita Bagchi, July 2004.
5. *Kerala's Changing Development Narratives* by Achin Chakraborty, October 2004.
6. *The Development Centrifuge: A Retrospect in Search of a Theory and a Centre* by Pinaki Chakraborti, February 2005.
7. *Capital Inflows into India in the Post-Liberalization Period: An Empirical Investigation by Indrani Chakraborty*,July 2005
8. *The Construction of the Hindu Identity in Medieval Western Bengal? The Role of Popular Cults* by Jawhar Sircar, July 2005
9. *Does Financial Development Cause Economic Growth? The Case of India* by Indrani Chakraborty, January 2007.
10. *China India Russia: Moving Out of Backwardness*, or, *Cunning Passages of History* by Amiya Kumar Bagchi, May 2007.
11. *Rethinking Knowledge as Ideology: Reflections on the Debate from Max Scheler to Theodor Adorno* by Sudeep Basu, September 2007.
12. *Financial Development and Economic Growth in India: An Analysis of the Post-Reform Period* by Indrani Chakraborty, January 2008.
13. *Migration, Islam and Identity Strategies in Kwazulu-Natal: Notes on the Making of Indians and Africans* by Preben Kaarsholm, April 2008.
14. *Socio Economic Profile of Patients in Kolkata: A Case Study of RG Kar and AMRI* by Zakir Husain, Saswata Ghosh and Bijoya Roy, July 2008.
15. *Education for Child Labour in West Bengal* by Uttam

Bhattacharya, October 2008.

16. *What Determines the Success and Failure of '100 Days Work at the Panchayat Level? A Study of Birbhum District in West Bengal* by Subrata Mukherjee and Saswata Ghosh, February 2009.
17. *The Field Strikes Back: Decoding Narratives of Development* by Dipankar Sinha, March 2009.
18. *Female Work Participation and Gender Differential in Earning in West Bengal* by Indrani Chakraborty and Achin Chakraborty, April 2009.
19. *Rosa Luxemburg's Critique of Creativity and Culture* by Subhoranjan Dasgupta, May 2009.
20. *MDG-Based Poverty Reduction Strategy for West Bengal* by Achin Chakraborty, October 2009.
21. *The Dialectical Core in Rosa Luxemburg's Vision of Democracy* by Subhoranjan Dasgupta, January 2010.
22. *Contested Virtue: Imperial Women's Crisis with Colonized Womanhood* by Sukla Chatterjee, November 2010.
23. *Encountering Globalization in the Hill Areas of North East India* by Gorky Chakraborty, December 2010.
24. *Arundhati Roy: Environment and Literary Activism* by Debarati Bandyopadhyay, April 2011.
25. *Nineteenth Century Colonial Ideology and Socio-Legal Reforms: Continuity or Break?* by Subhasri Ghosh, June 2011.
26. *Long-Term Demographic Trends in North-East India and their Wider Significance 1901-2001* by Arup Maharatna and Anindita Sinha, 2011.
27. *Employment and Growth under Capitalism: Some Critical Issues with Special Reference* to India by Subhanil Chowdhury, July 2011.
28. *No Voice, No Choice: Riverine Changes and Human Vulnerability in The 'Chars' of Malda and Murshidabad* by Jenia Mukherjee, July 2011.
29. *Does Capital Structure Depend on Group Affiliation? An Analysis of Indian Corporate Firms* by Indrani Chakraborty, July 2011.

