

**Trade Liberalization and Balance of Payments Constrained Growth
in Turkey (1980-2018)**

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Abstract

This study tried to examine the balance of payments constrained growth, employed Autoregressive Distributed lag bound test (ARDL) approach to test the Turkey exports and imports functions via Bound test. Descriptive statistics show that Turkey trade balance suffers from continuous trade deficit over study period (1980-2018), share of total trade to GDP still in low level and the average over study period (33.55%). Estimation show that the income elasticity of demand for imports is 1.2, while the income elasticity demand for exports is 1.66, Thirlwall's weak version confirmation that the predicted growth is higher than actual growth (Exporting without growing) , Thirlwall's strong version show that predicted growth close to actual growth (growing with integrating).

Keywords: Trade liberalization, balance of payments, Turkey.

Jel: E12, F43, O53

Introduction

There is no doubt that the political and economic authorities have a set of tools to use when forming up their economic policy to achieve equilibrium in economy by surplus in trade balance, trade balance shows the economic relations and trends with trade partners in one side and in other side as an indicator to economic growth.

Trade balance is one of the most important components of the balance of payments. The surplus in the balance of trade reflects the wealthy factors in the economy concerned such as high GDP growth, high employment level, low poverty and exchange rate stability. The deficit in the trade balance reveals the weaknesses in the economy of the country that suffers it. This is considered as an indicator of the economic strength of the state, and the achievement of economic welfare and efficiency.

Many countries follow Keynesian school to increase demand by increased government spending embodied with depreciation currency and spurious growth deepen the trade balance deficit (Kharroubi ,2011). Import elasticity play crucial role in trade policy episodes due to sensitivity of exports to imports, import elasticities in new manufacturing countries effected by external constraints particularly in post-liberalization period in Mexico, so that, economic growth consistent with trade balance position (Ibarra, 2011).

Soukiazis et al. (2017) examined The Greek economy under the twin-deficit pressure: a demand orientated growth approach, over the period 1995–2014. Result show that income elasticity of the demand for exports is unusually high which can be explained by the high importance of tourism on exported services, high sensitivity of exports on imports that might harm the positive effects of exports on growth. Finally, Greek economy grew faster than the rate consistent with internal and external balances.

To conclude, trade liberalization exposure national economy to foreign competition, this mean that economy must looking for potential powers in sectors that support economy in achieving strategic aims to bring products into globe markets, this maintaining export and limiting import, resulting in improving trade balance.

Study aim:

This study tried to examine the balance of payments constrained growth in Turkey over study period (1980-2018).

Literature review

Fasanya and Olayemi (2018) This paper examines the Balance-of-Payment (BOP) constraint growth model in Nigeria for the period of 1980 to 2012 using the bounds testing Auto regressive Distributed Lag (ARDL) approach. The ARDL test suggests that the variables in the framework have a long run relationship. The empirical findings reveal that import is cointegrated with relative price and income, and the equilibrium growth rates coincide with actual growth rates, hence, the result shows that the Thirlwall's law, of actual growth rate being equal to the predicted growth rate by the balance of payment current account equilibrium holds in Nigeria. This reason may be due the fact that the economy of Nigeria depends mainly on international trade even though oil dominates the export. This Thirlwall's BOP-constrained growth approach provides some significant policy prescriptions for Nigeria's development policy. Achievement of potential growth can be stimulated by making exports more competitive through macroeconomic stability, sound institutional qualities, improvement in human and physical capital development, reducing access problems to external market, among other factors.

using an Autoregressive Distributed Lag (ARDL) Bounds Testing approach, Ozturk and Acaravci (2010) applied the Thirlwall's basic balance of payments constraint growth model to South African economic growth for the period of 1984 to 2006, the empirical results revealed that import is co integrated with relative price and income, and the equilibrium growth rates coincide with actual growth rate. They therefore recommended that a successful economic growth policy, which reduces income elasticity of imports and promotes export, should be put into play which will permit South Africa to have a rapid growth in demand and supply without suffering deterioration in its balance of payments.

