

## CORRELATION BETWEEN PER CAPITA INCOME AND EXPENDITURE OF DIFFERENT INCOME GROUP COUNTRIES

L.G. Retwade<sup>1</sup>, Nitin D. Ade<sup>2</sup> (ORCID ID 0000-0002-0189-8997),

Kalpesh U. Mendke<sup>3</sup> & Ramesh Sayaji Desai<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Economics, Appasaheb Jedhe Arts, Commerce & Science College, Pune, 411002

<sup>2</sup>Corresponding Author ([ni3ade@gmail.com](mailto:ni3ade@gmail.com)) Associate Professor, Department of Economics, MES Abasaheb Garware College, Pune, Maharashtra 411004

<sup>3</sup>Research Scholar, Post Graduate Research Centre in Economics, MES Abasaheb Garware College, Pune, Maharashtra 411004

<sup>4</sup>Assistant Professor, Department of Economics, Shri Shahu Mandir College, Pune 411009

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### Abstract

The researcher is trying to explain the relationship between income and expenditure/ consumption with the help of higher, middle- and lower-income countries. We can prove if country having high income, then the expenditure of that country is also higher. For this research the researcher took per capita income and per capita expenditure of 9 countries from various sources. The time period of data is from 2010 to 2015. Firstly we took data of same group of countries. And after that the researcher compares different three countries from each class (higher, middle, and lower) and explained the difference. The relation between income and expenditure is frequently called a utilization plan or consumption schedule. It is utilized to portray monetary patterns in the industry or organization. When there is more cash or expectation of income, more products are bought by purchasers. In this article the following function with the help of all the data has observed  $C = F(Y)$  and  $Y = C + S$ , as  $\uparrow Y \rightarrow \text{Consumption} \uparrow$

**Keywords-** expenditure, consumption, per capita expenditure



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### Introduction

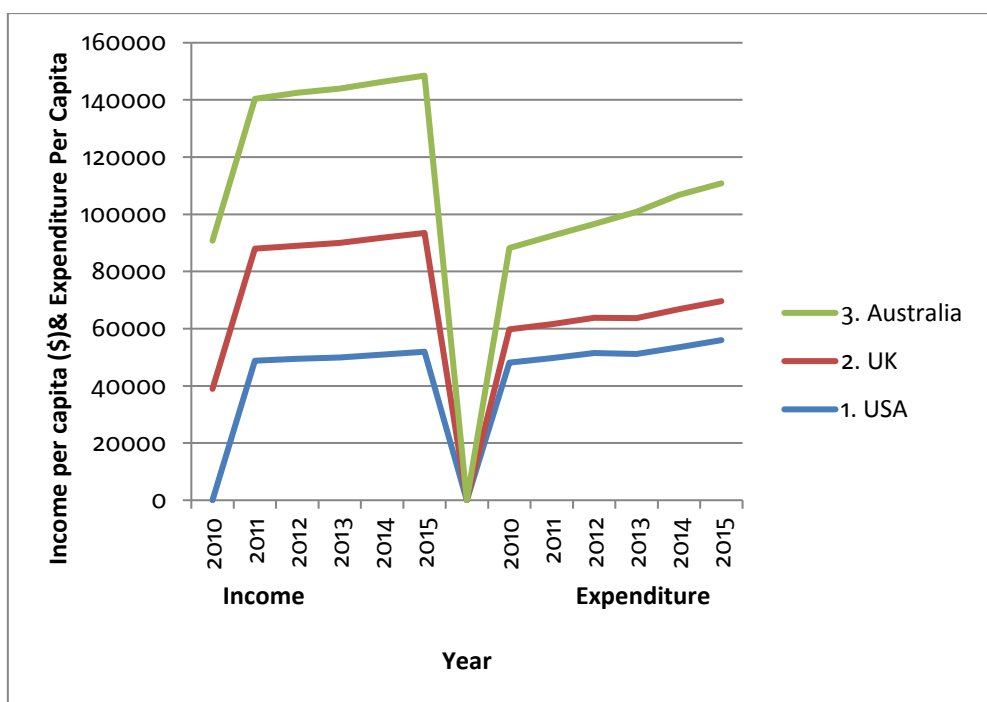
Income, expenditure and savings are interrelated. The expenditure incurred on the various needs is vital to enhance the health status and welfare of households. On the other hand, savings are essential for future use. According to the theory of consumption (Dornbusch, 2016), consumption patterns vary according to income levels of households; higher income household tends to allocate smaller percentage for daily needs such as food and clothing and higher