30. *Healing and Healers Inscribed: Epigraphic Bearing on Healing-Houses in Early India* by Ranabir Chakravarti and Krishnendu Ray July 2011.
31. *Pratyaha: Everyday Lifeworld* by Prasanta Ray, October 2011.
32. *Women, Medicine and Politics of Gender: Institution of Traditional Midwives in Twentieth Century Bengal* by Krishna Soman, November 2011.
33. *North East Vision 2020: A Reality Check* by Gorky Chakraborty, 2011.
34. *Disabled definitions, Impaired Policies: Reflections on Limits of Dominant Concepts of Disability*, by Nandini Ghosh, May 2012.
35. *Losing Biodiversity, Impoverishing Forest Villagers: Analysing Forest Policies in the Context of Flood Disaster in a National Park of Sub Himalayan Bengal, India* by Bidhan Kanti Das, July 2012.
36. *Women Empowerment as Multidimensional Capability Enhancement: An Application of Structural-Equation Modeling* by Joysankar Bhattacharya and Sarmila Banerjee, July 2012.
37. *Medical Education and Emergence of Women Medics in Colonial Bengal* by Sujata Mukherjee August 2012.
38. *Painted Spectacles: Evidence of the Mughal Paintings for the Correction of Vision* by Ranabir Chakravarti and Tutul Chakravarti, August 2012.
39. *Roots and Ramifications of a Colonial 'Construct': The Wastelands in Assam* by Gorky Chakraborty, September 2012.
40. *Constructing a "pure" body: The discourse of nutrition in colonial Bengal* by Utsa Roy, November 2012.
41. *Public-Private Partnerships in Kolkata: Concepts of Governance in the Changing Political Economy of a Region* by Sonali Chakravarti Banerjee, May 2013.
42. *Living Arrangement and Capability Deprivation of the Disabled in India* by Achin Chakraborty and Subrata Mukherjee, November 2013.

43. *Economic Development and Welfare: Some Measurement Issues* by Dipankar Coondoo, January 2014.

44. *Exploring Post-Sterilization Regret in an Underdeveloped Region of Rural West Bengal* by Saswata Ghosh, April 2014.

45. *Promoter Ownership and Performance in Publicly Listed Firms in India: Does Group Affiliation Matter?* by Ansgar Richter and Indrani Chakraborty, February 2015.

46. Intersectionality and Spaces of Belonging: Understanding the Tea Plantation Workers in Dooars by Supurna Banerjee, March 2015.

47. Is Imperialism a Relevant Concept in Today's World? by Subhanil Chowdhury, March 2015.

48. Understanding Northeast India through a 'Spatial' Lens by Gorky Chakraborty and Asok Kumar Ray, April 2015.

49. *Influence of Son Preference on Contraceptive Method Mix: Some Evidences from 'Two Bengals'* by Saswata Ghosh and Sharifa Begum, April 2015.

SPECIAL LECTURES

1. *Education for Profit, Education for Freedom* by Martha C. Nussbaum, March 2008.

2. *Always Towards : Development and Nationalism in Rabindranath Tagore* by Himani Bannerji, May 2008.

3. *The Winding Road Toward Equality for Women in the United States* by Diane P. Wood, June 2008.

4. *Compassion : Human and Animal* by Martha C. Nussbaum, July 2008.

5. *Three 'Returns' to Marx : Derrida, Badiou, Zizek(*Fourth Michael Sprinker Lecture) by Aijaz Ahmad, March 2012.

6. *Inequality: Reflections on a Silent Pandemic* by Ashwani Saith, December 2009.

7. *A Study in Development by Dispossession* by Amit Bhaduri, March 2015.

WORKING PAPERS

1. *Primary Education among Low Income Muslims in Kolkata: Slum Dwellers of Park Circus* by Zakir Husain, July 2004.
2. *Impact of District Primary Education Programme (DPEP) on Primary Education: A study of South 24 Parganas* by Suman Ray, July 2004.
3. *Representation of Public Health in the Print Media : A Survey and Analysis* by Swati Bhattacharjee, January 2009.
4. *Maternal Anthropometry and Birth Outcome Among Bengalis in Kolkata* by Samiran Bisai, April 2009.
5. *Transfer of Technology and Production of Steel in India*, An interview of Anil Chandra Banerjee by Amiya Kumar Bagchi, December 2013.

BOOKS

1. *Webs of History: Information, Communication and Technology from Early to Post-colonial India* eds. Amiya Kumar Bagchi, Dipankar Sinha and Barnita Bagchi, New Delhi, Manohar, 2004.
2. *Maladies, Preventives and Curatives: Debates in Public Health in India*, eds. Amiya Kumar Bagchi and Krishna Soman, New Delhi, Tulika, 2005.
3. *Crime and Urbanization: Calcutta in the Nineteenth Century* by Sumanta Banerjee, New Delhi, Tulika, 2006.
4. *Capture and Exclude: Developing Economies and the Poor in Global Finance*, eds. Amiya Kumar Bagchi and Gary Dymski, New Delhi, Tulika, 2007.
5. *The Trauma and the Triumph: Gender and Partition in Eastern India*, Volume 2, eds. Jasodhara Bagchi, Subhoranjan Dasgupta and Subhasri Ghosh, Kolkata, Stree, 2009.
6. *Identities and Histories: Women's Writing and Politics in Bengal* by Sarmistha Duttagupta, Kolkata, Stree, 2009.
7. *Labour, Globalization and the State: Workers, Women and Migrants Confront Neoliberalism*, edited by Michael Goldfield

and Debdas Banerjee, London and New York, Routledge, 2008.

