SERVICE SECTOR AS AN ENGINE OF GROWTH: EMPIRICAL ANALYSIS OF PAKISTAN

Hira Mujahid

M. Phil Student, Applied Economics Research Center, University of Karachi, Pakistan

Shaista Alam

Assistant Professor/ Research Economist, Applied Economics Research Center, University of Karachi,

Pakistan

ABSTRACT

The objective of the present study is to examine the determinants of service sector growth such as external debt, population, gross domestic product per capita, foreign direct investment and government consumption and employed labour force in services. For this purpose the study employed co-integration technique and vector error correction model for investigating long run as well as short run relationship among variables respectively during the annual time period 1976-2010. Results proposed that there is significant effect of population, foreign direct investment, consumption and investment on service sector growth in Pakistan.

1. INTRODUCTION

The main feature of modern economies is the expansion of a vibrant and competitive services sector. In developing countries including Pakistan the trademark of economic development is transfer from agriculture through manufacturing to a services economy and for the international services market place regulatory structure. In fact in Pakistan the service sector grows the trading activities and improves the production qualities and become source to improve the economic condition in past few decades. The significance of service sector can be identifying by the degree of growth of service sector and its connection with other sectors of the economy. When the most important exporting sector falls short to deliver the smooth economy, service sector provided great substitution for Pakistan's economy, in terms of getting more foreign exchange. All over in the world including developed and developing countries the emergence phase of current development is the contribution of large production of service sector in economic activity. Initially there were

supremacy of agriculture sector and later control of manufacturing sector, which come out to industrial revolution.

The reason of growing service sector in past few decades is uprising of information and communication technology Busari (2007). It has been argued in developing countries the share of services sectors like business and finance, software directing the development therefore the role of manufacturing declining by the passage of time Szirmai and Verspagen (2010). It has been observed hat transformation from agriculture to manufacturing furthermore structural change from manufacture to service is the process of economic development Clark (1941),Kuznets (1957) & Fuchs (1980). Kongsamut *et al.* (2001) found the high contribution of services sector increase the GDP per capita sample size of 123 countries with time duration 1970-80. Over the period of time also in Pakistan the contribution of service sector has been increasing and report 54% of GDP also nearly one third of total population. Moreover it provides the strong connection among sectors; inputs to the agriculture and manufacturing sectors.

Pakistan service sector growth rate for the fiscal year (2012-13) is 4.6 percent expected, however last year (2011-12) growth rate expected to be 4 percent. In Pakistan the services sector classified into four major heads namely distributors, producer, personal and social sectors; services are distributed through transport, storage, communication, wholesale retailers, hotels and restaurant on the other the service produced by financial institutions, personal services are Entertainment and Recreation Services also Ownership and Dwelling and social services belongs to Public Administration and Defense also Social Community and Private Services.

Figure-1. Agriculture, Industry, Service sector value added in GDP and GDP growth
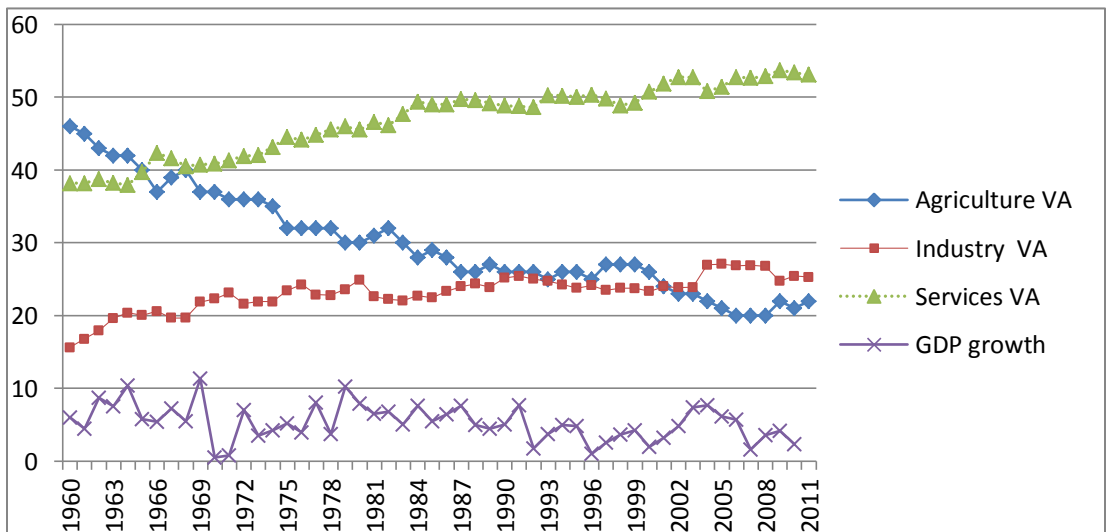
Source: World Bank

In figure the Agriculture, Industry and Service sector value added in GDP with GDP growth of Pakistan are presented since 1960, where the share of agriculture is decreasing by time and share of industry and service sector increasing in economic activities.