spending on luxury goods the percentage of saving is low at low-income levels, increased as income increased and then decreased again when the income continues to grow. This paper aims to analyse the relationship between income, expenditure and savings of households. The relationship between income and expenditure is the consumption schedule or consumption function in economics. When disposable income rises, consumption increases. The fraction of each dollar spent is the marginal propensity to consume. As the disposable income increases, the average propensity to consume falls.

### Higher income countries

A high-income economy is defined by the World Bank as a nation with a gross national income per capita of US\$12,696 or more in 2020, calculated using the Atlas method. While the term "high-income" is often used interchangeably with "First World" and "developed country," the technical definitions of these terms differ.

**Figure 1. Per Capita Income and expenditure of High income countries**



**Table 1. Per Capita Income and expenditure of High income countries**

Income per capita (\$)							Expenditure per capita (\$)					
Higher income countries	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
USA	48375	48786	49498	49972	50871	51933	48109	49705	51442	51100	53495	55978
UK	38893	39150	39455	39996	40908	41536	11640	11870	12373	12582	13294	13594
Australia	51936	52475	53553	54008	54546	55017	28443	30910	32737	37215	50005	41234

Source: data.worldbank.org

Table 1 shows that, in USA 2010 per capita income was \$48375 and per capita expenditure was \$48109. But in 2015 per capita income was \$51933 and per capita expenditure was \$55978. This entire thing shows that as income increase the expenditure also increases. The same thing is with UK in UK 2010 per capita income was \$38893 and per capita expenditure was \$11640. But in 2015 per capita income was \$41536 and per capita expenditure was \$41234. This shows that as income increase the expenditure also increases. The same thing with Australia.

**Table 2. Correlations for USA (As representative of Higher income countries)**

		Income per capita	Expenditure per capita
Income per capita	Pearson Correlation	1	<b>.984**</b>
	Sig. (2-tailed)		.000
	N	6	6
Expenditure per capita	Pearson Correlation	<b>.984**</b>	1
	Sig. (2-tailed)	.000	
	N	6	6

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### High correlation

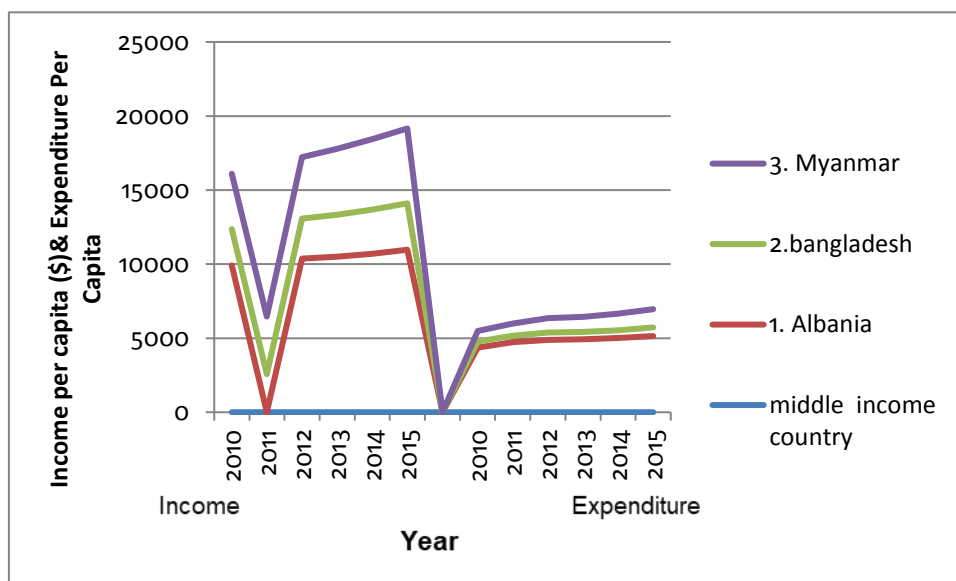
It observed strong relationship between income and expenditure as per the table 2. The changes in one variable are strongly correlated with changes in the second variable. Pearson's r is +0.985, which is very close to +1. It is concluded that there is a strong relationship between Income per capita & Expenditure per capita in high income countries