Anouar Majdoubi and Lalla Zhor Alaoui Omari (2020) tested the validity of Thirlwall's Law in Morocco from 1980 to 2018 period, using an Autoregressive Distributed Lag (ARDL) Bounds testing approach. The empirical results suggest that import is co-integrated with relative price and income, and the actual growth rate was found to be equal to the predicted growth rate by the balance of payments. Thus, The Thirlwall's law holds for Morocco. This study proposes, also, some policy recommendations to reduce the trade deficits.

Soukiazis et al (2012) The aim of this paper is to fill this gap by developing a growth model in line with Thirlwall's Law that takes into account both internal and external imbalances during 1985-2008. The model is tested for Portugal which recently fell into a public debt crisis with serious negative consequences on growth. The empirical analysis shows that the growth rate in Portugal is in fact balance-of-payments

constrained and the main drawback is the high import elasticity of the components of demand and in particular that of exports.

Soukiazis et al. (2013). The aim of this paper is to implement the more complete SCA model in Italy and check its accuracy for explaining the growth path in this country over 1983-2010. Our empirical analysis shows mainly that Italy grew less than its potential capacity due to supply constraints. A scenarios analysis shows that improving external trade performance is the most effective way to achieve higher growth in Italy.

Estimation Balance of Payments Constrained Growth in Turkey (1980-2018)

According Keynesian approach (1936) aggregate demand determines the aggregate output; however, neoclassical approach confirm that output determined by supply, countries that follow export-led growth unable to sustain growth in long run. Aoki and yoshkava (2002) developed growth model explained the growth in long run essentially depend on demand, this model structured according to “Stylized fact” this stated that an economy experienced high growth if it continues to introduce new products that temporarily enjoy a high growth in demand.

In Keynesian economy, shocks will lead to creating variation are generally shift in real aggregate demand for goods, services, and investment. in last year’s autonomous demand component play essential role in growth in long run (Nah and Lavoie, 2019), sustain high growth can’t achieved without expenditure -led policy to generate stable policy toward investment spending (Thirlwalls, 2004, Gibson and Van Seventer, 2000, Aoki & Yoshkava, 2002).

In many emerging industrial countries followed trade liberalization programs dynamic and static benefits from exports growth dampen by imports growth, this puzzle attracts economist attention toward demand – led growth (Cimoli et al, 2010, Thirlwalls, 2003).

The failure export -led growth strategy highlights the essential of demand in long run growth, aggregate demand affected by global fluctuations, this mean that demand (domestic growth) could be constrained by its balance of payments.

Turkey, like other industrial emerging countries that have pursued a trade liberalization program to improve the balance of payments through export growth and thus achieve sustainable economic growth, Turkey exports has achieved growth in recent years, but it has not been able to sustain growth, this is what makes growth constrained by the external sector, especially as the trade balance suffers From a persistent deficit, consequently, examining Thirlwall’s Law (1979) may contribute to understand the impact of trade liberalization on economic growth via growth in the balance of payments. Based on Thirlwall’s original model (1979) growth rate compatible with balance of payment equilibrium for countries summarized in simple and direct between income elasticity of demand for imports and income elasticity of external demand for its exports.

Thirlwall (1979) stipulates the external equilibrium as:

$$PX = P^*ME \quad (1)$$

Where X is export, P domestic price of exports, M is import, P^* is foreign price of imports, E nominal exchange rate. Eq.(2) expressed in terms of growth rates is:

$$P + X = P^* + m + e \quad (2)$$

Based on economic explanation, external demand for exports, as well as internal demand for imports, depends on relative prices, (price, income elasticity) and (domestic income, foreign income) Y and Y^* respectively, it means that:

$$X = b \left[\frac{P}{P^*E} \right]^\varepsilon Y^{\eta_x} \quad (3)$$

$$M = a \left[\frac{P^*E}{P} \right]^{\varepsilon_m} Y^{\eta_m} \quad (4)$$

After taking log export demand function can be written as:

$$x = \varepsilon_x(e + P^* - P) + \eta_x Y^* \quad (5)$$

Where x is the growth rate of exports, e the rate of currency nominal depreciation, P^* foreign inflation rate, P domestic inflation rate, Y^* foreign real GDP growth rate, therefore, $e + P^* - P$ the rate change in real exchange rate, ε_x price of export demand, η_x is income elasticity of export demand.

