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De-industrialisation and Poverty in Turkey

*Ayşe Aylin Bayar, Öner Günçavdı
and Haluk Levent*



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By Ayşe Aylin Bayar[§], Öner Günçavdı[§], Haluk Levent[†]

[§] *Economic and Social Research Centre, Istanbul Technical University*

[†] *Bilgi Üniversitesi*

Abstract: De-industrialisation has emerged as a crucial problem in today's developing economies, and globalisation and rapid technological progress have widely been considered as its causes. However, de-industrialisation has also been going along with a change in political discourse in some countries like Turkey, and it appears to have led to a rise in economic populism. An increase in the shares of non-tradable economic activities in value added and employment come forward as both an instrument of economic populism and the sign of de-industrialisation. Today's populist discourse is also accompanied with high economic growth led by high non-tradable economic activities and a fall in poverty. This paper examines an empirical link between recent fall in Turkish poverty and the rise in non-tradable activities and income. De-industrialisation seems to become apparent after 2009, and non-tradable economic activities have overwhelmingly become the engine of economic growth after this year in Turkey. The result shows that non-tradable income distinctively has more reducing impacts on poverty than those of other tradable and agricultural income. This can be regarded as one of the reasons why the Turkish policy maker fulfilling populist discourse chooses non-tradable economic activities and encourage non-tradable income to rise on average more than others.

Key Words: De-industrialisation, structural transformation, poverty, Turkey.

JEL Code: E25, I32, O11, O14

De-industrialisation has recently appeared as an important problem of today's emerging market economies. Although de-industrialisation has theoretically been recognised as a necessary step of a structural shift of labour force from agriculture to manufacturing for advanced countries, it has then been observed that a similar structural transformation has taken place in many developing countries even before they completed their industrialisation. This gives rise to interest in studies examining why de-industrialisation *untimely* takes place in today's developing countries.

The causes of de-industrialisation, defined as a fall in the share of tradable economic activities such as manufacturing, have recently been attracting attention, and has also been a source of an inexhaustible interest in many empirical studies on structural transformations in developing countries (Bernard *et. al*, 2017; Castillo and Neto, 2016; Cruz, 2015; Bogliaccini, 2013). Researches investigating causes of de-industrialisation goes back to the 1980s, to the years when great transformations in the institutional structures of many middle income countries, including Turkey, began to take place. Due to dealing with various economic difficulties, such as the balance of payment and foreign debt problems, a number of developing countries of time were advised to adopt neoliberal economics policies, and to

establish an incentive scheme based on market motives. The market-oriented reform effort gradually paved the way for establishing economic structure according to the basis of comparative advantage of developing countries, and this structure in the end resulted in abolishing some selected industries that did not have sufficiently high competitive power in the world market. It was in fact the condition to be an integral part of the world economy. Today, these market-oriented reforms and neoliberal policies are, *to some extent*, accounted for de-industrialisation in developing countries.

However, openness to the world economy has also exposed them to international competition, which eventually left limited manoeuvring room for their **tradable economic activities** in international markets. The manufacturing sector, which had previously been considered as the engine of economic growth (see Kaldor, 1966), has expectedly become under the pressure of global competition. The countries gaining a comparative advantage in this worldwide competition have been those that have been able to adopt their economies to a rapid technological progress. Yet, this has not been an easy task, and required the presence of **good quality institutions** (Acemoğlu and Üçer, 2015; Altuğ *et al.*, 2008), **industrial policies** with long term vision (Rodrik, 2004) and **sound macroeconomic management** described by maintaining low inflation, interest rates and stable foreign exchange rate (Derviş, 2016). Due to failures in successfully adopting technology and improving competitive power in the world economy, economic growth in many developing countries has inevitably become dependent on an expansion in **non-tradable economic activities**, rather than tradables. We therefore began increasingly to observe **non-tradable-driven economic growth models** (which is also named as *service-led economic growth model* in some cases like in India). This is generally one of the *neglected* reasons for **de-industrialisation** if it is defined as an *untimely* expansion of non-tradable sectors in developing countries (Dasgupta and Singh, 2006; Rodrik, 2016).

De-industrialisation is not only as an outcome of economic and institutional constraints prevailing in developing countries, but recent changes in the political discourse appear as a cause paving the way for a rise of de-industrialisation. The dominant neoliberal discourse prevailing in the 1980s and the 1990s has caused widespread disappointments among the masses of people in the world, and left them with severe economic problems such as insufficient economic growth, unequal income distribution, unemployment and poverty. (Milanovic, 2016; Stiglitz, 2019). The **populist discourse** has in fact been a reaction to these outcomes of neoliberalism, and has promised to people sufficiently high economic growth and better income distribution and lower poverty than today (Derviş, 2016; Muller, 2018). It is however extremely difficult for populist policy makers to achieve these outcomes in the high competitive world economy, particularly by relying on tradable economic activities. Non-tradable economic activities are, on the other hand, exempt from international competition, and they appeared to act as an instrument for populist discourse to accomplish economic objectives. In this regard, **the populist discourse, to some extent, accounts for de-industrialisation as to be an expansion in non-tradable economic activities.**

The expansion in non-tradable economic activities and the reliance on them for achieving high economic growth can be pursued by policy makers as long as international finance is available. The era of the 2000s has presented extremely appropriate environment for expanding both non-tradable economic activities and expenditure as an **instrument** of the populist discourse in the economy. **The importance of the populist discourse has largely been ignored in the rise of non-tradable economic activities as the cause of de-**

industrialisation. However, high contributions of non-tradable economic activities into economic growth, along with high capability of job creation, and their dominant impacts on improving income distribution and reducing poverty make non-tradable economic activities as an attractive instrument for the populist discourse.

The presence of severe international competition, which was brought about by “ultra” globalisation in the 2000s, and rapid technological advances, which enhanced competition power of some countries, appeared as the factor that constrained both an expansion in tradable economic activities and a rise in employment in tradable sectors. Economic problems, such as creating **good quality economic growth** (Acemoğlu and Üçer, 2020), depressing the average levels of household income and deteriorating income inequalities have eventually piled up in many developing countries in the course of their development practice (Günçavdı and Bayar, 2020). Existing political establishments eventually felt helpless to deal with the bulk of economic problems and to satisfy the immediate needs of large political masses. Established political structures have unfortunately failed to find sustainable solutions to these economic problems. Instead, a new populist discourse has been opted for the time being in order to delay the inevitable end. According to the *new* economic populism, the increased reliance of policy makers on the expansion in non-tradable economic activities can be seen as a temporary solution to creating jobs, most of which were not good quality, high economic growth, *and to same extent*, coping with poverty problems prevailing in many developing countries today. In this respect, political establishments have inevitably found that economic growth, additional employment and better income distribution and low poverty can be achieved by relying on non-tradable economic activities. In particular, the presence of their dominant improving impacts on poverty is caused to be seen as an attractive measure to reduce poverty. In what follows, the extent and the direction of income generated only by non-tradable economic activities in reducing poverty are examined in the Turkish economy.

In this paper, non-tradable economic activities and income are taken as the instrument of new populism. Following the seminal paper by Dornbusch and Edwards (1990), **economic populism** is, on the other hand, defines as a search for high economic growth and better income distribution and low poverty rate that are all brought about by an expansion in non-tradable economic activities and income at any economic cost. The aim of this paper is to examine the *inevitable* rise of non-tradable economic activities as an indication of the de-industrialisation process in the globalised world. Especially, the impacts of rises in non-tradable activities and income on reducing poverty are empirically investigated as an important motive of today’s populist discourse. In doing so, the micro level data from *TurkStat*’s **Households Budget Surveys** are used to calculate the poverty rate as a number of households whose income are below a pre-determined poverty line. And changes in poverty are then decomposed into their components by employing Son (2003). This is an extended version of Datt-Ravallion (1992), which is augmented by including additional terms along with the economic growth and re-distribution terms. Datt and Ravallion (1992) employed this decomposition method to measure the extent of economic growth on poverty, and described the **pro-poor economic growth** if the growth effect on poverty is the dominant one. In this regard, this paper claims that economic growth, particularly the one relying on non-tradable economic activities has a likelihood of being pro-poor due to the dominant effect of non-tradable earnings on improvement in poverty. This new decomposition method is also convenient to establish an empirical link with the components of changes in poverty. This

link is in fact related to two distinctive feature of de-industrialisation, which have not drawn any attention so far in the literature. They are namely

- i.) A rise in the mean level of income earned from increased non-tradable activities during the de-industrialisation process,
- ii.) An increase in the number of non-tradable income entities as a sign of de-industrialisation.

The novelty of the present paper is also to define de-industrialisation on the basis of these features, and to establish **an empirical link between de-industrialisation and poverty** through (i) and (ii).

In what follows, the paper has five sections. Section 1 examines the presence and the extent of de-industrialisation in Turkey along with the theoretical discussion in the present literature. Section 2 briefly describes the relationship between the nature of economic growth and poverty. Following the mathematical derivation of the decomposition method by Son (2003) in Section 3, the Turkish Household Budget Survey data and empirical results are discussed in Section 4. Conclusion drawn from our findings are presented in the final Section.

Structural Transformation and De-industrialisation

The route of development is theoretically expected to take place as a shift from agriculture to manufacturing. This expectation is mainly based on Kaldor's empirical observations from the experiences of several advanced countries, and postulates that the manufacturing sector is the engine of economic growth in this route (Kaldor, 1966). However, the recent trend that we observe from developing countries challenges Kaldor's view, and points out a different path of development from expectation. Instead of a shift of labour force from agriculture to manufacturing, the excess labour force in agriculture moves to services rather than manufacturing. Many developing countries under increasing international competition pressure have been in despair to maintain the labour force in manufacturing. Most importantly, due to the various structural rigidities in labour markets, the adaptation of labour saving technologies in production has become inevitable, and revealed excess labour force in manufacturing, which were eventually move to services.

Among others, this Kaldorian view is important for a country like Turkey for two reasons. *First*, agricultural economic activities still dominate the great extent of traditional economies, and the agriculture sector eventually faces difficulties to absorb the excess population growth due to falling productivity. Besides, declines in mean income in agriculture and, in some cases, a concentration of land ownership by a limited number of "elite" people deteriorates income distribution, and even make it difficult for people to stay in the agricultural sector. *Second*, the manufacturing sector can generally be regarded as the sector compensating the fall in productivity, and provides relatively more employment (particularly for unskilled ones) than the agriculture sector. The high productivity level of manufacturing also speeds up overall economic growth and helps the country to catch up in advanced countries relatively fast. This is rather expected course of development and of industrialization. At the same time, investment and capital accumulation, along with technological progress, in manufacturing have been considered as sources of economic growth in the industrialisation process.

However, a recent trend among developing countries has become different from this in a way that labour force in traditional sectors like agriculture moves directly to services (or non-tradable) instead of manufacturing as postulated by Kaldor. A number of observations arise our concern about the nature of today's development pattern prevailing in today's developing countries. Among others, some are as follows:

- A secular fall in the shares of manufacturing value-added and employment in total. More importantly, these declines occurred at a relatively lower level of per capita income that has been for today's advanced countries in the past.
- The expected sectoral shift from agriculture takes place in some developing countries to service sectors, not to manufacturing.
- Sectoral shifts in some developing countries associated with deteriorations in income inequality. Especially in the case of shifting from an industry with having better income distribution towards a sector with high within-group inequality, the structural transformation might have changed to deteriorate overall income distribution.