Person product correlation of Income per capita & Expenditure per capita found to be **strongly positive and statistically significant**. ( $r=.984$ ,  $p < .01$ ). It shows that an increase in Income per capita would lead to increase in Expenditure per capita.

### Middle income countries

Middle income countries further divided in two groups. Lower middle income economies, those with a GNI per capita between \$1,036 and \$4,045; and upper middle-income economies, with a GNI per capita between \$4,046 and \$12,535 (2021). Middle income countries are home to 75% of the world's population and 62% of the world's poor.

**Figure 2. Per Capita Income and expenditure of middle income countries**



**Table 3. Per Capita Income and expenditure of Middle income countries**

Middle income country	Income per capita (\$)						Expenditure per capita (\$)					
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
Albania	9927	10207	10369	10492	10701	10970	4355	4730	4892	4921	5002	5136
Bangladesh	2442	2570	2706	2835	2973	3132	428	434	491	502	521	591
Myanmar	3721	3898	4148	4457	4770	5056	700	814	970	1014	1129	1227

Source: data.worldbank.org

**Table 4. Correlations for Albania (As representative of Middle-income country)**

	Income per capita	Expenditure per capita
Pearson Correlation	1	<b>.949**</b>
Sig. (2-tailed)		.004
N	6	6
Pearson Correlation	<b>.949**</b>	1
Sig. (2-tailed)	.004	
N	6	6

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 4 shows there is a strong relationship between per capita income and expenditure of sample country from middle income countries. It changes in one variable are strongly correlated with changes in the second variable. In our example, Pearson's r is 0.949, which is very close to 1. It is concluded that there is a strong relationship between Income per capita & Expenditure per capita.

Person product correlation of Income per capita & Expenditure per capita found to be **strongly positive and statistically significant**. ( $r=.949$ ,  $p < .01$ ). It shows an increase in Income per capita would lead to increase in Expenditure per capita.

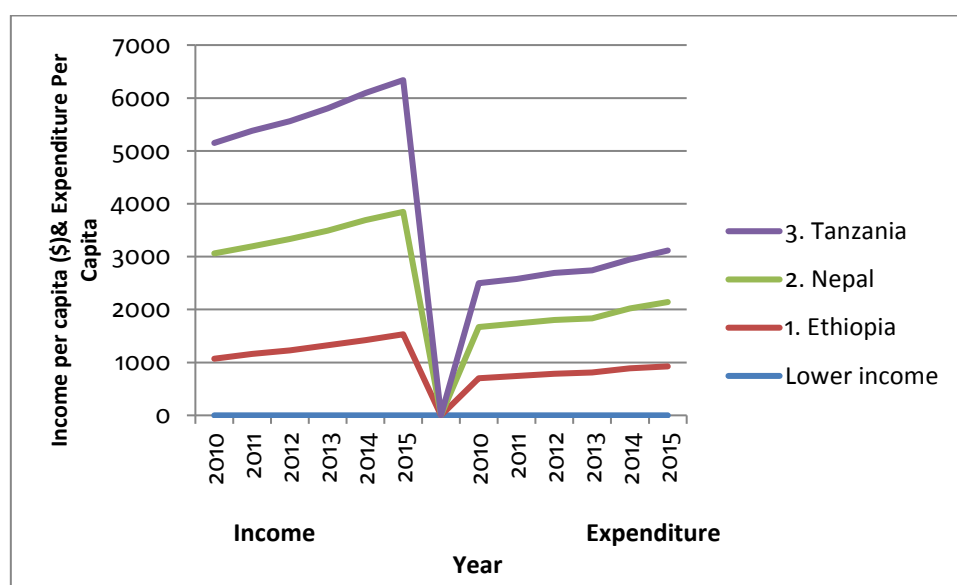
Table 3 shows that, in Albania (sample country) per capita income was \$9927 in 2010 and per capita expenditure was \$4355. But in 2015 per capita income was \$10970 and per capita