The import demand function can be written as:

$$m = \varepsilon_m(e + P^* - P) + \eta_m Y \quad (6)$$

Where m the Turkish imports growth rate, Y is the growth rate of turkey GDP, ε_m is the price of import demand, η_m the income elasticity of import demand. In long run balance of payment equilibrium require that:

$$P + x = e + P^* + m$$

$$\varepsilon_x(e + P^* - P) + \eta_x Y^* = -\varepsilon_m(e + P^* - P) + \eta_m Y$$

$$\varepsilon_x(e + P^* - P) + \eta_x Y^* + \varepsilon_m(e + P^* - P) - \eta_m Y = 0$$

$$Y = \frac{(1+\varepsilon_x+\varepsilon_m)(e+P^*-P)+\eta_x Y^*}{\eta_m} \quad (7)$$

Within trade liberalization relative purchasing power parity (PPP) is supposed to hold in long run even tastes are different, thus, $e + P^* - P = 0$.

$$Y_B = \frac{\eta_x Y^*}{\eta_m} = \frac{x}{\eta_m} \quad (8)$$

Where Y = domestic income growth rate, Y^* = foreign income growth rate, η_x = income elasticity of demand for exports, and η_m = income elasticity of demand for imports.

Thirlwall's law (1979) satisfy the mechanism of the balance of payments equilibrium growth rate due to many reasons:

- 1- Relative prices do not change significantly

- 2- Exports and imports elasticity are so low, then no impact on BP.
- 3- Based on real wage resistance and oligopolistic structures, no variations in prices.
- 4- If Marshall-Lerner condition is met, there is no evidence to assume that export growth can be achieved by continuous depreciation of domestic currency.

To examine the validity of Thirlwall's law in the Turkish case, Turkey's import function estimation is required. The main determinants of imports are gross domestic products (GDP) and relative prices. High income will push demand, strong currency enables households to purchase more and vice versa. Based on Thirlwall's law (1979) demand elasticity plays an important role on actual economic growth.

$$IM = F(GDP_d, RER)$$

$$IM_{LR} = \alpha + \pi GDP_d + \rho RER + \omega_t \quad (9)$$

Where IM is import and LR for long run, GDP_d is gross domestic product of Turkey, RER is real exchange rate, ω_t is the classical regression error term.

$$\Delta IM_{LR} = \alpha + \sum_{i=1}^{m1} \sigma IM_{LR-i} + \sum_{i=0}^{m2} \pi \Delta GDP_{t-i} + \sum_{i=0}^{m3} \rho \Delta RER_{t-i} + \delta_1 IM_{LR-1} + \delta_2 GDP_{t-1} + \delta_3 RER_{t-1} + v_t \quad (10)$$

To examine whether variables move toward long run equilibrium values adjustment, estimates of $\delta_1 - \delta_3$ are used to form an error-correction term (EC). Thus, lagged variables in Eq. 10) are changed by EC_{t-1} establishing a modified form of Eq. (11) as follows:

$$\Delta IM_{LR} = \alpha + \sum_{i=1}^{m1} \sigma IM_{LR-i} + \sum_{i=0}^{m2} \pi \Delta GDP_{t-i} + \sum_{i=0}^{m3} \rho \Delta RER_{t-i} + \lambda EC_{t-1} + \mu_t \quad (11)$$

Where λ is the speed of adjustment parameter. A significant negative coefficient EC_{t-1} supports adjustment toward long run equilibrium.

