Changing winds in the Hungarian pharmaceutical market
Analysis of the changes in the regulatory framework

Ferenc Pető
Juan Felipe Quintero Villa
Borbála Szathmáry

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Executive summary

The report examines the effects of deregulation on the Hungarian pharmacy market. Taking into account the recent economic literature on the topic and experiences from other countries we evaluate the effects of the reform on entry, efficiency and location and propose recommendations to amend it. This issue is even more important in light of the recent steps to move back to the regulated system in Hungary.

The theory and some empirical evidence suggest that social welfare can be increased by relaxing entry restrictions which are widespread in European countries. The number of pharmacies in the market would grow substantially with weaker restrictions and the number of municipalities without pharmacies would decrease. Also, with more entry, firms would compete more in quality and the provision of services.

The Spanish and British experiences confirm the predictions of the theory regarding entry. Both in the liberalized region of Navarre and in England the number of pharmacies increased significantly. On the other hand, regarding location the experiences are not clear. In Navarre the dispersion increased lowering transportation costs for consumers, but in England clustering was observed.

The evidence in Hungary is also in line with theoretical predictions and the experiences from other countries with respect to entry: the number of pharmacies increased substantially already in the first year after the reform. In Hungary there is also evidence of increased competition and the Darwinian effect of competition. But then, in terms of location there was some negative effect in the rural areas of Hungary. Also, we can detect some side-effects of the reforms in the form of vertical agreements between wholesalers and pharmacies, which bring further benefits to consumers.

Given our findings, the new regulatory wave adopted in Hungary in 2010 with strict entry limitations is not the most desirable policy alternative. The Hungarian Government might be able to improve welfare and guarantee a sound medicine distribution network by implementing a regulatory framework based on quality and coverage exemptions.
1 Introduction

The aim of this paper is to examine the impact of the 2007 reform in the pharmaceutical sector in Hungary. The topic of the liberalization of the sector in question is still very debated in Hungary and is part of the everyday political discussions. Even though the new regulatory regime is fairly young the new government of 2010 have already made steps backwards and imposed more regulation in the sector. These debates show the need for in-depth economic analysis to evaluate the success of the reforms and to give basis for further decisions.

In our paper we will focus primarily on the structural changes in the market due to the reform and to some extent on the impact of the measures on consumer welfare (in particular, we examine the change in transportation cost of consumers by addressing the question of the location of pharmacies). Given that four years have passed since the changes of the legal framework in 2007, we have some room to evaluate whether the goals of the reform were likely to be met. Moreover, we will also examine some effects that were not anticipated when setting the goals of the reform process, namely the vertical agreements between wholesalers and pharmacies. To get a broader picture we will put the Hungarian example in an international context and will carry out a cross-country comparison between Hungary, Spain and the United Kingdom.

2 The Hungarian pharmaceutical market

In the following section we will give a brief overview of the changes in the regulatory framework regarding pharmacies in Hungary. First we summarize the regulation in place before 2007 and its effects on competition. Than we describe the policy objectives stated by the government related to the liberalization process. Although the scope of the reform was much broader than the focus of our study, we briefly mention all goals to place our analysis in context. Having done this we present the measures used to achieve these goals.

2.1 The former regulatory framework

The former framework was based on the regulation from 1994 which defined the rules to establish pharmacies and delegated the activities of operating pharmacies solely to pharmacists (i.e. only pharmacists could own pharmacies), which was in line with the common practice in the majority of the countries in Europe. The number of pharmacies was restricted according to demographic and geographic measures (maximum 1 pharmacy per 5000 inhabitants, minimum
250-300 meters distance between pharmacies), drugs could only be sold in pharmacies on *de facto* regulated prices, with regulated margins.

This regulatory framework had several possible detrimental effects. In fact, the market got satiated already one year after the 1994 regulation, so the only possible way to enter was to buy existing pharmacies. This resulted in a rigid market structure where no significant changes took place. Particularly, only 25 new pharmacies opened in the period 1995-2001, meanwhile the number of pharmacists was growing. Moreover, competition was ‘frozen’ in the sense that the wholesale and retail margins were regulated, so *de facto* prices were regulated. Furthermore, the range of products that could be sold was limited. This meant that other dimensions of competition were also restricted.