expenditure was \$5136. It shows that as income increase the expenditure also increases. The same has been observed with Myanmar, in 2010 per capita income was \$3721 and per capita expenditure was \$700. In 2015 per capita income was \$5056 and per capita expenditure was \$1227. It shows that as income increase the expenditure also increases. It is same for Bangladesh. But the difference is about expenditure while we compare the data with upper income countries. The graph is showing clearly about fall in expenditure is very big.

### Lower Incomes countries

Low income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of \$1,085 or less in 2021

**Figure 3. Per Capita Income and expenditure of low income countries**



**Table 5. Per Capita Income and expenditure of Low income countries**

	Income per capita (\$)						Expenditure per capita (\$)					
	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
Lower income countries												
Ethiopia	1073	1162	1230	1325	1424	1533	700	743	789	809	887	924
Nepal	1986	2031	2103	2164	2266	2314	972	992	1012	1024	1134	1219
Tanzania	2090	2186	2227	2316	2402	2491	827	843	893	908	927	974

Source: data.worldbank.org

**Table 6. Correlations for Ethiopia (As representative of Lower income country)**

		Income per capita	Expenditure per capita
Income per capita	Pearson Correlation	1	.992**
	Sig. (2-tailed)		.000
	N	6	6
Expenditure per capita	Pearson Correlation	.992**	1
	Sig. (2-tailed)	.000	
	N	6	6

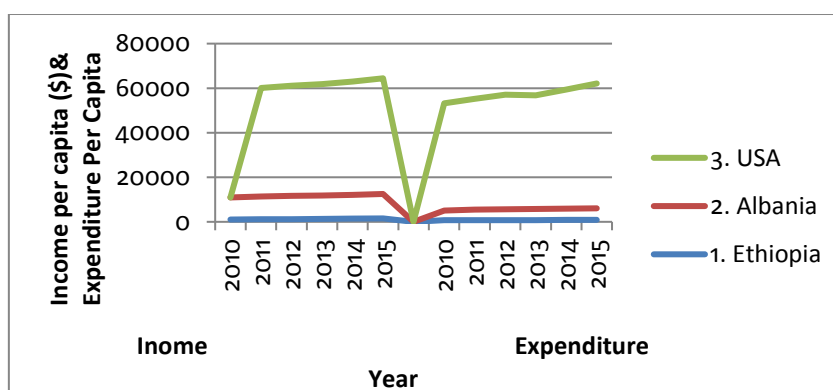
\*\* . Correlation is significant at the 0.01 level (2-tailed).

Correlation statistic table 6 shows strong relationship between per capita income and expenditure in low income countries. Pearson’s r is 0.992, which is very close to 1. It is concluded that there is a strong relationship between Income per capita & Expenditure per capita.

Table 5 shows that, in Ethiopia 2010 per capita income was \$1073 and per capita expenditure was \$700. But in 2015 per capita income was \$1533 and per capita expenditure was \$924. All this thing shows us that as income increase the expenditure also increases. The same thing is with Nepal in 2010 per capita income was \$1986 and per capita expenditure was \$972. But in 2015 per capita income was \$2314 and per capita expenditure was \$1219. All this thing shows us that as income increase the expenditure also increases. The same thing with Tanzania.