This paper inquires about the process of growth in service sector and assesses its potential contribution towards growth in case of Pakistan. It studies the long run relationship between service sector and growth of Pakistan including internal and external factors. Also, consider the short run dynamics with help of vector error correction model. The paper organized as, section 2 includes brief review of literature. Section 3 consists on theoretical framework and econometric methodology and result discusses in section 4. Conclusion of the paper is presented in section 4.

2. REVIEW OF THEORETICAL LITERATURE:

On structural change, the literature is vast mainly categorize into four different theoretical explanation; the Cambridge, Dutch disease, the Bacon and the Secular trend view Ansari (1994). Cornwall (1977)explained the Cambridge view included the deindustrialization and high export failed to pay import. More over the output growth reduced for the reason that negative impact of balance of trade. Corden and Neary (1982) explained the Dutch-disease; the resource movement and effect of spending defined the structural change. Also, resource and manufacturing sector presupposed boomed and lagged in three sector economy, both sector considered tradable and the service sector comprised non tradable. However the increases in marginal product of labor rose when the resource sector boomed in the particular sector, which lead away resources from manufacturing and service sectors. The inward shift of supply curve was due to the excess service demand and lead to more absent resources from manufacturing sector and in boom real income rose which show the way spending too raised as well.

Furthermore the demand of service increased consequently manufacturing sector faced more resource shortage.

Chenery (1961) & Kasper (1978) found the secular view as the resources reallocate because the change in income and taste of society, as the income increased the primary goods demand fall so that the percentage of spending of income fall on primary products. However the secondary and tertiary sector developed in this stage at the cost of primary sector. In fact after reaching primary sector into its minimum, growth in tertiary sector occurs at the cost of secondary sector for the reason of high growth in income. The structural change in Bacon-Eltis appeared for the reason that rapid growth of public sector and the resources are shifted from services sector because government biasness toward services. Simultaneously government spending refused to paid by public in terms of high taxes. Therefore the government spending is paid by consumption of national saving, reduction in investment and net exports. Consequently, manufacturing sector set under pressure because of high demand of wage through trade union.

The views are different in different developing countries because of its significance. More likely to the present situation i.e. declining the manufacturing sector is related more with Cambridge views. In India, Pakistan and Sri Lanka the manufacturing sector gained ground in

relative terms. However the Dutch-disease has little significance in case of Pakistan because of two major reasons, scarcity of resources and net outcome in terms of service sector leads to unambiguous results, the resource progress and spending movement defined the total effect of Dutch- disease model. The service sector increase with spending and reduced by the resource movements. In Pakistan the Bacon-Elits views are much more acceptable in terms of bearing service sector, which further defines as the fast growth of service sector is because of government spending Ansari (1995).

3. Empirical Evidences

On the performance and sector growth empirical studies greatly extended toward Lewis (1954) and Hirschmann (1958) dual economy model; which explained the association of agriculture sector (traditional) and manufacturing sector (modern). Glasmeier and Marie (1993) found that the two against vision on service sector impact on economic growth, one is service sector helped in economic growth on the other side service sector is depended neither alternate the conventional commodities producing sectors like mining, agriculture and manufacturing. Although since 1950 empirical finding suggests that dominating sector in developed countries is service sector Warton (1974). Economic Council of Canada (1991) reported that supremacy of service sector accounts to two thirds of employment and output in developed countries, in addition the association of service sector and economic growth depends on the size of sector and its productivity in economic. Mansell (1985) suggested service sector was based on export oriented if compare to commodities producing sector and source to decline in growth of trading partner. The service sector played significant role in national competiveness agenda its due to strong relationship with rest of economy, growth is closely connected with service which indirectly linked with human capital. Hoekman and Eschenbach (2005)found there was positive relationship between the service sector and economic growth, as economic growth rose with service sector growth. Arnold *et al.* (2008) suggested that finance, transport and telecommunication are the backbone of service sector which allowed business and open international market competition. Arnold *et al.* (2010) discovered India covering banking, insurance, telecommunication and transport improved their services polices which lead to improve in manufacture productivity, this is the one another way that service sector has taken part in improving economic efficiency, therefore service sector play important role in the growth of economy directly also indirectly. Miroudot *et al.* (2010) showed rapid productivity growth related with those service sectors which were more open to international competition.