2.2 **Economic goals of the reform**

The government of Hungary realized that there were significant potential gains that could be achieved via deregulation. In line with political determination a new law was passed in 2006 deregulating the sector from the beginning of 2007. The scope of reforms was larger than the focus of our report. In particular, it had a number of policy goals (GKI, 2010):

a) Guarantee the supply (continuity and variety) for the public
b) Provide incentives for the enterprises to adapt flexibly to consumer needs, especially with better services
c) Rely more on market conform measures to minimize costs
d) Provide incentives for pharmacies to put effort in prevention, promotion of generics, providing information for consumers
e) Ensure appropriate level of revenues for the sector
f) Harmonise the legal framework with EU but provide enough time for the actors to adapt.

Our report focuses on goals b) and c) which can be translated into more competition in quality and fostering productive efficiency among pharmacies, respectively. To achieve these goals the Hungarian government introduced the following measures (GKI, 2010).

a) Keeping licence system for pharmacies but deceasing some restrictions
b) Gradually diminishing the restrictions on establishing pharmacies taking into account possible negative effects on competition mainly due to mergers and acquisitions
c) Abolition of all restrictions regarding ownership (previously only pharmacists could own pharmacies)
d) New financial framework to provide incentives for additional services  

e) Abolishing restrictions on the scope of products that can be sold in pharmacies  

f) Regarding OTC drugs gradually easing restrictions on distribution (e.g. home delivery, internet)  

g) Gradually remove any price regulation on OTC drugs  

In summary the measures are intended to promote (non-price) competition and entry in the market. In particular, the geographic and demographic restrictions still held but exceptions were introduced. New licences were granted regardless of these restrictions if some extra conditions were satisfied regarding the quality of the service: a new pharmacy could be opened if for at least 3 years it is open

- 24 hours a day or
- at least 60 hours per week or
- at least 40 hours per week with standby
- and in the two latter cases it provides home delivery services within 2 kilometres for patients confined to bed or makes it possible for patients to order products on the internet

It is worth noting that these conditions in themselves aimed to promote non-price competition among pharmacies.

2.3 New winds in 2010

Although, only a couple of years had passed since the implementation of the reform, in 2010 new, substantial changes took place. The new government of Hungary (elected in April 2010) among its first measures adopted a law which came into effect in August 2010 declaring a temporary moratorium on opening new pharmacies and on mergers in the sector. The purpose of the moratorium was to leave time for the government to work out the details of its new legislation concerning the pharmacy sector. It was argued by the new government that the deregulation worsened the quality of the service and the availability in rural areas, so stronger regulation was necessary to maintain availability.

Indeed, in the end of 2010 the new legislation was adopted and became effective from the beginning of 2011. It restores most of the restrictions in place before 2007. In particular, it restricts the opening of new pharmacies and the majority of the ownership right of a pharmacy has to belong to pharmacists. Ownership of pharmacies currently owned by others have to be transferred to pharmacists until 1st January 2017, otherwise they have to be closed with
dissolution. Moreover, now it is forbidden to give discounts or gifts to consumers (Amended Act XCVIII of 2006).

It is also worth noting that as part of another law the government restored the compulsory membership in the association of pharmacists (News article, 2011).

Before we analyse the impact of the deregulation and compare the Hungarian situation to other examples, we are giving a brief overview of the recent empirical literature regarding the questions we are focusing on.

3 Theoretical background

As we have mentioned before, it is a common practice in many European countries that entry regulations restrict the number of pharmacies in a given geographic area. The thorough report of the ÖBIG commissioned by the DG Competition (ÖBIG, 2006) showed that 17 out of 25 Member States operated entry restrictions in 2006. Since then, some countries such as Hungary have relaxed or attempted to relax these restrictions to some extent while in other countries they are still very stringent but in any case, the impact of these kinds of measures has been examined to a large extent both in empirical studies and policy evaluation reports. In the following section, we will give a brief overview of some interesting recent empirical studies dealing with the impact of the entry restrictions on the number of pharmacies and the location decisions of pharmacies. Although, the policy evaluation reports (on the UK and Hungarian market) we used in our paper address not only the changes in the supply side such as the number of pharmacies and their location but also some direct measures on consumer welfare (e.g. provision of extra services), in our paper we will focus on the changes in market structure, therefore our overview on the literature is related to this question, too. Summarizing the results of the empirical studies we will have the opportunity to see whether the trends in the countries we are examining are in line with the findings of these papers and if not, we can address the possible reasons for the differences. Also, these papers help us highlight some of the special characteristics of the pharmaceutical market (e.g. the nature of competition) which will be useful for our analysis later.

