5 Main Results

As seen in Klemperer (1987 b) model, price in the first period varies negatively with switching costs, this when expectation of consumers are myopic In case that the expectation are rationales the effect is ambiguous. That, because the consumers anticipates that firms that charges lower prices initially are those that will charge the higher prices afterwards and it demands becomes more inelastic to the reduction of prices in this period.. Therefore, the prices of this period tends to raise when occurs a reduction of the switching cost, this, because the companies would only be competing for market share more aggressively because consumers will have inelastic demands in the second period. The reduction of this cost makes the demand of those consumers lesser inelastic in the second period and, consequently, reduces the incentive that existed for the achievement of market share. The observed behavior is the price increase if the number portability occurs in this context. The effect observed in the second period is the competition increase with the advent of portability.

The estimates below control for time fixed effect and country fixed effect that helps to eliminate some types of bias. Specifically eliminates the bias of variables which are fixed in time or specific characteristics of countries that do not alter and would be correlated somehow with the dependent variable and the number portability. Another characteristic of the below regression is that they are being weighted by the firm's market share. This appears to be the most reasonable to do, since when it is weighted a firm that dominates the market at the same way that a firm that almost do not have representation, it is not being captured the effect in market as a whole that is precisely what is wanted. It is also important to note that the standard deviations are estimated utilizing country cluster.

Moreover, given that the penetration variable is the number of lines divided by the size of the population, it is expected that the greater the

penetration, the closest one is to the second period. Being the opposite the representative of being at the first period. The variable hh represents the Herfindahl-Hirschman index that would be an indicative of market concentration. The table below shows, therefore, that the greater the penetration, the higher the negative effect in firm's profit would be when it is interacted with the number portability. Being that the effect of portability is positive when the penetration is low. It is observed, thus the same effect from the theoretical model. If the firms are in the first period, the effect of number portability is to cool down the competition, raising, thus, the profit of the firms. In case that they are in the second period, the profit effect of the firms captured by the variable ebitda would be negative and it is precisely what is observed.

Table 5	(1) EBITDA%	(2) ln(ARPU)	(3) ln(Cost per user)
penetration	0.026	-0.865***	-0.907***
	(0.46)	0.00	0.00
portability	0.082**	0.022	-0.13
	(0.02)	(0.86)	(0.26)
portability_penet	-0.090**	-0.038	0.129
	(0.04)	(0.81)	(0.38)
hh	0.219**	-0.421**	-0.739***
	(0.01)	(0.04)	(0.00)
Constant	0.259***	4.266***	3.946***
	0.00	0.00	0.00
Country fixed effect	yes	yes	yes
Time fixed effect	yes	yes	yes
Observations	1444	1444	1444
R-squared	0.517	0.946	0.935
Robust p-values in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%			

However, this model can present endogeneity. The adoption of the number portability law can, for example, be more common in countries that care more about the competition or even the contrary. This fact could alter the results significantly. If the countries that adopt the portability are the ones who care about competition, the competition effect obtained with the portability variable may be being over-estimated. However, despite of not showing exogeneity of adoption of the portability number law, the duration models estimated below, both by cox models and parametric model, suggest that, at least through the variables

contained in the database, cannot explain the occurrence of adoption of the number portability. None coefficient is significant at the estimates below.

Table 6	(1) modelo de cox	(2) modelo paramétrico (distribuição Weibull)
hh	0.492	0.488
	(0.962)	(0.963)
penetration	0.449	0.447
	(0.913)	(0.914)
n_firms	0.004	0.004
	(0.979)	(0.978)
n_players	0.004	0.004
	(0.997)	(0.997)
ebitda	0.143	0.143
	(0.955)	(0.955)
arpu	-0.007	-0.007
	(0.941)	(0.941)
cpu	0.009	0.009
	(0.939)	(0.939)
rpm	0.001	0.001
	(0.985)	(0.985)
mou	0.000	0.000
	(0.963)	(0.963)
capexu	0.000	0.000
	(0.969)	(0.969)
churn	0.353	0.360
	(0.984)	(0.983)
subs	-0.000	-0.000
	(0.900)	(0.900)
hh_n_1	-0.641	-0.644
	(0.952)	(0.952)
penetration_n_1	-0.530	-0.528
	(0.901)	(0.901)
n_firms_n_1	-0.004	-0.004
	(0.979)	(0.979)
n_players_n_1	-0.018	-0.018
	(0.985)	(0.985)