It is an empirical question to examine to what extent these postulated outcomes of structural transformation appear in a particular case.

As countries develop, the importance of manufacturing reduces, and the workforce eventually moves from manufacturing to services. This route of development is called "**de-industrialisation**" and it has been the route that today's advanced countries followed in the past. Basing on detail cross-country empirical observations, Castillo and Neto (2016) postulate that today's advanced countries started this transformation when they reached \$15,000-\$20,000 per capita income. This structural shift from manufacturing to services has been considered as a sign of development for many years by development economists. However, Today's developing countries appear to have entered this route of development a little bit earlier than the advanced countries did in the past (Rowthorn, 1997; Castillo and Neto, 2016). Empirical observation pointed out that developing countries started to move out of manufacturing to services before the per capita income level reach \$15,000-\$20,000 without completing the industrialisation in manufacturing. Moreover, the workforce in agriculture today usually skipped over the manufacturing sector, but instead, moved directly to services. In some developing countries, this transformation has taken place when the per capita income was somewhere between \$3,000 and \$4,000. Due to the fact that manufacturing is not sufficiently matured, this structural transformation is called **premature de-industrialisation** (see Dasgupta and Singh, 2006; Rodrik, 2016).

(Table 1 about here)

A number of indicators can be put forward to examine the extent of de-industrialisation. Table 1 reports the differences between overall economic growth and growth rates of manufacturing value-added for different areas of the world, and reveals the fact the de-industrialisation is very common phenomena all over the world. The primary reason for this international comparison is to examine the impacts of different industrialisation practices. For example, East Asian countries in Table 1 include newly industrialised countries, and some are success stories of the past in industrialisation, such as South Korea, Thailand and China. Latin

American countries in the same table are also well known for their unsuccessful industrialisation practices and economic crises that they have occasionally confronted in search of ambitiously high economic growth rates.

The time frame of Table 1 is sufficiently long in order to assess the consequences of such structural transformation, which takes time to occur. The first period, spanning from 1970 to 1980, is the period of import substitution under the controlled foreign trade regime. This is also the period when industrialisation and capital accumulation in manufacturing speeded up. The second period in Table 1 witnessed various liberalisation efforts in foreign trade regimes and financial markets. The import-substitution-industrialisation strategy abounded, and re-organisation of the existing capital stock according to the competitive power of the country in international markets, instead of creating new capital stock, was gained priority in this period. In the 1990s, capital controlled on external accounts was removed in many developing countries and access to international finance through external borrowing become easier than before. A fall in the cost of borrowing and increases in the availability of external finance in the world market enables many developing countries (which were named as emerging market economies afterward) to grow their economies at higher rates than before. However, all these favourable conditions inevitable hindered industrialisation in some of these countries. And, the last period is the financialization of the world economy. Low-interest rates and an abundant amount of international borrowing capacity become an engine for economic growth in many developing countries.

Table 1 illustrates the differences between the rate of output growth in manufacturing and the entire economic growth rate. A negative net growth rate in the table indicates that manufacturing grows slower than the overall economy, *vice versa*. In the first column of Table 1 net economic growth rates come up with positive signs, implying that the manufacturing sector was the engine of economic growth with higher growth rates than other sectors in the economy. This expected result was due to import substitution strategy and capital accumulation in manufacturing at any expense in the 1970-1980 period. However, in the second period between 1980 and 1990, developing countries began to differ in terms of net economic growth rates. The majority of South Asian countries exhibit positive net economic growth rates whereas almost all Latin American countries appear to have had negative growth rates. This is indeed a clear indication that South Asian countries continued industrialisation in the 1980-1990 period, as the countries in Latin America, except Mexico, left it. Turkey in this period seems to continue to industrialize with the positive average net economic growth rate. In the last period, however, de-industrialisation has become an event that was seen even in some South Asian countries along with Latin American countries. Turkey in this period also had a negative average net growth rate, indicating a strong sign of de-industrialisation.

(Figure labout here)

Consumer preferences and mismatch problem with domestic production

Following a similar discussion in the literature, a number of macroeconomic indicators can be used to show the extent of the nature of structural transformation in Turkey. Among others, a

mismatch between consumption and domestic production comes forward in the Turkish case. This can be seen as another reason for a fall in the share of domestic manufacturing in GDP would be changed in **consumer preferences**, and a **mismatch** problem occurs between consumer preferences and domestic production structure. As the per capita income increases, consumer preferences expectedly change, and the already existing composition of domestic production becomes inferior for households. If changes in the composition of domestic production are slow or do not exist at all, the imports become essential to meet the need for new preferences of households. Lastly, as the **distribution of income** worsens the structure of demand shifts away from manufacturing towards services (see Figure 1). This also leads to a decline in the share of manufacturing in GDP. Households consequently demand more non-tradable inside and more tradable from outside. The other measures of de-industrialisation can also be used to report the extent of de-industrialisation in recent years in Turkey.

(Figure 2 about here)

The sectoral shares of employment

Figure 2 is the diagrams of the shares of sectoral employment for the manufacturing sector and services (including construction). The data is readily available from *TurkStat* for the 1985-2018 period. The employment share of manufacturing is distinguished by cross marks whereas the service sector share is given by circle marks. Besides, different trend functions passing through each scattered marks are fitted to the data as seen in Figure 2. There are a number of observations are worth mentioning in this respect. *First*, the share of manufacturing employment seems to have increased until 2008, and it began to decline afterward by rendering a *concave* functional shape for the trend function. The employment capacity of the manufacturing sector shows a decline, which started after 2009. *Second*, the service sector employment is an important source of employment, and it seems to have reached over sixty per cent of total employment after 2016. The best-fitted trend function becomes an increasing trend line as seen in Figure 2. *Lastly*, it will not be an exaggeration if it is considered that employment in the Turkish economy is, to a great extent, *service-led employment*.

(Figure 3 about here)

Changes in the trends values of sectoral shares in value

Figure 3 shows the changing rates of the trend values of sectoral shares in value added. The data was taken from *TurkStat*, and then the original time series were smoothed by using the Hedrick-Prescott filtering method; and the cyclical and trend components of the data were decomposed. Leaving the cyclical components aside, trend values are recorded in Figure 3. These trend values are the most appropriate values to see the long-run directions of value added in each sectors. The results in Figure 3 reveal an interesting trend. First, It seems that the shares of value added in both agriculture and tradable sectors fall. Especially, this fall becomes very distinctive after 2015 for the share of agricultural value added. Second, the

shares of non-tradable value added appear to have had an increasing trend, and this trend shows a drastic rise particularly after 2010. This implies that the contribution of non-tradable sectors to economic growth has undeniable been significant and high.¹

Rodrik (2016) has lately raised the similar concern about the changing nature of economic growth in emerging market economies by arguing his recent observations on the falling share of manufacturing in employment and value added, and he names this transformation process *premature de-industrialization*. In this regard, Turkey has not been an exception from this trend, and the economic growth after 2001 apparently became non-tradable-driven one. As seen in the following figures the tradable component of GDP appears to have decline drastically whereas non-tradable one increases. This transformation indeed appears to have happened in accordance with Rodrik (2016)'s expectation. Especially understanding the role of sectoral income in poverty would have helped policy makers provide how to improve poverty further. We *a priori* expect that booming non-tradable economic activities and income would be accounted for the improvement in poverty in the Turkish case. This is because non-tradable income is generated in a market condition that is exempt from international competition and is largely determined independently by the Turkish policy maker. The structural transformation has widely been recognised in Turkey, but its impacts on recent decline in poverty have not been examined. The main reason for this is that the present literature does not offer any empirical channel to be tested. This is indeed the purpose of this paper.

(Figure 4 about here)

Poverty issue

Poverty has been another important issue in rising **populism** in Turkey after 2002, and its importance has currently been increasing due to stagnation in economic growth prevailing in the Turkish economy. Turkey indeed experienced substantial declines in poverty after 2002. Turkey has, so far, been one of the countries having the worst poverty ratio in OECD. Various AKP (Justice and Development Party) governments and their priorities macroeconomic management managed to decrease poverty ratios over time, but did very little to change the order of the country in the international comparison. Figure 4 illustrates the trend of poverty ratio between 2002 and 2017.² The figure is based on the poverty ratios coming from two different studies having different methodologies. Unfortunately, corresponding years in both series do not match due to these different methodologies. Accordingly, the poverty ratios for the year between 2002 and 2009 were obtained from *TurkStat's Poverty Study 2015*. *TurkStat's Income and Living Condition Survey*, on the other hand, provides the poverty data for the 2006-2017 period. In Figure 4, both poverty ratios are distinguished by number, namely PR-1 and PR-2. In addition to the poverty rate ratio, the second source of poverty data contains the calculation about the poverty gap ratios, which intuitively indicate the severity of

¹ The same filtering exercise cannot be done for the shares of sectoral employment due to the lack of high frequency data.

² Poverty ratio is calculated as the proportion of households which remain under a certain income level. This reference income level is called poverty line which is established as the 50% of equalised median consumption expenditure.

poverty. This ratio in fact measures the distance of income level of households from the poverty line. Eradicating this distance by likely income transfers, as a measure of a policy to reduce poverty, will be considered as the cost born by the society. Figure 4 shows two distinctive trends for poverty ratio. First, according to PR-1, the poverty level surged around 15 percent, showing relatively stable trend with no significant change in poverty level in the reform period. However, this trend changed afterwards. In particular, the poverty ratio appears to have secularly declined after 2009. The similarity of the trends of the poverty gap ratio and poverty rate after 2006 is also worth noting.

Until recently, the poverty issue has been less touched area of research in Turkey, and mostly studied by international organisations such as OECD and the World Bank for policy purposes. However, one of the recent papers, by Şeker and Jenkins (2015), notes that income inequality in the 2000s declined, and absolute poverty rapidly fell between 2003 and 2008, but fell only slightly between 2008 and 2013. Most importantly, following the well-established practices in the literature, they also indicate that by *decomposing* the absolute poverty rate by its components (namely the economic growth and distributional components), changes in the rate of economic growth rather than by distributional change (or improvement in income distribution) were accounted for the decline in poverty in the 2000s. **It is however interesting that this decline in poverty appears to have gone along with the changes in the composition of GDP in the same period, and this urges our interest in examining the role of this transformation on the reduction in poverty.** Like others in the literature, Şeker and Jenkins (2015) unfortunately fails to recognise this structural change in the Turkish economy, and ignores the roles of different sectoral components of GDP in improvements (or deterioration) in poverty rates after 2001.

The **Datt-Ravallion (1992) approach** in this respect yields an appropriate framework to examine the impacts of different sectoral GDP components on poverty. According to this approach changes in poverty can be decomposed into two distinctive components, namely economic growth and distributional components:

$$\Delta P = G(t, t + \tau; r) + D(t, t + \tau; r) + R(t, t + \tau; r) \quad (1)$$

where ΔP is the change in the poverty rate; G and D are growth and re-distribution components respectively, R stands for the residual term; and r is the reference year. According to (1), changes in poverty stem from two sources; namely *i*) growth in income (the **economic growth effect, G**) and *ii*) changes in within-group income distribution (the **distributional effect, D**).