8. *Eastern India in the Late Nineteenth Century, Part I: 1860s-1870s* eds. Amiya Kumar Bagchi and Arun Bandopadhyay, New Delhi, Manohar and Indian Council of Historical Research, 2009.

9. *Indian Railway Acts and Rules 1849-1895: Railway Construction in India: Selected by Documents (1832-1900)*, ed. Bhubanes Misra (General Editor: Amiya Kumar Bagchi) Vol. IV, New Delhi, Indian Council of Historical Research, 2009.

10. *Colonialism and Indian Economy* by Amiya Kumar Bagchi, New Delhi, Oxford University Press, 2010.

11. *Eastern India in the Late Nineteenth Century, Part II: 1880s-1890s* eds. Amiya Kumar Bagchi and Arun Bandopadhyay, New Delhi, Manohar and Indian Council of Historical Research, 2011.

12. *Rabindranath: Bakpati Biswamona*, Volume 1, edited by Sudhir Chakravarti, Rabindranath Tagore Centre for Human Development Studies, May 2011.

13. *Rabindranath: Bakpati Biswamona*, Volume 2, edited by Sudhir Chakravarti, Rabindranath Tagore Centre for Human Development Studies, July 2011.

14. *Four Essays on Writing Economic History of Colonial India* by Amiya Kumar Bagchi, David Washbrook, Arup Kumar Maharatna and Arun Bandopadhyay, Institute of Development Studies Kolkata and Progressive Publishers, 2011.

15. *Market Media and Democracy*, compiled by Buroshiva Dasgupta, Institute of Development Studies Kolkata, 2011.

16. *Universally Loved: Reception of Tagore in North-east India*, ed. Indranath Choudhuri, Rabindranath Tagore Centre for Human Development Studies and Progressive Publishers, 2012.

17. *Transformation and Development: The Political Economy of Transition in India and China*, eds. Amiya Kumar Bagchi and Anthony P. D'Costa, Oxford University Press, 2012.

18. *Indian Skilled Migration and Development* eds. Uttam Bhattacharya, Gabriela Tejada, Binod Khadria and Christiane Kuptsch, Springer, 2014

19. *Market Regulations and Finance: Global Meltdown and the Indian Economy*, eds. Indrani Chakraborty and Ratan Khasnabis, Springer, 2014.
20. *Marxism: With and Beyond Marx* eds. Amiya Kumar Bagchi and Amita Chatterjee, Routledge, *2014.*
21. *Biodiversity Conservation in India: Management Practices, Livelihood Concerns and Future Options*, eds. Bidhan Kanti Das and Ajit Banerjee, Concept Publishing, 2014.
22. *The Look East Policy and Northeast India* eds. Gorky Chakraborty and Asok Kumar Ray, Aakar Books, 2014.
23. *An Introduction to the History of America* (jointly with C. Palit), New Delhi: Cambridge University Press, 2014.
24. *History and Beyond: Trends and Trajectories* (jointly edited with C. Palit), New Delhi: Kunal Books, 2014.
25. *Southern India in the Late Nineteenth Century, Vol. 1, Part IA: 1860s-1870s* eds. Amiya Kumar Bagchi and Arun Bandopadhyay, New Delhi:Manohar, 2015.
26. *Southern India in the Late Nineteenth Century, Vol. 2, Part IB: 1880s-1890s* eds. Amiya Kumar Bagchi and Arun Bandopadhyay, New Delhi: Manohar, 2015.
27. *Pratyaha: Everyday Lifeworlds Dilemmas, Contestations and Negotiations* eds. Prasanta Ray and Nandini Ghosh, New Delhi: Primus Books, 2015.