4. THEORETICAL FRAMEWORK

Relevant macro-variables that include share of services in GDP (SER) as explained variable, and explanatory variables such that, population size, external as well as internal factors. It is anticipated total population would positively connect. The control variables are further divided into two sets; external factors and domestic factors. The external factors contain external total debt (TD), foreign direct investment (FDI) and the trade liberalization (TL) measured by import plus

export divided by GDP. Further second set of control variable comprises aggregate consumption (LC) ratio to GDP, gross fixed capital formation to GDP (IN), labor participation rate (LP) and GDP growth rate (GDPR). The study has taken log of all proposed variables to remove the problem of heteroskacidcy. Therefore,

SER= f (GDP growth, population, external factors, domestic factors) (1)

Although in literature the effect of debt to the GDP is negative on services growth, foreign direct investment and trade liberalization has positive impact on services growth. In case of domestic factors which comprise household and government consumption, gross fixed capital formation, labor participation, growth rate and literacy rate has positive effect in literature.

5. ECONOMETRIC METHODOLOGY

This study follows typical Augmented Dickey Fuller unit root technique to verify the stationary of time series data, The unit root model will test with constant, with constant and trend and without constant and trend respectively. The stationary of series test is based on following equation:

$\Delta X_t = \zeta_0 + \zeta_1 X_{t-1} + \zeta_2 t + \zeta_3 \Delta X_{t-1} + ... + \zeta_{p-1} \Delta X_{t-p+1} + I_t$ (2)

Johenson co integration technique for long run relationship analysis, VAR criteria used to follow the lag selection also selected through Akaike& Schwarz criteria. The long run equation is as follows;

$LSEV \qquad = [\rho_1 LSEV_{t-1} - \rho_2 LTL_{t-1} - \rho_3 LTD_{t-1} - \rho_4 LFDI - \rho_5 LLP - \rho_6 LC - \rho_7 LIN - \rho_8 LGDPR - \rho_9 LPOP - \rho_{10} GC + \rho_0] + e_1$ (3)

For short run analysis this study follow vector error correction. Since the equation for short run as:

$\Delta LSEV \qquad = \theta_0 [\rho_1 LSEV_{t-1} - \rho_2 LTL_{t-1} - \rho_3 LTD_{t-1} - \rho_4 LFDI - \rho_5 LLP - \rho_6 LC - \rho_7 LIN - \rho_8 LGDPR - \rho_9 LPOP - \rho_{10} GC + \rho_0] + e_1$ (4)

$\Delta LTL \qquad = \theta_1 [\alpha_1 LSEV_{t-1} - \alpha \rho_2 LTL_{t-1} - \alpha_3 LTD_{t-1} - \alpha_4 LFDI - \alpha_5 LLP - \alpha \rho_6 LC - \alpha \rho_7 LIN - \alpha \rho_8 LGDPR - \alpha_9 LPOP - \alpha_{10} GC + \alpha \rho_0] + e_2$ (5)

$\Delta LFDI \qquad = \theta_2 [\beta \rho_1 LSEV_{t-1} - \beta_2 LTL_{t-1} - \beta_3 LTD_{t-1} - \beta_4 LFDI - \beta_5 LLP - \beta_6 LC - \beta_7 LIN - \beta_8 LGDPR - \beta_9 LPOP - \beta \rho_{10} GC + \beta] + e_3$ (6)

$\Delta LLP \qquad = \theta_4 [\sigma_1 LSEV_{t-1} - \sigma \rho_2 LTL_{t-1} - \sigma_3 LTD_{t-1} - \sigma_4 LFDI - \sigma_5 LLP - \sigma_6 LC - \sigma \rho_7 LIN - \sigma_8 LGDPR - \sigma_9 LPOP - \sigma_{10} GC + \sigma_0] + e_4$ (7)