Among them, the economic growth components can be rather considered as a **cyclical element** that determines a certain extent of changes in poverty. This effect coming out of the growth component can also be regarded as to be a function of macroeconomic governance. The economic growth generating benefits mostly in favour of the poor is names a **pro-poor economic growth** due to improvements in poverty, and these improvements continue as long as economic growth in this nature pursues. The second component of this approach describes rather **structural and institutional** factor determining income distribution, and is named as the distributional component of changes in poverty. Accordingly, any change in the economic structure giving rise to an improvement in income distribution is also expected

indirectly to improve poverty. **Economic growth, particularly the one generating benefits for the poor and reducing overall poverty in the economy, is considered as pro-poor growth.** However, Datt-Ravallion (1992) does not recognise the impact of a compositional change in GDP, and advances **no further explanation on whether economic growth irrespective of its composition generates the same effect on poverty.** This paper aims to fill this gap in the literature.

De-industrialisation and poverty relationship

There has been a limited number of empirical studies examining the relationship between de-industrialisation and poverty. Most of these studies emphasize on the effects of de-industrialisation on income distribution by basing on the **Kuznets hypothesis**. Kuznets postulates that during a structural transformation from agriculture to manufacturing, income inequality is expected to increase. The experiences in today's developing countries appear not to fit the expectation in the Kuznets hypothesis. Most importantly, de-industrialisation leads to a weakening of the traditional working class in manufacturing and encourages them to services from manufacturing. The overall structural transformation takes place both from **agriculture-to-services** (without passing-by manufacturing at all) and **from-manufacturing-to services**. Although Kuznets hypothesis empirically says little about the distributional consequences of a structural transformation from-manufacturing-to-services or from agriculture-to-services, it also argues that income inequality in a transforming economy is an aggregation of

- i.) Income inequality in each sector,
- ii.) The mean income of each sector,
- iii.) The population share in each sector.

According to these pre-conditions, in the case where the transformation takes place from the sector possessing high income inequality and low mean income to the sector having better income distribution and high mean income level, then this structural transformation will clearly have an improving impact on overall income distribution. In other cases, the results will be an empirical question.

For the purpose of the present paper, another important question that we must find a solution is to establish a link between de-industrialisation and poverty (not income distribution). We propose an indirect mechanism through which de-industrialisation influences poverty via income distribution. It would be assumed that the link between de-industrialisation and poverty can be connected through the *distributional component* in the Datt-Ravallion framework. Respectively, low income distribution is assumed to enhance the distributional effect, and reduces poverty.

De-industrialisation, as a consequence of rises in the share of value added produced in non-tradable economic activities, can also be considered as an extension in the share of income earned from non-tradable economic activities. Non-tradable income is expected to increase during the de-industrialisation process, resulting in higher mean income of non-tradable economic activities irrespective of its distributional effect. High volume of non-tradable economic activities also means that more and more income is earned from non-tradable activities and transactions by increasing the number of non-tradable income entities in the overall economy. Among other income entities (tradable and agricultural), it seems that the

weight of non-tradable income entities increases along with de-industrialisation. In other words, during the de-industrialisation process, the population shift in terms of an increase in the number of non-tradable income entities, take place, and more and more income are earned in the form of non-tradable entities rather than others.

A structural transformation influences poverty through various channels. Basing on the Datt-Ravallion decomposition framework, the *overall* economic growth and income distributions are widely considered as two channels of impact. Şeker and Jenkins (2015) has so far been the distinctive study examining change in poverty in Turkey, and finds that **economic growth in the 2000s was pro-poor growth**, and high economic growth in the early years of the 2000s helped poverty sufficiently decline. In addition to this growth channel, the present paper put forward another channel through which the nature of economic growth distinctively affect changes in poverty. This additional channel becomes particularly important we one takes into account of changes in the main sectoral determinants of economic growth. If non-tradable economic activities are common in a country, then economic growth driven by an increase in these activities will be more likely to increase income level of larger proportion of population earning income from non-tradable sectors, and influence poverty and income distribution. In order to see this distinctive impacts of both economic activities, total income are decomposed into three sources, namely tradable income, non-tradable income and agricultural income. Each income sources are distinguished from other according to the economic activities from which this income is earned. Then, unlike Şeker and Jenkins (2015), the relative contribution of each income group into changes in poverty is examined. The Datt-Ravallion decomposition framework is not sufficient to these distinctive effects of each income group on changes in poverty, but Son (2003) provides sufficiently detail account of decomposition as follows:³

$$\begin{aligned} \frac{\Delta P}{P} = & \underbrace{\sum_i \frac{\bar{f}_i P_i}{P} * \frac{(\Delta P_i)_g}{P_i}}_{\text{Within group overall growth effect}} + \underbrace{\sum_i \frac{\bar{f}_i P_i}{P} * \frac{(\Delta P_i)_{bg}}{P_i}}_{\text{Within group sectoral growth effect}} + \\ & \underbrace{\sum_i \frac{\bar{f}_i P_i}{P} * \frac{(\Delta P_i)_I}{P_i}}_{\text{Within group inequality effect}} + \underbrace{\sum_i \frac{\bar{P}_i f_i}{P} * \left(\frac{\Delta f_i}{f_i}\right)}_{\text{Population shift}} \end{aligned} \quad (2)$$

$$\bar{f}_i = \frac{f_{1i} + f_{2i}}{2} \quad \text{and} \quad \bar{P}_i = \frac{P_{1i} + P_{2i}}{2} \quad \text{for } i = 1, 2, 3, \dots, k$$

where ΔP is the change in the poverty rate; f_i represents the population shares of the i th group in different years and P_i represents the poverty incidence in the i th group in different years. According to (2), the percentage change in total poverty can be divided into **four different components**. The first term estimates the effect of growth in overall income on the percentage change in poverty, assuming all groups enjoy the same *uniform* growth. The second term measures the effect of growth on the percentage change in poverty in which taking into account the fact that the actual growth rates vary from one group to another. The

³ The detail derivation of the Son's decomposition method is presented in appendix.

third term shows the effect of changes in inequality within groups, and finally the fourth term is the percentage change in total poverty due to a shift in population between groups.

Two terms in (2), namely the second and fourth terms, give us the impacts of de-industrialization on percentage changes in poverty. First, de-industrialization is generally defined as an increase in the share of non-tradable economic activities in the overall economy. Therefore, the effects of a change in the population share of each economic group on percentage change in poverty can be used to capture the poverty effect of de-industrialization. Second, the growth rate of non-tradable income can differ from other income groups during the de-industrialization period, and hence this difference in income growth can exhibit a distinctive different effect on the percentage change in poverty. An inquiry on the answers for these questions requires an empirical investigation.

Data

The data for empirical analysis is based on the **Household Budget Survey** covering the 2002-2017 period. Our analysis requires a data set covering the longest period available. As the Household Expenditure Survey is the only source that are available from 2002. An alternative data source is the **Survey of Living Conditions**, but this survey covers relatively shorter time period starting from 2006. All data are available from *TurkStat*.⁴

Household income data are decomposed into their sources such as non-tradable, tradable and agricultural income, and their summary statistics are reported in Table 2. The sample size for any income group represents the number of total income entities establishing total household income. A household possess total income, which may consist of one of or a combination of these three different income entities. However, we treat every single income entity available in total household income as a separate unit. Table 2 also shows that among other, the standard deviation of non-tradable income entities is the highest, implying that non-tradable income shows great variation by their level. This is due to heterogeneous structure of these income entities.

(Table 2 about here)

There are three important issues to be dealt with before directly using the data. The first one is to decide the **unit of analysis**. There are two options in this regards, namely **households** and **individuals**. Since we are interested in measuring the welfare of all individuals in a household irrespective of whether they have any income, household is considered in this study as the unit of analysis. However, households are not homogeneous by size, and the household income level must be adjusted according to the number of individuals present in

⁴ In 2002, TurkStat started to initiate regular annual “*Household Income and Consumption Expenditure Surveys*” which are conducted on 800 sample households per month with approximately 650 different households from urban areas and 150 from rural areas and in total 9600 sample household per annual⁴. After that, in 2003 the title of the survey was changed as “*Household Budget Survey*”. The sample size is increased to 25920 households. The design of the survey is revised to form a basis for EU harmonization studies and NUTS regions are obtained⁴. These surveys cover less sample size for 2003; however sample size drastically increased 720 households per month and 8640 households per annual for the period 2004-2008. After 2009, the sample size was increased to 1050 households per month and 12600 per annual. And, finally between 2010 and 2017 the same surveys were conducted for 1104 households per month and 13428 households per annual.

each household. Then, instead of using total household annual income, **equivalent annual individual disposable income** is taken as the unit of analysis by taken into account of household size.⁵ Despite different approaches to this adjustment available in the literature, the OECD scale is used in this study. This scale assigns different weights to adults and children in households, and calculated as follows:

$$N = 1 + \alpha(s_A - 1) + \beta s_K \quad (3)$$

where s_A and s_K represent the number of adults and children in the household, respectively. The coefficients of α and β are fixed parameters. In this equivalent scale, these parameters show different weights, which are assumed to be 1, 0.5 and 0.3 for the *household head*, the household wife and children (under the age of 15), respectively. Then, the **equivalent annual individual disposable income** can be calculated as follows:⁶

$$Y_{ij} = R_i/N \quad (4)$$

where R_i and Y_{ij} is household total disposable income and equivalent annual individual disposable income (where i refers to households and j refers individuals).

The second issue that we must deal with is to determine a proper poverty line. The 50% of the median income of all households' nominal income in each sample is taken as the reference to establish a **relative poverty line**. A single relative poverty line covering the 2002-2017 period is calculated. In order to examine changes in the levels of different income entities in different years, this calculated relative poverty line is used as a constant reference after being deflated the **consumer price index** (2003=100). Accordingly, nominal income for a particular year is deflated by the corresponding price index value of that year. Therefore, empirical analysis in what follows is based upon the use of real values, rather than nominal ones.

The aim of this empirical study is to examine the impacts of different income entities on changes in overall poverty in the Turkish economy. Measuring poverty then comes forward as the third issue to be considered for this purpose.⁷ Following the conventional approach in the literature, the poverty ratio is chosen to be used as the measure of poverty in this study. It is calculated in conventional studies as the *proportion* of households remaining underneath of the pre-determined relative poverty line. In the present study, two different calculation approaches are pursued depending upon our empirical objectives. The first one is similar to the conventional approach to measuring the **overall poverty ratio** as the proportion of

⁵ Household disposable income is defined as the total income plus transfer income from the government or other institutions plus interest income minus income taxes (TurkStat, 2011).

⁶ Household expenditures can be individual and collective expenditures. Examples of individual expenditures are clothing, education costs, personal consumption expenditures, and shared expenditures for heating and accommodation. Therefore, in the case of a comparison between the welfare levels of individuals in two different households, the expenditures made for individual and common use as well as the composition of these two households are important. While the common goods and services bring the advantage of economies of scale, the number of children in the household composition is more or less will affect the welfare level of the individuals in the household. This is because, in the surveys, a ranking is made among the usable incomes of households.