Empirical results

Long run Import elasticity

Table 1. Long run Import elasticity

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(GDPd)	1.200007	0.042257	28.39778	0.0000
RER	0.002432	0.002943	0.826360	0.4161
C	2.681321	0.382928	7.002158	0.0000

$$EC = \text{LOG}(IMF) - (1.2000 * \text{LOG}(GDPD) + 0.0024 * RER + 2.6813)$$

Above estimation results indicate that elasticity income demand for imports is 1.20 and statistically significant means that increasing income one Turkish lira will result in increasing imports by 1.2 TL.

Thirlwall's law three versions

Although many criticisms directed at Thirlwall's law, still maintains its importance in studying economic growth constraint in developed countries as well as in developing countries. Thirlwall's law (1979) contribution concentrate on the elasticities approach in determine growth and considering that relative prices tend to be stable in the long run. Accordingly, these models were tested on Turkish economic growth in the post-implementation period of the trade liberalization program as follows:

Simple Thirlwall growth model (weak version of Thirlwall's law)

According to Thirlwall's law (1979) states that the long run growth rate of an economy is constrained by the balance of payment and is equal to the ratio of export growth rate to income elasticity of demand for imports. Trade liberalization program contributed to the emergence of great challenges facing the trade balance equilibrium. increasing exports and growth sustained faced many obstacles, especially in light of imports increasing , this caused the existence of the so-called fake growth, exporting without growing, through the Thirlwall's law, which restricted the growth in the balance of payments with a decrease income elasticity of demand for imports, meaning that importing only essential goods, but with the liberalization of trade, the flow of imports in cheap price as tariffs reduction contributed to crowding out domestic production, feeding trade balance deficit, which was one of the crucial trade liberalization aim to reduce it.

Table 2. Thirlwall's law weak version results

Period	X growth	Actual growth rate U	Predicted growth ;	Difference Yt*-yt
1981-1990	17.55	5.27	14.63	9.4
1982-1991	11.88	4.86	9.90	5.0
1983-1992	10.49	5.01	8.74	3.7
1984-1993	10.95	5.27	9.12	3.9
1985-1994	10.29	4.14	8.58	4.4
1986-1995	11.09	4.50	9.24	4.7
1987-1996	12.45	4.54	10.38	5.8
1988-1997	10.09	4.35	8.41	4.1
1989-1998	8.65	4.35	7.21	2.9
1990-1999	8.81	3.98	7.34	3.4
1991-2000	8.11	3.71	6.76	3.1
1992-2001	8.90	3.05	7.42	4.4
1993-2002	9.58	3.19	7.99	4.8
1994-2003	12.26	2.98	10.22	7.2
1995-2004	13.83	4.41	11.52	7.1
1996-2005	13.51	3.62	11.26	7.6
1997-2006	14.42	4.50	12.01	7.5
1998-2007	15.65	4.24	13.04	8.8
1999-2008	17.69	4.10	14.74	10.6
2000-2009	15.57	3.97	12.97	9.0
2001-2010	16.27	4.15	13.56	9.4
2002-2011	16.83	5.86	14.03	8.2

2003-2012	16.63	5.69	13.86	8.2
2004-2013	13.48	5.98	11.23	5.3
2005-2014	10.49	5.54	8.75	3.2
2006-2015	7.99	5.24	6.66	1.4
2007-2016	6.26	4.85	5.21	0.4
2008-2017	4.73	5.09	3.94	-1.2
2009-2018	3.13	5.29	2.61	-2.7

elasticity of demand for imports=1.2

above table show the weak version of Thirlwall's law results of Turkish predicted and actual growth, The average growth rate obtained from Thirlwall's law (Y_t^*), given by $Y_t = \frac{x}{\eta_m}$ is 9.70 which overestimate the actual growth achieved in Turkey over the period study (4.542) these results confirm that predicted growth is higher than actual growth, but Thirlwall's law state that if country experienced in long run deficit balance of payments equilibrium growth rate must be too high. It's clear that Turkish economy could not grow faster than it did due to an ultimate capacity ceiling, however some countries as Italy grow slower and build up payment surpluses (Soukiazis et al. 2014). In some countries as Mexico economy experienced in export growth but without real growing (Ibarra, 2010). Turkey economy today stuck in vicious cycle between slow growth and high public deficit.