$\Delta LC \qquad = \theta_5 [\kappa_1 LSEV_{t-1} - \kappa \rho_2 LTL_{t-1} - \kappa_3 LTD_{t-1} - \kappa_4 LFDI - \kappa_5 LLP - \kappa_6 LC - \kappa_7 LIN - \kappa_8 LGDPR - \kappa_9 LPOP - \kappa_{10} GC + \kappa_0] + e_5$ (8)

$\Delta LIN = \theta_6 [\gamma_1 LSEV_{t-1} - \gamma \rho_2 LTL_{t-1} - \gamma_3 LTD_{t-1} - \gamma_4 LFDI - \gamma_5 LLP - \gamma_6 LC - \gamma_7 LIN - v_8 LGDPR - \gamma_9 LPOP - \gamma_{10} GC + \gamma_0] + e_6$ (9)

$\Delta LGDPR \qquad = \theta_7 [\pi_1 LSEV_{t-1} - \pi_2 LTL_{t-1} - \pi_3 LTD_{t-1} - \pi_4 LFDI - \pi_5 LLP - \pi \rho_6 LC - \pi_7 LIN - \pi_8 LGDPR - \pi_9 LPOP - \pi_{10} GC + \pi_0] + e_7$ (10)

$\Delta LPOP \qquad = \theta_8[\upsilon_1 LSEV_{t-1} - \upsilon_2 LTL_{t-1} - \upsilon_3 LTD_{t-1} - \upsilon_4 LFDI - \upsilon_5 LLP - \upsilon_6 LC - \upsilon_7 LIN - \upsilon_8 LGDPR - \upsilon_9 LPOP - \upsilon_{10} GC + \upsilon_0] + e_8$ (11)

$\Delta LGC = \theta_9[\tau_1 LSEV_{t-1} - \tau_2 LTL_{t-1} - \tau_3 LTD_{t-1} - \tau_4 LFDI - \tau_5 LLP - \tau_6 LC - \tau_7 LIN - \tau_8 LGDPR - \tau_9 LPOP - \tau_{10} GC + \tau_0] + e_9$ (12)

Where the element e_t are white noise error and θs are speed of adjustment and ρ α, β, σ, κ, γ, π, υ and τ are short run parameters.

6. EMPIRICAL RESULTS

Prior to conduct long run analysis this paper identified the order of integration through Augmented Dickey Fuller unit root test. The test results at level and first difference on constant and also constant with trend are reported in table 1. The hypothesis of unit root has not rejected at level whereas it has rejected on first difference, which reveals that all variables are co integrated of order one i.e. I (1). Since the order of integration for all is same, the paper analyzes the co integration among variables which has reported in table 2. The results of JJ co integration technique suggested the null hypothesis of no co integration is rejected and summarize there is long run relationship exists among variables, with the help of trace and eigen value statistic. Both statistics have been it has been identified 9 co integrating vectors.

The normalized co integrating equation depicted that total debt, population, investment and GDP growth has negative effect on services whereas trade liberalization, labor participation, aggregate consumption and government spending has positive effect on services. The total debt coefficient is normalized on services value added and negatively statistically significant showing that one percent increase in total debt while keeping other factors constant reduces 0.79% of service value added. The trade liberalization coefficient is positive and statistically significant, implies that one percent increase in trade liberalization while keeping other factors constant increases 0.10% of service value added. The coefficient of population is showing considerable negative effect on service sector value added, while keeping other factors constant, showing that one percent increase in population reduces 0.76% of service value added. As for labor force participation concern it reveals favorable and statically effect on service sector, if one percent increase in labor force participation raises 0.43% services value added. The investment co efficient is negative and significant, while keeping other factors constant showing that one percent increase in investment reduces 0.63 % of service value added which reflects the distrust of people and the reason of services export. The co efficient of government spending is 0.19 and has significant positive effect on service sector which implies that the increase in one percent in of government spending also increases the service sector value added by 0.19%.

The paper employed conventional vector error correction method to identify the short run relationships among variable (table 3), all variables are stationary so there is no problem of spurious regression in VECM. Furthermore, table 3 depicted the speed of adjustment which further explains that only three variables are adjusting.