**Comparison among the higher, middle- and lower-income countries with their income and expenditure:**

**Figure 4. Per Capita Income and expenditure of sample low, middle and high income countries**



USA, Albania and Ethiopia have chosen as representative of high, middle and low income country respectively. The comparison of per capita expenditure, it has been resulted as more

the income more will be the expenditure and vice versa. Now it's been proven more the income more will be the expenditure. Fig. 4 shows the same thing.

**The composition of expenditure and income –**

Expenditure elasticity analysis of the relationship between income and expenses are often being associated with Engel curves. Engel curve is a curve showing the changes in quantity demanded of goods or services to changes in consumer income levels. It is also known as income-consumption curve (Rahmah Ismail & Idris Jajri, 1990). This curve can be used to classify goods into 3 groups; luxury goods, normal goods, and inferior goods. For the normal goods, the Engel curve is positively skewed while for the inferior goods, it is negatively skewed. This means that the consumers who have large income will stop spending on the inferior goods because they have the ability to spend on the better items. In addition, for products that have a Marshallian demand function, the Engel curve will have a constant slope. In analysing the relationship between income and expenditure to get the value of elasticity, this study divided the expenses into five categories, which are the daily expenses including food and clothing; utility expenses including payment of electricity, water and gas, rental and loans; education and health.

**Table 7 Correlation between per capita income and expenditure**

Income Group	Correlation between Income per capita and expenditure per capita
High income countries	0.984
Middle income countries	0.949
Low income countries	0.992

In case of low income countries the correlation(r value- 0.992) is comparatively strong. The household from this country having high MPC (Marginal Propensity to Consume), because i) The need of this household aren't completed ii) They spend more money on their daily needs iii) Due to more spending they can save less. R value for Middle income countries is 0.949 which indicates more saving by their household than low income countries. This is one of the peculiarities of developing/ Middle income countries. The household from developing/ Middle income countries tries to save more because most of their basic need got fulfilled with help of their income and Government support. MPS (Marginal Propensity to Save) for Middle income countries is greater than low income countries. Value of R for high income countries is 0.984 which tells us they spend more because MPC is high. Developed countries are having high income and consumerist approach which makes them to spend more of their income.



**Table 8 Proportion of per capita expenditure to per capita income of representative country**

Representative countries	2010	2011	2012	2013	2014	2015
USA	99.45	101.88	103.93	102.26	105.16	107.79
Albania	43.87	46.34	47.18	46.90	46.74	46.82
Ethiopia	65.24	63.94	64.15	61.06	62.29	60.27

Researcher also found the proportion per capita expenditure of low income country i.e. Ethiopia is hovering between 60-65 % (Table 8). It also interprets the same thing - the household from this country having high MPC (Marginal Propensity to Consume) and less MPS (Marginal Propensity to save). Whereas the middle income countries households having high MPS (Marginal Propensity to save). More than 50% of their income remained idle.

But in case of high income country the individual is spending more than their income. It may be because of their behavioural, cultural, societal, peer group pressure etc.

### **Conclusion**

The analysis in this paper clearly shows that the power of spending and saving is highly related to household income levels. However, the savings habit is different. There are some households who do not have savings and are even making loans to cover for their expenditure. This is alarming because it can affect the future consumption and also the spending on children needs. The analysis also shows that the majority of proportion of expenses is for rent and loan payments while the lowest on education and health. However, the expenditure-income elasticity for both categories is high which reflects that the increase in income will increase health and education expenses. The implication of these findings is that the increase in household income is vital in improving the welfare of household through improving their health and education.

In conclusion, the study on the household expenditure patterns is important in explaining how households allocate their income to consumption and savings which ultimately determine the levels of their welfare and quality of life. This research is also important to provide an accurate depiction to the public and the Government about the ability to spend and save of the general a society so that the policies implemented can address the specific elements that can increase the savings and spending capacity of the community to improve the welfare of households of the present and the future.

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