Figure 1. foreign income growth rate and Turkey Exports (1980-2018)

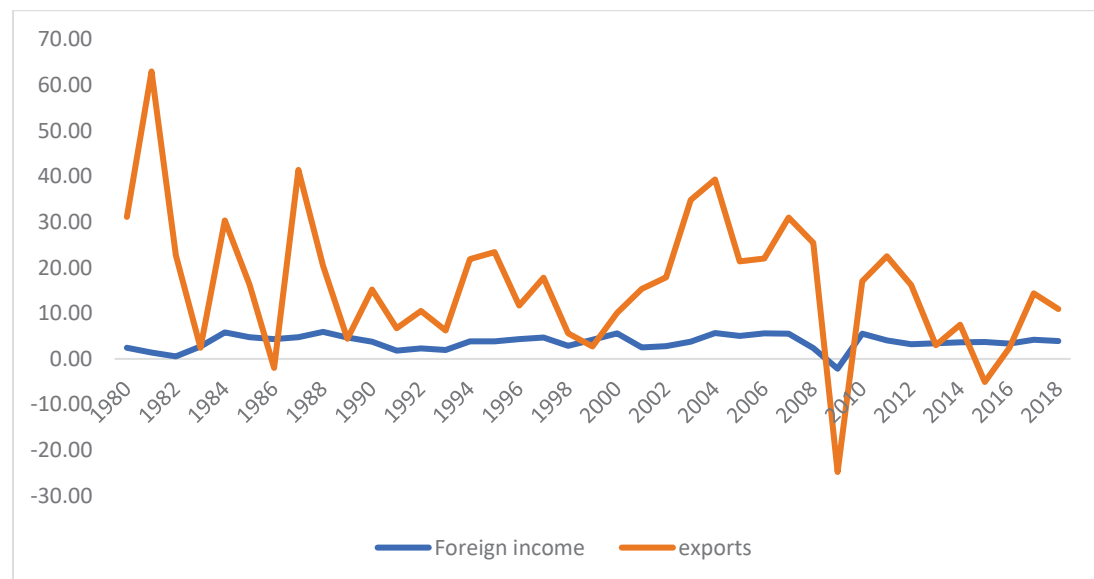


Figure 1. portrayed the trend of foreign income growth rate and Turkey exports growth rate over 1980-2018, foreign income growth rate trend is constant over period with some deviation in 2009 due to global financial crises, however exports growth rate trend not parallel foreign income, up and downward trend in exports movement means that Turkey exports not depend on external income.

Strong version of Thirlwall's law

strong version of Thirlwall's law (1979) state that long run growth depends only on external growth multiplies by the ratio of export to import income elasticities, Perraton

(2003) has called equation $(Y_t^* = (\frac{\varepsilon}{\pi})Z)$ the “strong” version of Thirlwall’s Law because the elasticity of exports and imports included in this model, the model is best tested, therefore, using the “strong” version if robust estimates can be made of ε .