Table-1. Unit root test ADF

	Intercept		Intercept & trend	
	Level	**First Difference**	**Level**	**First Difference**
FDI	-1.65	-7.85*	-2.19	-7.91*
GC	-1.92	-8.61*	-2.12	-8.69*
GR	-2.33	-4.81 *	-2.33	-4.98*
INV	0.17	-4.92*	-1.92	-4.86*
CON	0.17	-5.07*	-1.86	-5.01*
LR	-0.52	-6.33*	-1.45	-6.44*
POP	-0.58	-6.48*	-1.87	-6.50*
TD	-1.73	-8.23*	-2.24	-8.41*
TL	-2.49	-4.73*	-1.13	-5.15*
SERV	-1.03	-6.37*	-1.92	-6.42*

Note : critical values are: -3.59, -2.93, -2.60 significant level is 1%, 5% , 10% respectively when first difference is constant and when   4.18 ,-3.51, -3.18 (significant level is 1%, 5% , 10% respectively when level & first difference is constant & trend) where *,**and *** represents the level of significance at 1%, 5% and 10% respectively.

The co efficient on co integration equation 1 for labor force participation is negative. Investment and consumption coefficients are positive, rest of the variables are insignificant in short run. For more details we applied Wald test and found that total debt has significant effect on trade liberalization and FDI as p values is less then 0.05 similarly   trade liberalization has significant effect on labor participation. Also FDI has significant effect on trade liberalization and country size and country size has significance on aggregate consumption, investment and labor participation in short run. Similarly labor participation effected by total consumption and investment   and the government consumption has significant effect on aggregate consumption and labor participation. Total debt, FDI influenced on population FDI and labor participation in short run. Labor participation and GDP growth rate also effect to labor participation.

Table- 2. Johenson co integration

Hypothesis	Null Hypothesis	Trace	Critical Value	Hypothesis	Null Hypothesis	Max-Eigen	Critical Value
H0	H1	Statistic	Trace Stats	H0	H1	Statistic	Max- Eigen
r=0	r≥1	1004.695	239.2354	r=0	r =1	301.9157	64.50472
r≤1	r≥2	702.7794	197.3709	r≤1	r =2	238.8943	58.43354
r≤2	r≥3	463.885	159.5297	r≤2	r =3	153.524	52.36261
r≤3	r≥4	310.361	125.6154	r≤3	r =4	107.8883	46.23142
r≤4	r≥5	202.4727	95.75366	r≤4	r =5	66.0416	40.07757
r≤5	r≥6	136.4311	69.81889	r≤5	r =6	55.50006	33.87687
r≤6	r≥7	80.93103	47.85613	r≤6	r =7	31.99266	27.58434
r≤7	r≥8	48.93837	29.79707	r≤7	r =8	25.3708	21.13162
r≤8	r≥9	23.56757	15.49471	r≤8	r =9	21.21918	14.2646
r≤9	r =10	2.348388	3.841466	r≤9	r =10	2.348388	3.841466

Normalized co integrating coefficients (standard error in parenthesis)

Variables	TD	TL	POPI	LLP	IN	LC	GDPR	GC	FDI
Coefficient	-0.79	+0.10	-0.76	+0.43	- 0.63	+0.66	-0.002	+0.19	+2.47
S.E	(0.0119)	(0.0032)	(0.0316)	(0.0184)	(0.0166)	(0.0159)	(0.0004)	(0.0019)	(0.0359)
t-statistic	-66.386	30.581	-24.020	23.306	-38.1818	41.509	-5.128	97.938	68.802

Trace & Max- Eigen value test indicates 9 co integrating equation at 0.05 critical level

Table-3. Vector Error Correction Mechanism

Error Correction:	D(SEV)	D(TD)	D(TL)	D(POPI)	D(LC)	D(IN)	D(GC)	D(FDI)	D(LLP)	D(GDPR)
CointEq1	-0.0069	0.1432	0.0599	0.0106	0.1372	0.1072	0.1862	0.0449	-0.6349	0.5941
S.E	(0.0192)	(0.2103)	(0.0645)	(0.0684)	(0.0555)	(0.0528)	(0.1324)	(0.0675)	(0.0122)	(1.0254)
t-stat	[-0.362]	[0.681]	[0.928]	[0.156]	[2.472]	[2.030]	[1.406]	[0.665]	[-51.67]	[0.579]
R-squared	0.1884	0.4384	0.3538	0.3637	0.4994	0.4357	0.3929	0.4401	0.9912	0.21282
Adj. R-squared	-0.1091	0.2324	0.1169	0.1304	0.3159	0.2288	0.1703	0.2349	0.9880	-0.0758