⁷ See Kakwani, 1980; Foster et al, 1984; Atkinson 1987, Ravallion, 1994.

households having the equivalent annual individual disposable income for each year under the constant **relative poverty line**. This poverty ratio is calculated in empirical studies as follows:

$$P_0 = q/N \tag{5}$$

where N is the size of the sample; q is the number of households or income entities lower than the relative poverty line. P_0 in conventional poverty studies is known as the **head-count ratio**.

In order to measure the relative contributions of each income entity, such as non-tradable, tradable and agricultural income, on changes in the overall poverty, we secondly introduce an **unconventional measure** of poverty as the proportion of different income entities (instead of household equivalent annual individual income) whose levels are lower than the constant real relative poverty line. Although this measure is unconventional handy to understand how important each income entity is in the determination of changes in poverty. Since de-industrialization is defined as an increase in the number of non-tradable income entities and rapid growth in non-tradable income level, it is expected that non-tradable income entities exhibits significantly high impact on changes in poverty, and accordingly encouraging an increase in non-tradable income entities and de-industrialization as a result would help to reduce poverty.

It must be noted that calculated poverty ratios in this study significantly differ from those announced by *TurkStat* due to the calculation methodology. The most distinctive difference is that the relative poverty line is taken as constant to calculate the poverty ratio for each year. In the *TurkStat*'s announcements, the poverty ratio is calculated for each year by estimating different poverty lines corresponding to different surveys. Another difference of our study from *TurkStat* is that the real (not nominal) values of household income are used in our calculations in this paper. The last difference is that *TurkStat* reports the poverty ratio only for the overall economy, and does not provide any information on the **poverty-ratio-alike measure** for any income entity. It must be re-noted once more time at this stage that the poverty-ratio-alike measure, for example, of non-tradable income entities is to be the proportion of non-tradable income entities whose level are lower than the level of the real relative poverty line. It is expected that as de-industrialization intensifies along with an increase in non-tradable income by both level and number, it would be more likely to have less and less non-tradable income entities whose levels are lower than the pre-determined poverty line. Therefore, **a fall in the poverty-ratio-alike measure of non-tradable income entities can be inferred as a result of de-industrialization**.

(Figure 5 about here)

The differences in two different calculated poverty ratios can easily be seen in Figure 4 and Figure 5. The poverty ratios in Figure 4 are those borrowed from *TurkStat*, and it is seen that values of poverty ratios in Figure 4 varies between %0.19 and %0.14. Our calculated poverty ratios for the overall economy are, on the other hand, depicted in Figure 5, and their values changes between 35% and 7%. In Figure 5, poverty-ratio-alike measures for all income entities available in our study, namely non-tradable, tradable and agricultural income entities, are also depicted. This poverty-ratio-alike measure appears to be 56.4% for non-tradable

income entities in 2002, indicating that the income level of the 56 percent of all non-tradable income entities available in 2002 remained below the real value of the calculated relative poverty line. However, only the 24.6 percent of all non-tradable income entities possessed the values lower than the same relative poverty line. This then implies that **economic development over the last 15 years seems to have increased non-tradable income and paved the way for more and more non-tradable income entities passing the level of a given relative poverty line.**

Another interesting observation appearing in both Figure 4 and Figure 5 is that falls in poverty ratios are common in both figures. Unlike Figure 4, a slight slowdown in this fall appears after 2012 in Figure 5. When one looks at the compositional pattern of the poverty-ratio-alike measure, similar falls can be noticed for all income entities. Finally, the calculated poverty-ratio-alike measures for non-tradable income entities seem to be the lowest among all. This is indeed not a surprising result and non-tradable economic activities over the last 15 years encouraged a rise in the level of non-tradable income entities, and lowered the number of this income entities whose level were lower than a given relative poverty line.

Additionally, agriculture sectoral income entities have the lowest values in comparison to other entities, and expectedly have the highest proportion of income entities having the values under the common relative poverty line. This also means that agricultural income has the highest probability of leaving any household having only agricultural income in poverty. The poverty-ratio-alike measure is not the only indicator showing differences among different income groups. In order to elaborate general features of the data, means, population shares and within-group inequality levels of all income groups can also be examined.

Differences in sectoral mean income

In this study, total income of households is decomposed into three components according to the sectors through which income is generated; they are namely non-tradable, tradable and agricultural income. The mean income level of each income group can be determined by the volume of economic activities led by economic policies. An increase in non-tradable economic activities are assumingly as a consequence of the de-industrialisation process by generating higher mean income from non-tradable than other economic activities. In order to see this, the mean income of each income group is calculated, and the results are depicted in Figure 6. It is, once again, worth noting that since these figures are obtained from *Households Budget Surveys*, they are not available for the period before 2002. Figure 6 indicates that mean non-tradable income is higher than mean income of other income sources. It is not surprising, and can be considered that this is as a result of a rise of non-tradable economic activities causing de-industrialisation. It is also clear from Figure 6 that mean non-tradable income seems to have steadily increased after 2002, but this increase particularly became distinctive after 2008.

(Figure 6, Figure 7 and Figure 8 about here)

Change in population shares

“Population” in this study refers to the number of income entities available for households. Household income is decomposed by income types, and each income group consists of

similar income entities. Any “change” in the number of any income entity, as a ratio in total number of income entities, is referred to change in population share of the relevant income entity. For example, an increase (or decrease) in the population share of non-tradable income must be considered to be a rise (or fall) in the number of income entities in the form of non-tradable income. Figure 7 shows this change in each income component. Three distinctive results emerge from Figure 7. *First*, the population share of agricultural income evidently decline after 2009. *Second*, tradable income items seem to surge around zero indicating no major change in the population share of tradable income. *Thirdly*, non-tradable income entities, together with their population share, apparently increased after 2009. On the basis of an increase in the number of non-tradable income entities, it can be postulated that the population shift over last nearly 10 years took place towards non-tradable economic activities.

Within group income distribution

In Figure 8, inequality levels, measured by Gini coefficients, of three income groups are seen. It is clear that within-group inequality seems to be lower in tradable income than others. Non-tradable income has the highest within-group inequality due to having more variability in size and their nature among income items than those of other income types. The same is true for agricultural income, which are earned according to the size of land owned by households. These differences in inequality offer two candidates that possess detrimental impact on the entire inequality. Any measure aiming at improving income distribution must then target at these two distinctive income type by improving their within-group inequalities. In particular, **non-tradable income group has great potential in an improvement in entire distribution of income in the economy.**

These initial indicators altogether show that sectoral transformation, particularly after 2009, generated results in favour of non-tradable income earners, and households whose entire income or some income consists of non-tradable income are most likely benefit from this transformation.

Decomposing changes in poverty by (2) reveals further information about the general characteristic of the structural transformation in the Turkish economy. The decomposition method in (2) distinguishes four distinctive sources of poverty, some of which allow for linking de-industrialisation and poverty. They are namely

- i.) Overall economic growth;
- ii.) Sectoral growth rate;
- iii.) Within-group inequality;
- iv.) Population shift.

The first one above (*i*) indicates the general economic growth effect, which is derived by assuming that all income groups grow at the same rate. The second one (*ii*) is particularly important for one examining **an empirical link between de-industrialisation and poverty**, and it shows how important the growth rate of a particular income group is in explaining changes in poverty. The third one (*iii*) is the within-group inequality effect, which shows the homogeneities of income entities by level within groups. Finally, (*iv*) helps us estimate the impacts on poverty of an unproportional shifts towards a particular income group. Especially,

an increase in the number of non-tradable income entities in total income entities is taken as a sign of a population shift to non-tradable economic activities. This effect can also be considered as **an indicator of the de-industrialisation (meaning a rise in the non-tradable economic activities) and poverty relationship.**

(Table 3 about here)

Decomposing changes in poverty can also be considered as to be revealing the sources of poverty. Each component in (2) corresponds to one distinctive source of changes in poverty. Upon applying the decomposition method, given in (2), the results reported in Table 3 yield information regarding the sources of poverty over the 2002-2017 period in Turkey. On the basis of Son (2003) in equation (2), four sources of changes in poverty come forward, and the calculated sizes of each sources are reported in Table 3. The relative importance of each component are distinguished by their calculated sizes. For tractability and easy to interpret the results, the reported results are depicted in Figure 9 and 10. Figure 10 shows the *cumulative* contributions of each components of changes in overall poverty, whereas the results as being in Table 3 are directly presented in Figure 9. Most of our inferences are based on Figure 10, but the same intuitive results can also be obtained from Figure 9.

(Figure 9 and 10 about here)

Panel (a)'s in Figure 9 and 10 show that distinctively high level of changes in poverty occurred over the entire period, and the great extent of these changes took place in the direction of reduction poverty. However, it seems that in the period between 2007 and 2011, the pace of reductions slowed down, and then improvements in poverty rate speeded up (see Figure 9). In figure 10, the size of cumulative reduction exceeded almost 15 per cent in the 2012-2017 period. From Figure 9 and 10, **it can be concluded that a substantial amount of net reductions in poverty took place over the last 15 years in Turkey.**

Having decomposed these changes in poverty into their components, two questions can find their answers. The first one is the question of which income group is accounted most for these reductions. The second one is to answer the question of through which channel the contribution of different income group is the most effective.

Panel (b)'s in Figure 9 and 10 show the contributions of overall economic growth into changes in poverty under the assumption that all income groups grow at the same pace. It seems that **as long as all income groups grow at the same rate, none of income entities in each group exhibit any distinctive contribution into changes in poverty.**

According to the results in Panel (c) in Figure 10 (as well as in Figure 9), growth rates of each income group at different paces appears to have generated different contributions into poverty. Growth rates of non-tradable income group, which are distinctively higher than other income groups, are most likely to contribute into changes in poverty more than other income groups do. On the basis of this finding, economic growth driven mostly by non-tradable economic activities seems to have more change to reduce poverty level than other

economic activities. In other words, **economic growth led largely by non-tradable economic activities is most likely to become a pro-poor economic growth.**

Another important components of changes in poverty is within-group inequalities in each income group. From Panel (d) in Figure 10, another distinctive contributions into reductions in poverty seems to have come from alleviating income distribution among non-tradable income entities. Any improvement in income inequality is accounted for more reduction in the overall poverty than other income group. Therefore, it is also important for the Turkish policy maker to allow for not only a rise in number of non-tradable income entities, but also **achieving relatively a fair distribution of non-tradable income entities.**

An interesting result for non-tradable income entities appears in the panel (e) of Figure 10. The effects on changes in poverty of the population shifts of different income groups are measured in this panel. A population shift in this respect means an increase in the share of a particular income entities in total. Especially, the number of non-tradable income entities expectedly increase in the course of de-industrialisation, and a distinctive population shift occurs towards the non-tradable income group. It means that the number of non-tradable income entities will increase by proportion. It is striking from Figure 7 that cumulative changes in population shares steadily increased for non-tradable income entities, remained slightly constant for tradable income entities, and apparently declined for agricultural income entities. This result can be interpreted as an indication of intensified de-industrialisation particularly after 2009. However, **this steady increase in non-tradable income entities as share accounts for a deterioration in poverty.** This result may be obtained only in the case where an increase in the number of non-tradable income entities takes place for income entities whose levels are below the poverty line. It also means that during de-industrialisation, an expansion of non-tradable economic activities encourages a creation of non-tradable income lower than the poverty level. This can also be considered as evidence for the hypothesis that non-tradable activities generate low wage jobs along with low productivity, and economic growth led by these non-tradable activities can be named as not being good quality one (see Acemoğlu ve Uçer, 2020).