The empirical study of Schaumans and Verboven (2007) gives us good indication about what one can expect regarding the number of pharmacies after relaxing entry restrictions. The study in question focuses on the Belgian market but because of the similarities in the regulatory system across countries in Europe it might help us to understand the effect of regulation and the liberalization on the entry decision of firms. In Belgium, just like in many other European countries, the number of pharmacies was restricted on a geographic basis using a population
criterion implying that for being able to operate on the market, the pharmacists typically needed to buy up existing establishments. On top of it, the pharmacies were guaranteed a fairly high mark-up. These measures were to ensure minimum availability of supply in the less profitable regions without leading to excessive entry elsewhere. The authors argued that this system had substantially limited the number of firms and protected private interests rather than public interest.

Regarding the nature of competition between pharmacies, the authors state that the relevant geographic market can be defined at a town level which is in line with the previous literature. The patients’ choices are largely guided by local information and the majority of consumers do not travel much to visit a pharmacy. In case of most products sold in pharmacies we cannot talk about price competition because of regulated prices but there are other dimensions in which firms can compete such as the availability (opening hours), quality of service and advice and the supply of general care products.

Schaumans and Verboven base their model on the entry model of Bresnahan and Reiss (1990, 1991) who aim to infer competition from the relationship between the number of firms in the market and the size of the market. They extend the model considering restricted entry in line with the Belgian situation, so they estimate a censored ordered probit model. The authors examine the possible impact of removing both the entry restrictions and reducing the regulated mark-ups (by 50%). The predictions of the model show that the entry restrictions directly reduced the number of pharmacies by more than 50%. Also, they show that the elimination of the entry restrictions would significantly decrease the number of towns without pharmacies.

The impact of entry restrictions have been discussed widely in Spain, as well, which is also indicated by the large number of recent papers on the topic.

Borrell and Fernandez-Villadangos (2009) estimate a structural model using data from regulated and deregulated markets. Specifically, they compare the case of Navarre which underwent a policy change from restricted entry to free entry in 2000 with other regions where restrictions apply (Euskadi and Andalusia). The main finding of the paper is that restrictions reduce entry substantially (more detailed results will be presented in the section on the Spanish situation). The estimated entry thresholds are also interesting to look at: the market threshold to support any given number of pharmacies increases more than proportionally which suggests that pharmacies use costly non-price instruments (e.g. quality of the service) in response to additional entry. Another finding is that the changes in regulation decrease the number of municipalities without pharmacies significantly.
Borrell and Fernandez-Villadangos (2009b) focus on the entry location of pharmacies and discuss the issue of clustering versus scattering. Based on Spanish data, the conclusion of the paper is that in general pharmacy locations scatter and that there is no rationale for distance regulation apart from the private interest of incumbents.

The paper gives a good overview of what specific features of the pharmaceutical sector should be taken into account when one is carrying out market studies or empirical analysis and how the location theories should be adjusted.

As pharmacies compete only in location and non-price variables (quality), the authors discuss that according to one-dimensional location games one may find clustering à la Hotelling, or locational differentiation à la d’Aspremont et al. (1979). Additionally, according to Neven and Thisse (1990) one should find spatial clustering when the range of quality options is larger than the range of location choices. Alternatively, we should find locational scattering when the range of locational choices is larger than the range of quality options.

The authors examine the case of Navarre where the distance regulation was partially relaxed (from 250 meters to 150 meters), which case can be considered as a natural experiment as it was unexpected and undesired. Their analysis is based on the model by Netz and Taylor (2002) in which spatial differentiation is a function of the degree of competition and a set of control variables related to demand conditions and entry costs. Their main finding is that pharmacies do not cluster, except in the case of the first or second pharmacies in municipalities with a health centre. From this the authors conclude that only incumbent pharmacies located near health centres benefit from distance regulations.

The paper states that the findings are consistent with the predictions of d’Aspremont et al. (1979) who conclude that the principle of maximum differentiation holds for the location strategies of firms.

Borrell and Cassó (2011) examine the impact of geographic entry regulations on social welfare taking the Spanish situation as an example. They focus on two types of restrictions: zoning that sets a quota on the maximum number of firms in geographical zones and minimum distances between the locations of firms. This latter measure is relevant for the Hungarian market, too. In their model they consider a geographical space with a set of locations for firms to enter with certain demographic characteristics (e.g. number of inhabitants, mean income, percentage of old population, etc.).