7. CONCLUSION

The increase in share of services sector in GDP of Pakistan drawn attention since last decade, there is evidence that there is positive and significant relationship exist among population and transformation process of service sector in case of Pakistan. Further the total debt has significant relationship on service sector which implies that debt burden instruct the growth in domestic economy. More over the paper find significant positive relationship between service sector and trade liberalization, the present analysis demonstrates that trade liberalization policy is beneficial for Pakistan's service sector growth.. The structural process of consumption significantly and positively with service sector implies that purchasing power distinction with service sector. The paper hypothesize that with debt burden over the time gradually there will be more resources available to develop the service sector, it's also important to improves the purchasing power parity which has power for accelerating growth particularly to attract foreign direct investment.

REFERENCES

Ansari, M.I., 1994. Structural effects of government expenditure: An empirical test of the bacon-ehis thesis. South African Journal of Economics, 62(4): 243-251.

Ansari, M.I., 1995. Explaining the service sector growth: An emprical study of India, Pakistan and Sri Lanka. Journal of Asian Economics, 6(2): 233-246.

Arnold, J., B. Javorcik, M. Lipscomb and A. Mattoo, 2010. Services reform and manufacturing performance: Evidence from India. Discussion Paper No. 8011.CEPR.

Arnold, J., A. Mattoo and G. Narciso, 2008. Services inputs and firm productivity in sub-saharan Africa: Evidence from firm-level data. Journal of African Economies, 17(4): 578–599.

Busari, D.T., 2007. Service sector as an engine of growth: A case of the ecowas sub region. Available from http://www.unidep.org/Release3/Conferences/Afea_2007/IDEP-AFEA-07-05.pdf.

Chenery, H.B., 1961. Comparative advantage and development policy. American Economic Review, 51(1): 18-51.

Clark, C., 1941. The conditions of economic progress. London: Macmillan.

Corden, M.W. and J.P. Neary, 1982. Booming sector and de-industrialization in a small open economy. The Economic Journal, 92(368): 825-848.

Cornwall, J., 1977. Modern capitalism: Its growth and transformation. London: Martin Robertson.

Economic Council of Canada, 1991. Employment in the service sector, minister of supply and services, Canada, Ottawa.

Fuchs, V., 1980. Economic growth and the rise of service employment. Prepared for conference towards explaining economic growth. Institute of World Economics, Kiel, Federal Republic of Germany.

Glasmeier, A. and H. Marie, 1993. Service-led rural development: Definitions, theories, and empirical evidence. International Regional Science Review, 16(1-2): 197-229.

Hirschmann, A.O., 1958. The strategy of economic development. New Haven, Conn: Yale University Press.

Hoekman, B. and F. Eschenbach, 2005. Services policy reform and economic growth in transition economies.1990–2004.Policy Research Working Paper No. 3663.The World Bank.

Kasper, W., 1978. Australia's economic and industrial structures: Past patterns and prospective trends. Growth, trade, and structural change in an open Australian Economy. pp: 90-124.

Kongsamut, P., S. Rebelo and X. Danyang, 2001. Beyond balanced growth.(IMF Working Paper, WP/01/85, June).

Kuznets, S., 1957. Quantitative aspects of the economic growth of nations. Industrial distribution of national product and labour forces. Economic Development and Cultural Change, Supplement to Vote, 5 (4): 1-111.

Lewis, W.A., 1954. Economic development with limited supplies of labour. Manchester School of Social Science, 22(2): 139-191.

Mansell, R., 1985. The service sector and western economic growth. Canadian Public Policy, 11(s1): 354-360.

Miroudot, S., J. Sauvage and B. Shepherd, 2010. Measuring the cost of international trade in services. Working Paper. GEM-Sciences Po. Available from http://gem.sciences-po.fr/content/publications/pdf/Miroudot_Sauvage_Shepherd_costofservices04102010.pdf.

Szirmai, A. and B. Verspagen, 2010. Is manufacturing still an engine of growth in developing countries, paper prepared for the 31st General Conference of The International Association for Research in Income and Wealth.

Warton, D.A., 1974. The service industries in Canada, 1946-66, in B.S. Kierstead, et al. (eds.) (1974) Economics Canada: Selected readings (Toronto: Macmillan of Canada).