Conclusion

Turkey has been going through a structural transformation by increasing the share of non-tradable economic activities in value added as well as in employment. Labour force, which was previously employed in the agriculture sector and earning agricultural income, began to move more directly to services without stopping by the tradable manufacturing sector. Besides, labour force in manufacturing also moved to services due to the fall in employment ability of manufacturing under the pressure of intense international competition and rapid technological development. These developments altogether are regarded as **de-industrialisation**, which has been a current feature of development process in many developing countries today.

In this paper, another implication of de-industrialisation is addressed in addition to rises in the shares of non-tradable economic activities in value added and total employment. In the course of de-industrialisation, it is postulated that the sectoral origin of income earned by household shifts mostly towards non-tradable economic activities, and the number of income earned

from non-tradable economic activities hence increases. The weight of non-tradable income entities in all income entities available in the economy rises as a result. We therefore use a rise in the share of non-tradable income entities as another sign of de-industrialisation, and our calculation from **Household Budget Surveys** show that this share steadily increased along with an increase in the mean income level of non-tradable income entities.

Interestingly, the structural transformations in the economy of developing countries has gone along with changes in political establishment and discourse. It has been witnessed in the case of Turkey (and other developing countries as well) a rise of **economic populism** accompanied with de-industrialisation. This co-existence arouses interest in examining whether there is a causal link between the rise of populism and de-industrialisation. In an empirical study searching the presence of such a causal link, it was postulated in this study that non-tradable economic activities can be considered as a convenient instrument for the implications of populist economic policies. Without being under the pressure of international competition, policy makers are able to generate economic growth and employment by relying extensively on non-tradable economic activities. Therefore, **economic policies implemented in accordance with rising populist discourse can be accounted for the increase in non-tradable economic activities**. Therefore, recent wave of populist discourse among developing countries can be regarded as another cause of de-industrialisation. Economic populism, as described by Dornbusch and Edwards (1992), inevitable come forward for the governments under the pressure of unemployment and high poverty rates in order to create jobs and alleviate poverty. The empirical findings in this paper show that high growth rates of non-tradable income entities available in the economy, as an instrument of populist policies, have a distinctive effect on the reduction in poverty in Turkey. Besides, improvements in income distribution within non-tradable income group were also accounted for a great extent of reduction in poverty in the last 15 years.

Şeker and Jenkins (2015) is another paper on the similar subject, decomposing changes in poverty into their sources by using Datt-Ravallion decomposition method. Unlike them, the present paper employed Son (2003), and became able to reveal addition information on the features regarding poverty in Turkey. Şeker and Jenkins (2015) found that economic growth in Turkey was pro-poor. The present study also confirms this conclusion by applying different methodology to a longer data set. Additionally, we put particular emphasis on the finding that economic growth led largely by an increase in non-tradable economic activities and income entities becomes even more pro-poor than any economic growth driven by other economic activities available in the Turkish economy.

References

- Acemoğlu, D. and Üçer, M. (2015). “The Ups and Downs of Turkish Growth, 2002-2015: Political Dynamics, the European Union and the Institutional Slide”, *NBER Working Paper*, No. 21608.
- Acemoğlu, D. and Üçer, M. (2020). “High-Quality versus Low-Quality Growth in Turkey: Causes and Consequences”. Forthcoming in Akad, A. and S. Gürsel (eds.) *Turkey at Cross Road*. London: World Scientific Publishing Co.
- Altug, S., Filiztekin, A. and Pamuk, Ş., (2008). “Sources of long-term economic growth for Turkey, 1880-2005”, *European Review of Economic History*, Cambridge University Press, vol. 12(3), pages 393-430, December.
- Atkinson, A. B., (1987), “On the Measurement of Poverty,” *Econometrica*, 55 (4), p. 749-764.
- Bernard, A.B., V. Smeets and F. Warzynski (2017). “De-industrialisation”. *Economic Policy*, pp.5-38.
- Bogliaccini, J. A. (2013). “Trade liberalisation, de-industrialisation and inequality: Evidence from middle income Latin American countries”. *Latin American Review*, vol. 48, No.2, pp. 79-105.
- Castillo, M. and A.M. Neto (2016). “Premature de-industrialisation in Latin America”. *UNECLAC – Production Development Series No. 205*. (Santiago: UN).
- Cruz, M. (2015). “Premature de-industrialisation: Theory, evidence and policy recommendation in the Mexican case”. *Cambridge Journal of Economics*, vol. 39, pp.113-137.
- Dasgupta, S. ve A. Singh (2006). “Manufacturing, Services and Premature Deindustrialization in Developing Countries”. *United Nation University-WIDER Research Paper No. 2006/49*.
- Datt, G. And M. Ravallion (1992). “Growth and re-distribution components of changes in poverty: A decomposition with application to Brazil and China in the 1980s”. *Journal of Development Economics* 38 (2): 275-295
- Dornbusch, R. and S. Edwards. (1990). “Macroeconomic Populism”. *Journal of Development Economics*, Vol 32, pp. 247-277.
- Derviş, K. (2016). *Reflections on Progress: Essays on the Global Political Economy*. (Washington, D.C.: Brookings Institute Press).
- Günçavdı, Ö. and Bayar, A. A. (2020). “Structural Transformation and Income Distribution in Turkey”, Forthcoming in Akad, A. and S. Gürsel (eds.) *Turkey at Cross Road*. London: World Scientific Publishing Co.
- Foster, J., Greer, J. and Thorbecke, E. (1984), “A Class of Decomposable Poverty Measures,” *Econometrica*, 52 (3), p. 761-766.
- Kakwani, N., (1980), *Income Inequality and Poverty: Methods of Estimation and Policy Applications*, New York: Oxford University Press.
- Kaldor, N. (1966). “Marginal Productivity and the Macro-Economic Theories of Distribution: Comment on Samuelson and Modigliani”, *Review of Economic Studies*, Vol. 33, No.4, pp. 309-319.
- Milanovic, B. (2016). “Global Inequality: A New Approach for the Age of Globalization”, Harvard University Press, Massachusetts.

- Müller, J-W (2016). *What is Populism?*, University of Pennsylvania Press.
- Ravallion, M., (1994), "Poverty Comparisons: A Guide to Concepts and Methods," *Fundamentals of Pure and Applied Economics Distribution Section*, 56, Longhorne, PA: Harwood Academic Publishers.
- Rodrik, D. (1994). "Industrial Policy for the Twenty-First Century", KSG Working Paper, No. RWP04-047.
- Rodrik, D. (2016). "Premature de-industrialization", *Journal of Economic Growth* 21: 1-33.
- Rowthorn, R. and R. Ramaswamy (1997). "Deindustrialization: Cause and Implications", *IMF Working Paper* WP/97/42. Washington: IMF.
- Stiglitz, J. E. (2019). "The End of Neoliberalism and the Rebirth of History". *Project Syndicate*.
<https://www.project-syndicate.org/commentary/end-of-neoliberalism-unfettered-markets-fail-by-joseph-e-stiglitz-2019-11?>
- Son, H.H. (2003). "A New Poverty Decomposition". *Journal of Economic Inequality* 1: 181-187.
- Şeker, S.D. and A. P. Jenkins (2015). "Poverty trends in Turkey", *Journal of Economic Inequality* 13: 401-424.
- TurkStat (2011). Income and Living Conditions Survey.

Table 1 – De-industrialisation in some selected developing countries

	<i>Differences between the entire economic growth rate and manufacturing growth rate (%)</i>			
	1970-1980	1980-1993	1993-2003	2004-2017
ASIA				
China	5.3	1.5	1.9	--
India	1.2	1.1	0.8	0.8
Indonesia	6.8	6.0	1.7	-0.9
South Korea	7.6	3.2	1.7	1.6
Malaysia	3.8	4.1	1.4	-0.6
Pakistan	0.5	1.3	0.9	1.1
Philippine	0.1	-0.6	-0.3	-0.1
Sri Lanka	-2.2	2.7	1.1	-0.2
Thailand	3.4	2.6	2.1	-0.4
LATIN AMERICA				
Argentina	-1.2	-0.4	-1.2	-0.6
Bolivia	1.5	-	-0.1	-0.1
Brazil	0.9	-1.9	-0.3	-1.9
Chile	-2.6	-0.7	-1.6	-1.9
Colombia	0.4	-0.2	-4.3	-1.7
Equator	1.0	-2.1	-0.6	-1.0
Mexico	0.7	0.5	0.1	-0.5
Peru	-	-	-0.6	-1.4
Venezuela	2.2	-0.8	-1.1	-2.5*
TURKEY	1.3	1.5	0.8	-1.2

Source: The data for Asia and Latin American countries between 1970 and 2003 are borrowed from Dasgupta and Singh (2006); the remaining data for 2004-2017 are compiled from *World Bank World Development Indicators* by the author. The data for Sub-Sahara Africa was also obtained from *World Bank Work Development Indicators*. The data for Turkey, on the other hand, is from *Economic and Social Indicators 2017*.

* The data for Venezuela is available only for 11 years between 2004 and 2014 in World Bank's World Development Indicators. Unlike other countries, the differences in growth rates are calculated for the 2004-2014 period, not the 2004-2017 period.

Figure 1 - Distribution of Consumption by Commodity Groups

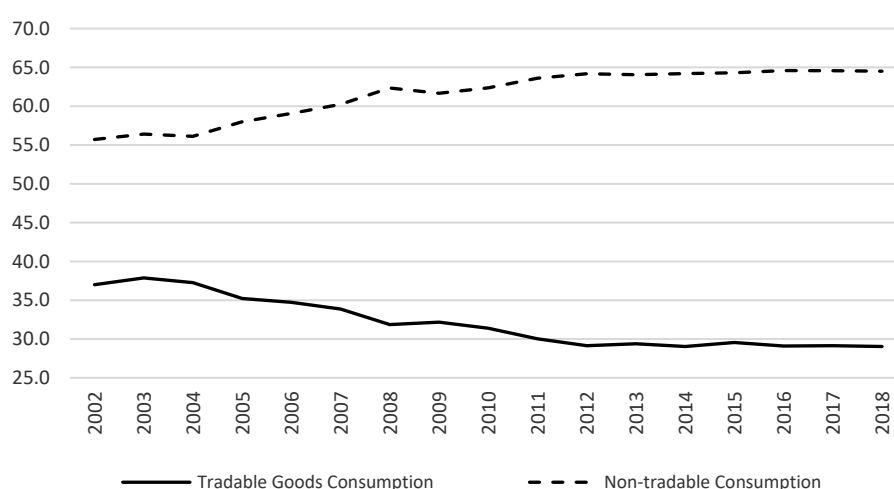


Figure 2- Sectoral Shares of Employment (%)