The utility of consumers located at a given point for going to a given firm depends on some consumer attributes, the distance between the location of the consumer and the firm and on
unobservable preference shocks. The model also takes into account that the market share of a firm depends on the entry decisions of other firms and is decreasing with the number of competitors. The authors stress that although firms try to enter in locations where competition is weaker (where there are less competitors close by), other important demand drivers can also promote entry and result in clusters around certain areas. The strategic interaction between physicians and pharmacies is also taken into account, so the distance of the consumer from the nearest health centre is also introduced in the consumer utility. The authors find high entry probability in some clustered regions without taking into account the regulatory constraints on location. The results also suggest that the entry decision of pharmacies will be affected by the location of the health centres as consumers have disutility from visiting a pharmacy further from these facilities.

Borrell and Cassó focus on the case of Pamplona where their model predicted the entry of 76 pharmacies while in reality 86 pharmacies entered (this difference may be due the elimination of other restrictions that were not taken into account in the model). The authors conclude the deregulation of location constraints was Pareto-efficient because of the market expansion which results in an increase in consumer utility of having a pharmacy closer to the consumers which outweighs the business stealing effect of entry in this case. As long as the marginal utility of the entry of a new firm is higher than the fixed cost of entry, the entry is desirable from the society’s point of view.

The papers mentioned above give us some interesting points that we should keep in mind when we discuss and evaluate the impact of the deregulation process in Hungary and the benchmark countries. First of all, the studies suggest that social welfare can be increased by relaxing entry restrictions. The number of pharmacies in the market would grow substantially with weaker restrictions and the number of municipalities without pharmacies would decrease. Also, with more entry, firms would compete more in quality and the provision of services. Regarding the location of entry, Borrell and Fernandez-Villadangos (2009b) discuss that entry is scattered, however, near health centres we might expect some clustering in the absence of distance regulation.

4 Country experiences

The papers analyzed in the previous section show that the elimination (or relaxation) of entry restrictions might be welfare increasing due to lower transportation costs and strengthened competition that would increase the quality of the service.
The changes in the regulatory framework in Spain and the United Kingdom provide useful evidence on the effects of softer entry regulations on the number of pharmacies and their location. Effectively, these experiences might be good benchmarks in order to understand the potential effects of a deregulation process on the Hungarian market.

4.1 The experience of Spain

The analysis of the experience of Spain will include the following sections: i) brief description of the regulatory framework, ii) effects on entry, and iii) effects on the location of pharmacies.¹

4.1.1 The regulatory framework

The regulation concerning the operation of pharmacies in Spain is decentralized at the state-level (Comunidades Autonómicas). Effectively, every state is allowed to approve and adopt its own regulatory framework on this economic sector. If a given State decides not to approve a specific regulation, it should abide to National Law 16/1997 which has a subsidiary nature². The geographic and demographic regulations that limit the entry of pharmacies included in the National Law 16/1997 are the following:

- At most one pharmacy in any given basic health area of 2,800-4,000 inhabitants³.
- Once the population threshold is met, the entry of an additional pharmacy needs a minimum of 2,000 extra inhabitants in a given basic health area.
- The minimum distance between pharmacies is 250 meters.

Navarre, Andalusia, and Euskadi have departed from the Country-wide regulation by approving specific state-level regulations on pharmacies’ operations. The main geographic and demographic regulations adopted by these states are:

- Navarre:
  - Sets minimum (instead of maximum) number of pharmacies per basic health area: at least one pharmacy per 2,800 inhabitants.
  - If all basic health areas are covered, free entry is allowed until the state reaches a ratio of 700 inhabitants per pharmacy.

¹ This section is based on Padros, Borrell, & Fernandez-Villadangos (2008).
² The States are only bound to apply the regulatory framework set forth in Law 16/1997 if they have not approved an specific State-Level law that defines the regulatory framework regarding the operation of pharmacies in their territory.
³ A basic health area can be part of a municipality, a municipality, or a group of municipalities in which there must be a primary health facility. The basic health areas might have different populations.
Minimum distance of 150 meters between pharmacies.

- **Andalusia:**
  - No restrictions on entry for the first pharmacy in a given basic health area.
  - Entry of additional pharmacies according to National Law (a minimum of 2,000 inhabitants to justify the entry of a new pharmacy).
  - Minimum distance of 250 meters between pharmacies (National Law standard).

- **Euskadi:**
  - At most one pharmacy in any given basic health area of 2,500-3,200 inhabitants.
  - Once the population threshold is met, the entry of an additional pharmacy needs a minimum of 2,500 extra inhabitants in a given basic health area.
  - No pharmacy is allowed in municipalities with less than 800 inhabitants.