To test the Thirlwall’s law strong version, firstly we want to estimate export function to know the elasticity of demand income of exports.

$$EX = F(GDP_f, RER)$$

$$EX_{LR} = \alpha + \pi GDP_f + \rho RER + \omega_t$$

$$\Delta EX_{LR} = \alpha + \sum_{i=1}^{m1} \sigma EX_{LR-i} + \sum_{i=0}^{m2} \pi \Delta GDP_{f,t-i} + \sum_{i=0}^{m3} \rho \Delta RER_{t-i} + \delta_1 EX_{LR-1} + \delta_2 GDP_{f,t-i} + \delta_3 RER_{t-1} + v_t \quad (12)$$

Table 3. Long run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(RER)	0.963940	0.268829	3.585702	0.0011
LOG(GDPF)	1.668559	0.079632	20.95337	0.0000
C	-15.76162	1.089139	-14.47164	0.0000

$$EC = LOG(TOTEX) - (0.9639*LOG(RER) + 1.6686*LOG(GDPF) - 15.7616)$$

Estimation long runs results indicate that the impact of foreign income elasticity is statistically significant on exports, this mean if foreign income increased by (1) unit, this will lead to increase in exports by 1.66. Moreover, price elasticity is significant, (Turkey export Price-driven Growth).

Table 4. Thirlwall’s law strong version results

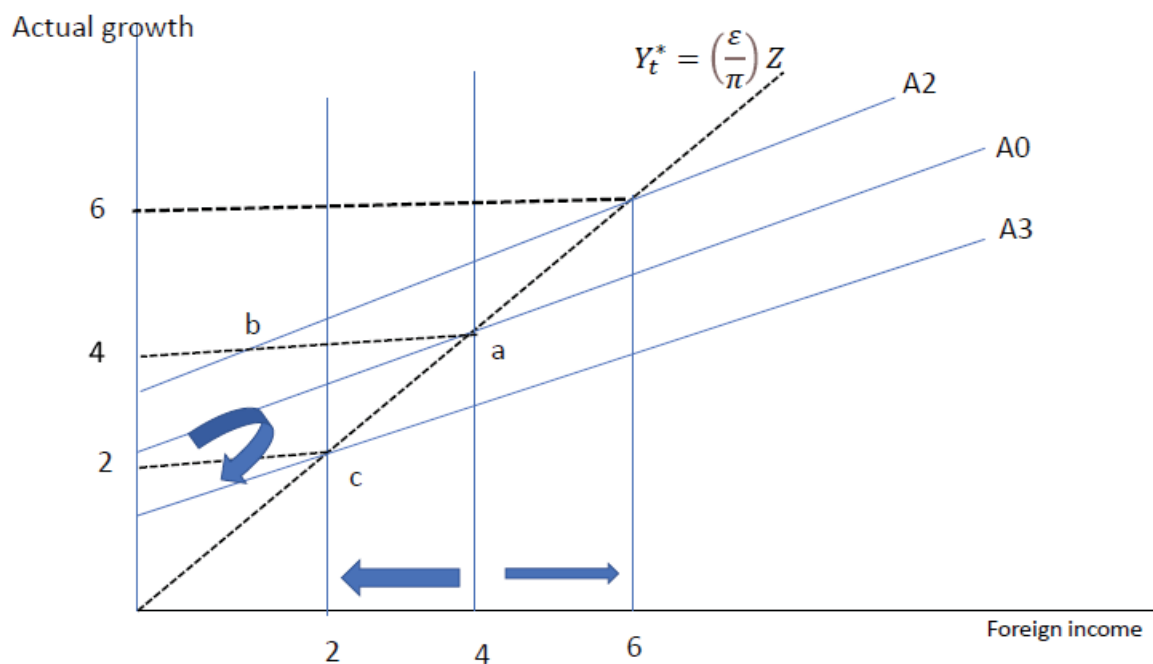
Period	Actual growth rate U	$L \oplus A < \frac{L}{L}$	Yt*-yt
1981-1990	5.27	5.18	-0.09
1982-1991	4.86	5.36	0.5
1983-1992	5.01	5.42	0.41
1984-1993	5.27	5.65	0.38
1985-1994	4.14	5.55	1.41
1986-1995	4.50	5.28	0.78
1987-1996	4.54	5.16	0.62
1988-1997	4.35	5.16	0.81
1989-1998	4.35	5.15	0.8
1990-1999	3.98	4.86	0.88
1991-2000	3.71	4.66	0.95
1992-2001	3.05	4.92	1.87
1993-2002	3.19	5.01	1.82
1994-2003	2.98	5.08	2.1
1995-2004	4.41	5.34	0.93
1996-2005	3.62	5.59	1.97
1997-2006	4.50	5.75	1.25
1998-2007	4.24	5.92	1.68
1999-2008	4.10	6.04	1.94
2000-2009	3.97	5.97	2
2001-2010	4.15	5.09	0.94
2002-2011	5.86	5.08	-0.78
2003-2012	5.69	5.29	-0.4