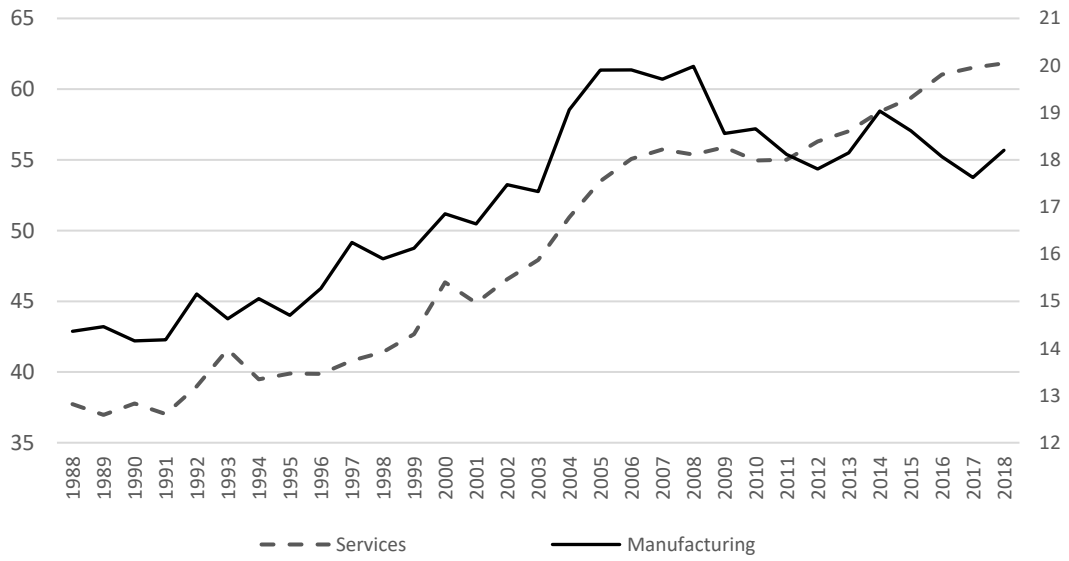


Figure 3 - Changes in the rate of the trend values of sectoral shares in value added

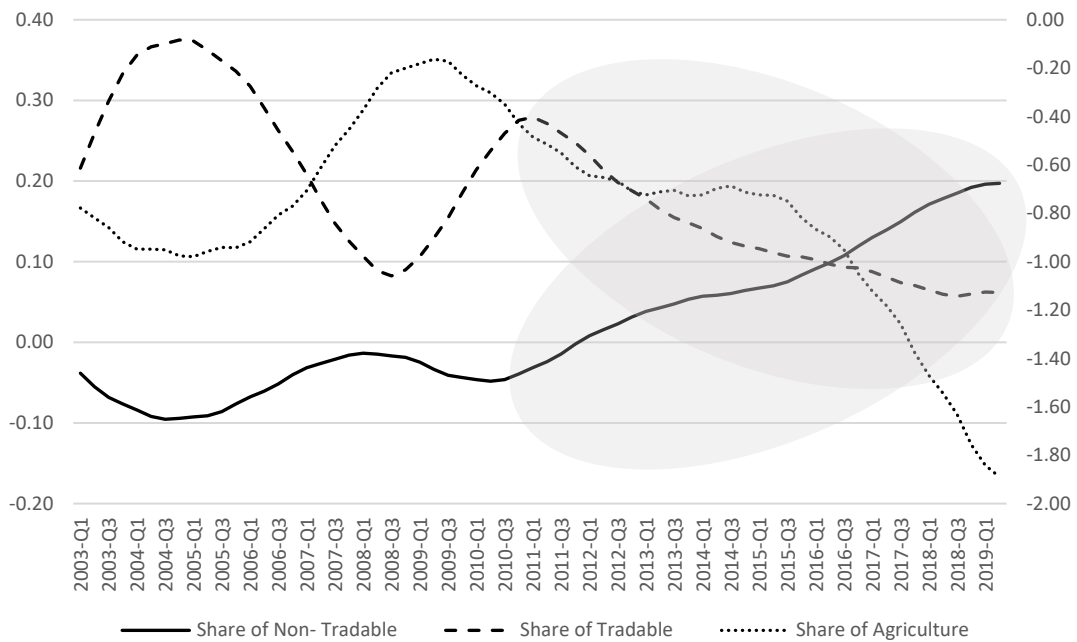


Figure 4 - Poverty Rates based on the 50% of equivalised median consumption expenditure.

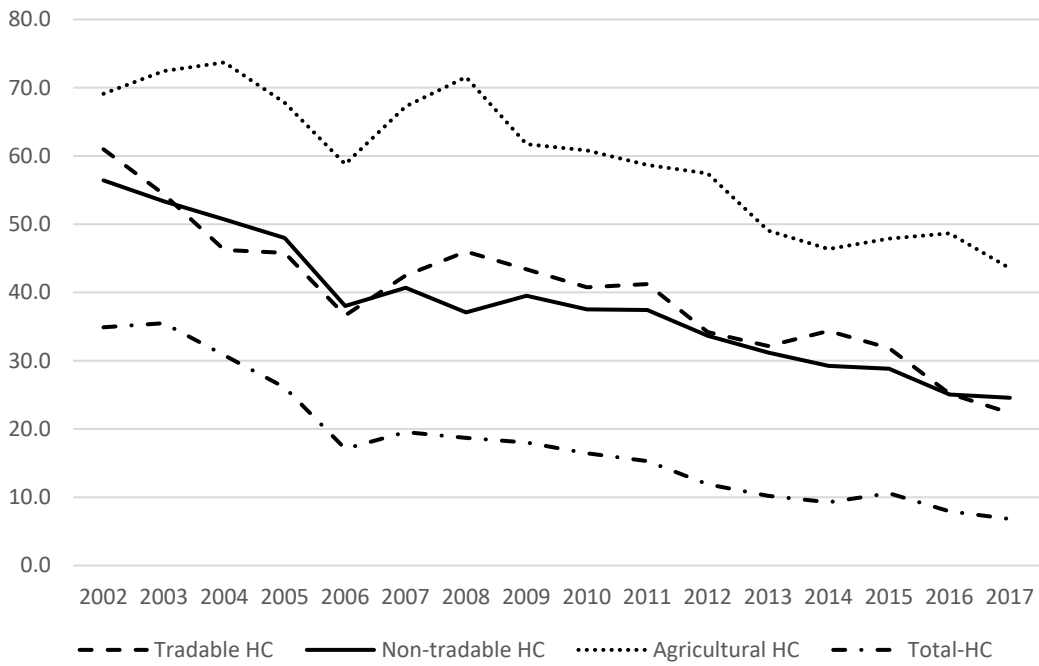
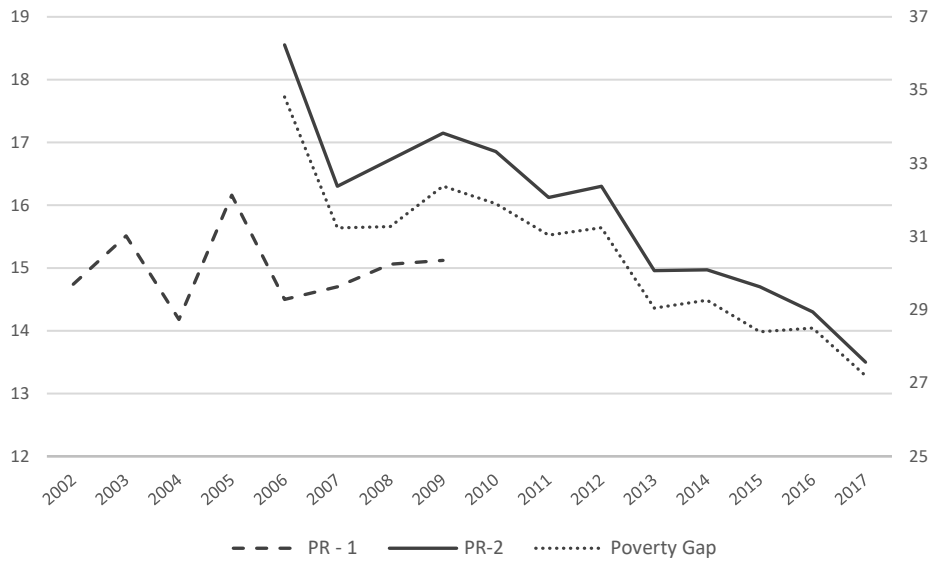


Figure 6 - Mean Income of Each Income Type (TL)