ebitda_n_1	0.094	0.093
	(0.972)	(0.972)
arpu_n_1	-0.008	-0.008
	(0.934)	(0.934)
cpu_n_1	0.012	0.011
	(0.926)	(0.926)
rpm_n_1	0.003	0.003
	(0.974)	(0.974)
mou_n_1	-0.000	-0.000
	(0.961)	(0.961)
capexu_n_1	0.000	0.000
	(0.969)	(0.969)
churn_n_1	-0.844	-0.838
	(0.962)	(0.963)
subs_n_1	0.000	0.000
	(0.899)	(0.899)
Constant		-568,869.961***
		(0.000)
Observations	558	558

Absolute value of z-statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Another problem that can come from the estimation above would be, for instance, the occurrence of a high ebitda would, simply, result in a low ebitda in the next periods. This, because, the profitability in market could attract new firms or other control measures of the competition, variables which would not be being captured in the above estimation. To control this kind of bias it is inserted in the model the three first variable dependent lags. It is observed in this case that the main result is maintained. The effect of portability differing the same way with the penetration size.

Table 7	(1) EBITDA %	(2) ln(ARPU)	(3) ln(Cpu)	(4) ln(Rpm)	(5) ln(Mou)
penetration	0.025	-0.023	-0.082	-0.030	0.048
	(0.378)	(0.718)	(0.369)	(0.527)	(0.448)
hh	0.068**	0.010	-0.084	-0.047	0.033
	(0.035)	(0.860)	(0.328)	(0.525)	(0.523)
port_tri	0.027*	0.069*	0.036	0.088**	-0.005
	(0.057)	(0.090)	(0.472)	(0.043)	(0.852)
port_tri_penet	-0.031*	-0.092**	-0.056	-0.113**	0.002
	(0.073)	(0.042)	(0.307)	(0.035)	(0.936)
ebitda_n_1	0.510***				
	(0.000)				
ebitda_n_2	0.228***				
	(0.000)				
ebitda_n_3	0.101**				
	(0.013)				
larpu_n_1		0.868***			
		(0.000)			
larpu_n_2		-0.112			
		(0.159)			
larpu_n_3		0.154***			
		(0.002)			
lcpu_n_1			0.639***		
			(0.000)		
lcpu_n_2			0.174***		
			(0.001)		
lcpu_n_3			0.066		

			(0.117)		
lrpm_n_1				0.794***	
				(0.000)	
lrpm_n_2				0.032	
				(0.457)	
lrpm_n_3				0.068*	
				(0.067)	
lmou_n_1					0.891***
					(0.000)
lmou_n_2					-0.119
					(0.129)
lmou_n_3					0.159
					(0.110)
Country fixed effect	yes	yes	yes	yes	yes
Time fixed effect	yes	yes	yes	yes	yes
Constant	0.023	0.348***	0.456***	-0.120**	0.265**
	(0.474)	(0.005)	(0.002)	(0.036)	(0.023)
Observations	1391	1373	1373	1367	1387
R-squared	0.864	0.989	0.983	0.996	0.991

Robust p-values in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Logically, this kind of estimative can present the problem of autocorrelation. However, estimating the regression of the residual above in its lag's for the case of the dependent ebitda variable, it is observed a non-significant coefficient. Suggesting that the problem of serial autocorrelation is not so relevant for the case.

Table 8	Cor. Res. Ebitda
res1_n_1	0.031
	(0.442)
Constant	-0.002*
	(0.066)
Observations	1315
R-squared	0.001
Robust p values in parentheses	
* significant at 10%; ** significant at 5%; *** significant at 1%	

Could be estimated the model in a dynamic panel, yet the number of necessary quarters for a good estimation of this kind would be greater than the contained in the sample.