2004-2013	5.98	5.35	-0.63
2005-2014	5.54	5.29	-0.25
2006-2015	5.24	5.01	-0.23
2007-2016	4.85	4.83	-0.02
2008-2017	5.09	4.51	-0.58
2009-2018	5.29	4.33	-0.96

Elasticity of export demand=1.66 / elasticity of demand for imports=1.2 , Z= world growth rate

The growth rate obtained from Thirlwall's law (Y_t^*) , given by $Y_t^* = \left(\frac{\varepsilon}{\pi}\right) Z$ is 5.24 which overestimate the actual growth achieved in Turkey over the period study (4.542) . this result must be consistent with existence of a trade deficit or at least with a trade balance in Turkey. To more understanding the results, share of imports on income over study period (0.244), share of exports on income over study period (0.131), the ratio of the two shares ($\frac{S_x}{S_m} = 0.537$) this equal half for whole period. Thus, any country demanding to grow above this rate in the long run should be able to improve income elasticities, the main conclusion from this comparison is that Thirlwall's law over-predicts actual growth in Turkey, revealing that the although predicted value exceeds actual growth not mean that country has t the potential to grow faster than it actual growth.

Figure 2 Thirlwall's law (1979) mechanism



Depending on Thirlwall's law growth any country over time cant exceed the balance of payment growth constrained, three determinants of growth exports, imports elasticities, and foreign income, in figure 5.4 , assuming the initial equilibrium at 4% foreign and actual growth, in A0 the world consumption, if global economy from corona virus recession the consumption will shift to A2, export demand well be increased Automatically and the growth increased toward new equilibrium at 6%, in other hand

if global growth shrink, domestic growth also back toward down equilibrium at 2%. The main point in Thirlwall's law growth any country depends on the export share in global exports, this will create many obstacles in Development process in developing countries.

Table 5. economic growth Scenario's

TL weak version	9.7	9.7/ 4.54	2.13	Exporting without growing
TL Strong version	5.24	5.24 /4.54	1.15	Domestic growing based on global growth
Actual growth	4.542			

Based on above comparisons Turkish economy growing in internal and external imbalances, this main that Turkish economy growth is similar to Portugal economy which Soukiazis et al. (2012), while Soukiazis et al. (2017) confirm that Greece economy grew faster than the rate consistent with internal and external balances. However, while imbalance version results show that predictive growth value higher than actual growth and Thirlwall's Law strong versions this indicate that the internal imbalances are higher than external. Our result in line with what Önis (2006) confirm that, crises led growth and growth widen crises.

Conclusion

This chapter discuss trade liberalization and trade balance and growth, Turkey trade balance through (1980-2018) shows that the Turkish trade balance was accompanying with continuous deficit and that this deficit was increased collaborated with low economic growth, the possibility of improvement in the Turkish trade balance is not impossible, but it requires to diagnosis the causes behind deficit clearly and running economic policy based on cooperation between fiscal and monetary policies.

After testing Thirlwall's law versions (weak, strong, imbalance) show that the weak version exactly portrayed the unreal Turkish case exporting without growing, Turkey has growth in exports but lacking real growth, strong version described the real case that Turkey predicted economic growth can't exceeds the actual growth with small difference, last version show that predicted growth may exceeds the actual growth , based on these results the main determinant of Turkey trade – balance payments growth is global growth .

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