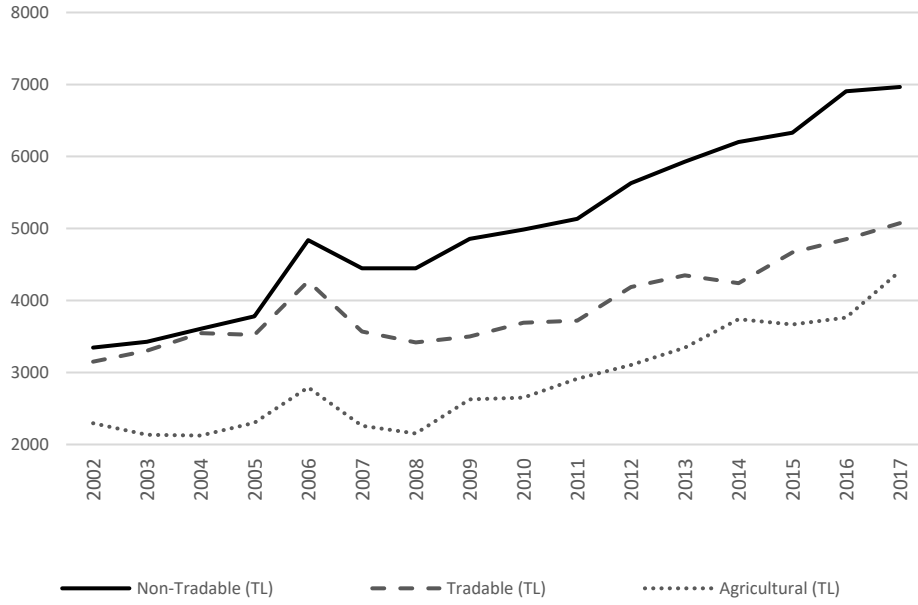


Figure 7 - Change in Population Share - Cumulative

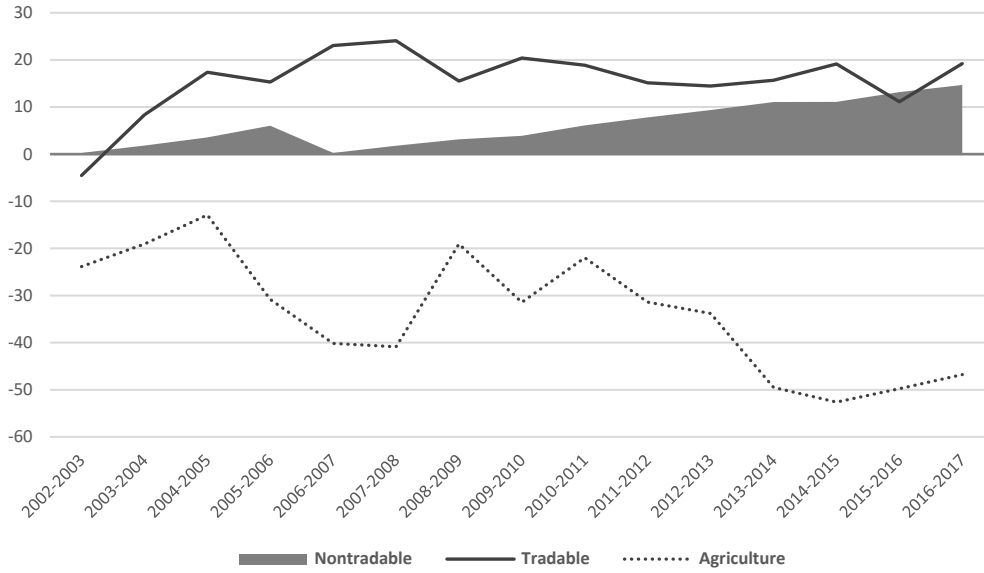


Figure 8 - Within-Group Inequalities – Gini Coefficients

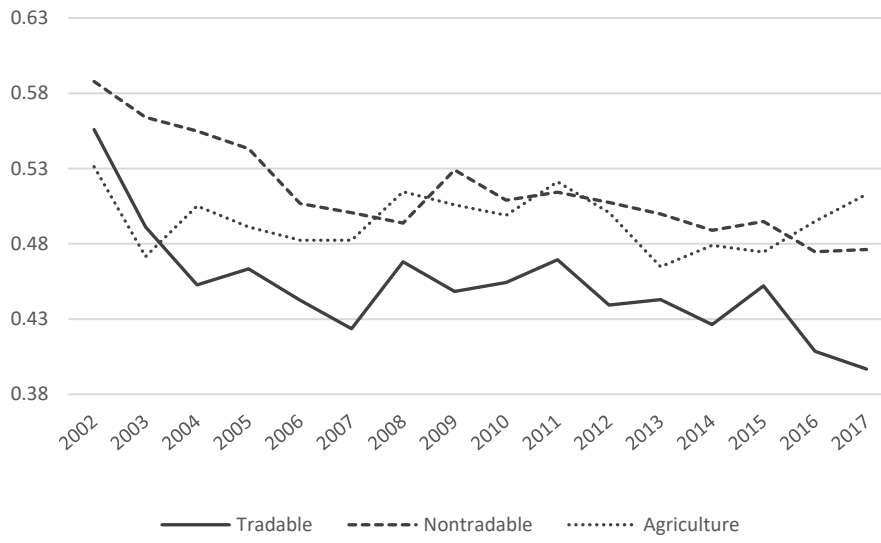


Figure 9: The effects on the change in Overall Poverty



Figure 10: The cumulative effects on the change in Overall Poverty

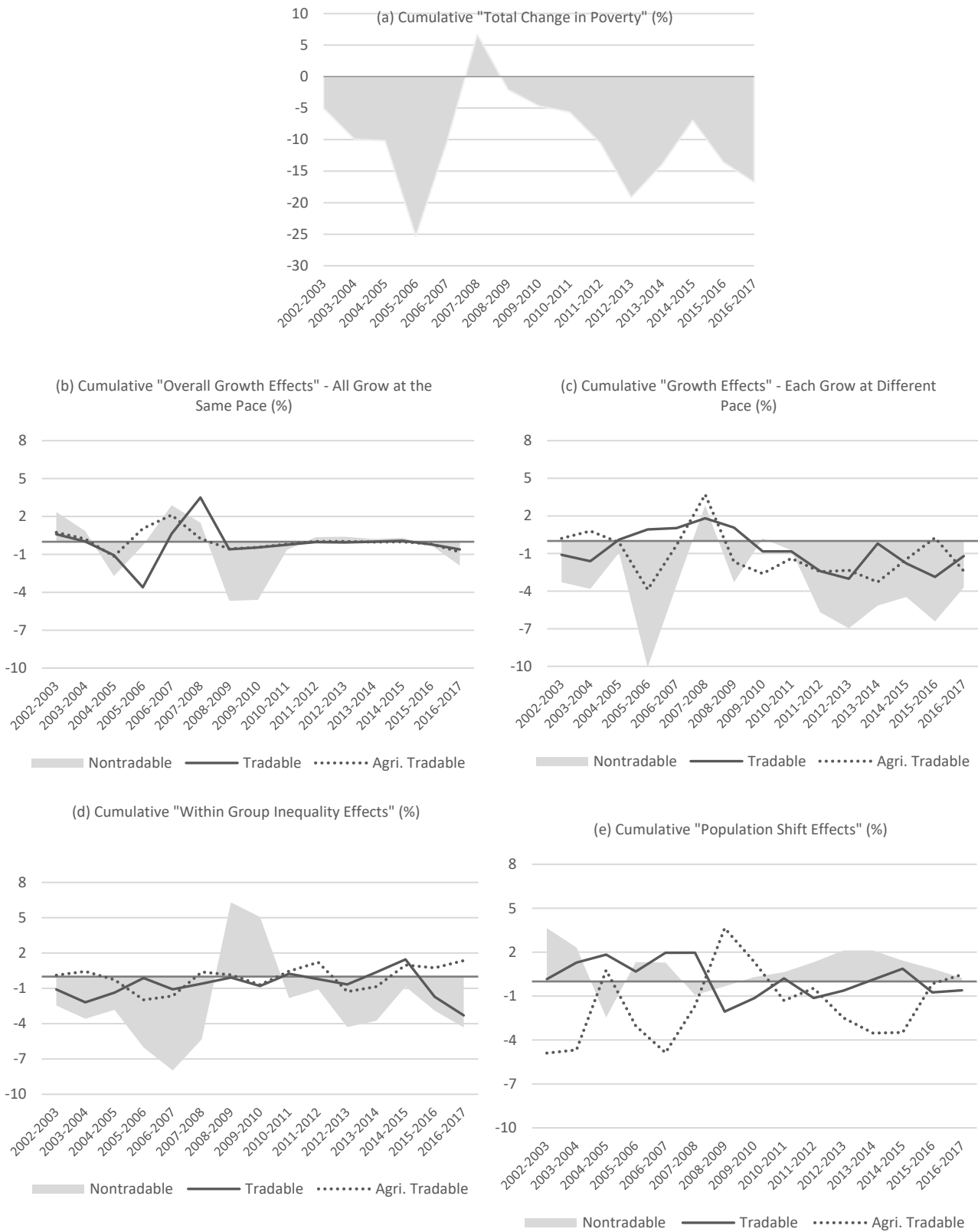


Table 2: Descriptive Statistics

		2002	2003	2004	2005	2006	2007	2008	2009
TRADABLE	Max.	160341	370151	69130	79891	102480	73825	72973	101021
	Mean	3150	3301	3547	3522	4268	3570	3417	3499
	Min.	2.1	6.7	4.4	4.0	6.1	1.8	4.1	3.5
	Median	1856	2254	2590	2657	3273	2894	2686	2856
	St. Dev.	5829	5500	4413	3522	4527	3516	4041	3761
	Skew	16.0	16.2	7.7	7.7	6.0	6.1	6.7	8.8
	n	14876642	22048711	16031101	17478602	17116564	18444104	18630737	17036137
NONTRADABLE	Max.	336560	177659	120765	179893	154955	102918	110014	217699
	Mean	3346	3426	3608	3780	4838	4447	4857	4970
	Min.	336560	0.7	5.6	2.6	4.9	0.7	0.8	0.2
	Median	4136	2231	2396	2622	3618	3240	3618	3443
	St. Dev.	6736	5278	5266	4792	5789	5002	5436	6687
	Skew	21.2	8.7	7.8	6.3	6.4	4.3	4.4	8.3
	n	66287298	66460029	67507321	68669945	70357142	66312417	67326517	68226184
AGRICULTURE	Max.	28597	46196	94136	30509	29865	33655	57857	51458
	Mean	2294	2134	2124	2302	2794	2260	2152	3224
	Min.	0	0	0	3.4	8.0	7.3	4.2	5.2
	Median	1473	1475	1419	1692	2060	1642	1454	1758
	St. Dev.	2857	2452	3630	2576	2794	2489	2652	2626
	Skew	4.0	6.0	16.4	3.8	2.9	4.3	6.2	5.6
	n	22048711	16789151	17594220	18676646	15333020	13896658	13797746	16807558
		2010	2011	2012	2013	2014	2015	2016	2017
TRADABLE	Max.	76208	171973	185815	154121	98238	182743	92946	80232
	Mean	3692	3720	4187	4349	4240	4667	4853	5074
	Min.	8.5	0.5	4.1	4.7	4.8	24	11	20
	Median	1584	2933	3176	3281	3336	3462	3841	4087
	St. Dev.	4264	4901	6050	5944	4770	7728	4846	4632
	Skew	6.2	10.6	15.0	12.0	8.2	13.1	5.8	4.7
	n	17867430	17598157	16940213	16825394	17029073	17622065	16207227	17517293
NONTRADABLE	Max.	395198	182378	276920	245155	258152	245624	173078	35503
	Mean	4985	5134	5630	5928.	6200	6330	6906	6965
	Min.	4.2	18.2	4.7	3.8	1.2	14	9.2	9.1
	Median	3569	3652	3993	4285	4521	4533	5108	5202
	St. Dev.	6454	62088	7351	7327	7767	8251	7546	8653
	Skew	8.8	5.1	9.0	7.8	9.0	8.9	5.5	11.2
	n	68753815	70255447	71457497	72583775	73801900	73833434	75349688	76502540
AGRICULTURE	Max.	47845	49463	58592	91236	59683	65273	61259	66203
	Mean	2651	2914	3105	3345	3739	3667	3763	4407
	Min.	5.9	2.1	5.3	9.1	6.9	1.7	0.9	1.3
	Median	1810	1972	2116	2515	2605	2553	2554	2858
	St. Dev.	3045	3439	4102	3524	4249	4184	4292	5366
	Skew	4.6	3.9	6.5	5.3	5.0	4.8	4.3	4.0
	n	14728957	16120797	14601895	14250679	12017294	11641515	11973974	12331914

*values represented at the table are deflated with consumer price index (2003=100) and weighted for population.

Table 3 – The decomposition of changes in poverty on the basis of different income entities

	Within Group Growth Effect						Within Group Inequality Effect			Population Shift			Total Change (%)
	Overall Growth Effects			Growth Rate Varying From One Group to Other			Tradable	Non-tradable	Agriculture	Tradable	Non-tradable	Agriculture	
	Tradable	Non-tradable	Agriculture	Tradable	Non-tradable	Agriculture							
2002-2003	0,60	2,36	0,75	-1,11	-3,30	0,21	-1,09	-2,46	0,12	0,16	3,65	-4,89	-5,01
2003-2004	-0,58	-1,50	-0,52	-0,51	-0,53	0,58	-1,10	-1,12	0,32	1,13	-1,33	0,22	-4,93
2004-2005	-0,49	-1,21	-0,64	0,62	-0,41	-0,70	-0,26	-1,70	-0,59	0,70	-1,14	0,55	-5,26
2005-2006	-3,12	0,92	1,68	0,30	-9,67	-3,17	0,14	-4,32	-1,38	-0,02	2,46	-3,59	-20,08
2006-2007	3,76	1,97	0,44	0,73	6,12	2,83	-1,22	-3,65	-0,27	1,98	-1,17	-1,28	9,51
2007-2008	-0,25	-0,46	-0,19	1,08	-3,29	0,88	0,62	-1,67	0,65	-0,02	0,24	-0,39	-2,81
2008-2009	-0,34	-4,21	-0,36	-0,01	-0,01	-2,55	-0,70	7,97	-0,50	-2,04	-0,57	4,04	0,71
2009-2010	-0,11	-0,38	-0,08	-0,82	0,21	-0,05	-0,10	-2,90	-0,19	0,90	0,87	-2,70	-5,36
2010-2011	-0,13	-0,28	-0,10	-0,02	-0,95	-1,33	0,34	1,08	0,66	-0,70	-0,24	1,40	-0,27
2011-2012	0,11	0,64	0,13	-2,39	-4,74	-1,13	-0,56	-2,16	0,55	-0,44	1,55	-1,86	-10,29
2012-2013	-0,17	-0,24	-0,10	-0,62	-2,23	-1,21	-0,11	-2,13	-1,84	-0,19	0,56	-0,62	-8,88
2013-2014	0,17	0,45	0,07	0,42	-2,93	-2,07	0,48	-1,62	0,98	0,32	1,55	-2,91	-5,08
2014-2015	-0,09	-0,15	-0,07	-2,21	-1,54	0,62	0,98	0,77	0,00	0,55	-0,13	-0,58	-1,85
2015-2016	-0,12	-0,12	-0,10	-0,66	-4,88	-0,36	-2,69	-3,66	0,75	-1,30	1,00	0,42	-11,74
2016-2017	-0,49	-1,76	-0,70	-0,54	1,17	-2,04	-0,60	-0,66	0,61	0,70	-0,76	0,05	-5,02

Mathematical Appendix

This mathematical appendix adapted version of Son (2000). Let x be a random **income entity** with a density function $f(x)$. Also, let z be the **poverty-line-alike reference line**. A general class of additively separable poverty measure can be written as follows:

$$P = \int_0^z \theta(z, x) f(x) dx$$

where $\theta(z, x)$ is a homogenous function of degree zero in z and x , satisfying following restrictions:

$$\frac{\partial \theta(z, x)}{\partial x} < 0$$

$$\frac{\partial \theta(z, x)}{\partial z} > 0$$

Following Foster et al. (1984), $\theta(z, x)$ can be defined as follows:

$$\theta(z, x) = \left(\frac{z - x}{z} \right)^\alpha$$

Where α is the coefficient of inequality aversion. When $\alpha=0$, then the poverty measure becomes the simple form of poverty measures, namely headcount ratio. For $\alpha=1$ and 2, the function $\theta(z, x)$ measures the poverty gap and the severity of poverty respectively.

Let assume that the total population is divided into k different subgroups. Under the assumption of additivity of the poverty measure, the total poverty would be written as the weighted average of within-group poverty measures as follows:

$$P = \sum_i \beta_i P_i$$

where β_i and P_i are the population shares and within-group poverty respectively. In a two-period world, we now can define a change in the poverty measure from time 1 to time 2 as follows:

$$\Delta P = P_2 - P_1$$

where $P_1 = \sum_i \beta_{1i} P_{1i}$ and $P_2 = \sum_i \beta_{2i} P_{2i}$. Upon substituting them in the change in poverty, then

$$\Delta P = \frac{1}{2} \left[\sum_i \beta_{1i} \Delta P_i + \sum_i \beta_{2i} \Delta P_i \right] + \frac{1}{2} \left[\sum_i \Delta \beta_i P_{1i} + \sum_i \Delta \beta_i P_{2i} \right]$$

Or

$$\Delta P = \frac{1}{2} \left[\sum_i \Delta P_i (\beta_{21} + \beta_{2i}) \right] + \frac{1}{2} \left[\sum_i \Delta \beta_i (P_{1i} + P_{2i}) \right]$$

In this definition of a change in the poverty measure, a change in poverty arises from

1. Change in within-group poverty while the population shares of each group remains constant.
2. Change in the population share of sub-group while the poverty holds constant,

The percentage change in poverty can then be written as

$$\frac{\Delta P}{P} = \frac{1}{2} \left[\sum_i \frac{\Delta P_i (\beta_{21} + \beta_{2i}) P_i}{P} \right] + \frac{1}{2} \left[\sum_i \frac{\Delta \beta_i (P_{1i} + P_{2i}) \beta_i}{P} \right]$$

$$\frac{\Delta P}{P} = \frac{1}{2} \left[\sum_i \frac{\Delta P_i (\beta_{1i} + \beta_{2i}) P_i}{P} \right] + \frac{1}{2} \left[\sum_i \frac{\Delta \beta_i (P_{1i} + P_{2i}) \beta_i}{P} \right]$$

$$\frac{\Delta P}{P} = \sum_i \left(\frac{\Delta P_i}{P_i} \right) \frac{\hat{\beta}_i P_i}{P} + \sum_i \left(\frac{\Delta \beta_i}{\beta_i} \right) \frac{\hat{P}_i \beta_i}{P}$$

where $\hat{\beta}_i = \frac{(\beta_{1i} + \beta_{2i})}{2}$; and $\hat{P}_i = \frac{(P_{1i} + P_{2i})}{2}$. The first term on the right-hand side estimates the percentage change in total poverty explained by change in within-poverty measures of each group. The second term estimates the percentage change in total poverty due to a shift in population between groups. Any change in poverty is considered as *pro-poor* if the second term has a negative sign implying a reduction in poverty due to a population shift.

Upon writing a poverty measure as follows,

$$P = P[z, \mu, L(p)]$$

where z is the money-metric poverty line; μ is the mean income of entire population, $L(p)$ is the Lorenz curve which measures the effects of inequality on poverty. The percentage change in poverty can be written as

$$\Delta P = (\Delta P)_\mu + (\Delta P)_I$$

The first term on the right hand side of (?) is the *growth effect* that arises due to change in mean income from μ_1 in time 1 to μ_2 in time 2 while income distribution $L(p)$ remains constant. Following Kakwani (2000), the growth effect can be calculated as the weighted average of the changes in the poverty level under two different assumptions on income distribution. In the first case, the change in poverty comes up as consequences of the change in the mean income under the assumption that the initial income distribution is valid. In the second case, the change in poverty occurs due to the same change in mean income under the assumption that income distribution in time 2 is valid. This can be written as follows:

$$(\Delta P)_\mu = \frac{1}{2} \{ [P(z, \mu_2, L_1(p)) - P(z, \mu_1, L_1(p))] + [P(z, \mu_2, L_2(p)) - P(z, \mu_1, L_2(p))] \}$$

where $L_1(p)$ and $L_2(p)$ are income distribution in time 1 and 2 respectively. The second term of the right hand side of (?) is the *income distribution effect* due to change in income distribution from $L_1(p)$ in time 1 to $L_2(p)$ in time 2 while the mean income of the entire population remains constant. Similar to the growth effect, the income effect can also be calculated as the weighted average of two different components that are derived under two hypothetical cases. The first one is the change in poverty level coming up because of change in income distribution under the assumption of the mean income level μ_1 . The second change in poverty can be calculated due to change in income distribution under the assumption of the mean income μ_2 .

$$(\Delta P)_I = \frac{1}{2} \{ [P(z, \mu_1, L_2(p)) - P(z, \mu_1, L_1(p))] + [P(z, \mu_2, L_2(p)) - P(z, \mu_2, L_1(p))] \}$$

For within each group, this decomposition method can be applied:

$$\frac{\Delta P_i}{P_i} = \frac{(\Delta P_i)_m}{P_i} + \frac{(\Delta P_i)_I}{P_i}$$

At this equation, change in the poverty for mean income level of *i*th group is represented by:

$$(\Delta P_i)_m = \frac{1}{2} \{ [P(z, \mu_{2i}, L_{1i}(p)) - P(z, \mu_{1i}, L_{1i}(p))] + [P(z, \mu_{2i}, L_{2i}(p)) - P(z, \mu_{1i}, L_{2i}(p))] \}$$

and the change in poverty for Lorenz curve (inequality) of *i*th group represented by:

$$(\Delta P_i)_I = \frac{1}{2} \{ [P(z, \mu_{1i}, L_{2i}(p)) - P(z, \mu_{1i}, L_{1i}(p))] + [P(z, \mu_{2i}, L_{2i}(p)) - P(z, \mu_{2i}, L_{1i}(p))] \}$$

In this respect, the percentage change in total poverty can be expressed as follows:

$$\frac{\Delta P}{P} = \sum_i \frac{\bar{\beta}_i P_i}{P} * \frac{(\Delta P_i)_m}{P_i} + \frac{\bar{\beta}_i P_i}{P} * \frac{(\Delta P_i)_I}{P_i} + \frac{\bar{P}_i \beta_i}{P} * \left(\frac{\Delta \beta_i}{\beta_i} \right) \text{ for } i = 1, 2, 3, \dots, k$$

The first term at the right hand side of the equation shows the within group effect and while the second and third terms represents within group inequality effect and population shift. The term of the effect of growth within each group can be decomposed further as follows:

$$\sum_i \frac{\bar{\beta}_i P_i}{P} \frac{(\Delta P_i)_m}{P_i} = \sum_i \frac{\bar{\beta}_i P_i}{P} * \frac{(\Delta P_i)_g}{P_i} + \sum_i \frac{\bar{\beta}_i P_i}{P} * \frac{(\Delta P_i)_{bg}}{P_i}$$

where

$$(\Delta P_i)_g = \frac{1}{2} \{ [P(z, \mu_{2i}^*, L_{1i}(p)) - P(z, \mu_{1i}, L_{1i}(p))] + [P(z, \mu_{2i}^*, L_{2i}(p)) - P(z, \mu_{1i}, L_{2i}(p))] \}$$

$$(\Delta P_i)_{bg} = \frac{1}{2} \{ [P(z, \mu_{2i}, L_{1i}(p)) - P(z, \mu_{2i}^*, L_{1i}(p))] + [P(z, \mu_{2i}, L_{2i}(p)) - P(z, \mu_{2i}^*, L_{2i}(p))] \}$$

And

$$\mu_{2i}^* = \mu_{1i} * (1 + g)$$

At the equation g represents the average growth rate of overall population and μ_{2i}^* is the mean income of the i^{th} group in year 2 if the income of the i^{th} group were growing at the same rate as the average growth rate of the whole population.

Therefore, the overall poverty change can be expressed as:

$$\begin{aligned} \frac{\Delta P}{P} = & \underbrace{\sum_i \frac{\bar{\beta}_i P_i}{P} * \frac{(\Delta P_i)_g}{P_i}}_{\text{Within group overall growth effect}} + \underbrace{\sum_i \frac{\bar{\beta}_i P_i}{P} * \frac{(\Delta P_i)_{bg}}{P_i}}_{\text{Within group sectoral growth effect}} + \\ & \underbrace{\sum_i \frac{\bar{\beta}_i P_i}{P} * \frac{(\Delta P_i)_I}{P_i}}_{\text{Within group inequality effect}} + \underbrace{\sum_i \frac{\bar{P}_i \beta_i}{P} * \left(\frac{\Delta \beta_i}{\beta_i} \right)}_{\text{Population shift}} \end{aligned}$$

$$\text{where } \bar{\beta}_i = \frac{\beta_{1i} + \beta_{2i}}{2} \text{ and } \bar{P}_i = \frac{P_{1i} + P_{2i}}{2} \text{ for } i = 1, 2, 3, \dots, k$$