As can be seen, Navarre chose a more liberalized legal framework by regulating the minimum number of pharmacies per basic health area, and diminishing the minimum distance between pharmacies. On the contrary, Euskadi’s legal framework is more restrictive since more inhabitants are needed to trigger entry (2,500 instead than 2,000) and the existence of a ban to open pharmacies in municipalities with low population. Andalusia’s regime is mixed since it liberated the entry of the first pharmacy but adopted the National regulation regarding entry of additional pharmacies and the minimum distance.

The Spanish experience provides rich and useful evidence about the outcomes of regulating the entry and location of pharmacies. Effectively, the co-existence of several regulatory frameworks within one country and the fact that Navarre liberalized this market in 2000 have allowed researchers to assess the effects of liberalization on entry and location as we have seen above.

### 4.1.2 Effects on entry of pharmacies

The number of pharmacies in Navarre increased substantially after entry was liberalized in 2000. According to Padros, Borrell, & Fernandez-Villadangos (2008), the number of pharmacies increased 88% (from 310 to 583) between 2000 and 2008 in the smaller and less dense municipalities of Navarre (which account for the 51% of the total number of pharmacies in the State). Additionally, the market structure in Navarre changed substantially: before the liberalization process, 49% of these municipalities did not have any pharmacy, 48% had one pharmacy, and 3% had two pharmacies. After the liberalization, 47% of the municipalities did not have any pharmacy, 31% had one pharmacy, 10% had two pharmacies, and 12% had at least 3 pharmacies. As can be seen, the liberalization process lead to more entry, especially in municipalities that had only one pharmacy in 2000.
The effects of a liberalized regime in Andalusia and Euskadi can only be calculated using a counterfactual approach given that these States still have a regulated regime. Borrell & Fernandez-Villadangos (2009) estimate how entry would change if these states adopted Navarre’s liberalized regime. These authors find that a more liberalized approach would increase the number of pharmacies by 57% (to 327 from 210) in Euskadi and by 241% (to 3305 from 969) in Andalusia. It is also important to note that under a liberalized regime, the number of municipalities without pharmacies would decrease by 26% (from 76 to 56) in Euskadi and by 50% in Andalusia (from 2 to 1); implying that a more liberalized regime would lead to a higher coverage rate.

4.1.3 Effects on the location of pharmacies

As we have mentioned before, Borrell & Fernandez-Villadangos (2009) analyze how the location of pharmacies changed in Navarre after the liberalization of the market. The authors find that in municipalities with health facility, the first established pharmacies (up to two pharmacies per municipality) tend to locate following a concentrated pattern around the health facility. Nonetheless, later entrants tend to locate more dispersely, thus reducing the median distance to the closest pharmacies substantially (the reduction of distance ranges from -79% in municipalities with 3 pharmacies to -93% in municipalities with 5 pharmacies).

4.2 The experience of the United Kingdom

The analysis of the experience of the UK will include the following sections: i) brief description of the regulatory framework, ii) effects on entry, and iii) effects on the location of pharmacies. 4

4.2.1 The regulatory framework

Before the reform which was introduced in April 2005 the number and location of National Health Service (NHS) contractor pharmacies was based on an assessment whether the entry of a pharmacy was “necessary or desirable” for the adequate provision of pharmaceutical services in the local community. The Office of Fair Trading (OFT) in its 2003 study found that the entry regulations:

- restricted consumer choice in terms of location and opening hours.
- restricted access to lower priced OTC drugs.
- reduced the incentives for pharmacies to compete in services.

4 This section is based on OFT (2003) and OFT (2010).
• had high compliance costs for businesses.
• entailed high administration costs for NHS.
• held back innovation and responsiveness to changing needs.

In this context, the Government decided to implement a new regulatory framework with the following exemptions from the control of entry test for four types of pharmacies:

• Pharmacies undertaking to open for more than 100 hours week.
• Pharmacies in large shopping developments (excluding town center developments).
• Pharmacies within a consortium to establish one-stop primary care centers.
• Wholly internet/mail order based pharmacies

The fact that the new regulation was adopted in England but was not introduced in Wales provides a useful counterfactual to analyze the effects of the reform which are assessed by the OFT in its study of 2010. The impact of the reform on entry and the location of the new pharmacies are described below.

4.2.2 Effects on entry of pharmacies

The number of pharmacies in England increased 8.8% between 2005 and 2009 after having remained stable between 1998 and 2004. On the other hand, the number of pharmacies in Wales (where the reform was not introduced) remained constant during the period of analysis.

It is important to notice that 61% of the new entrants are under the 100 hour per week exception whereas 7.6% of new entrants are under the wholly internet/mail order based pharmacies.

It is also worth mentioning that there was no significant change in the exit rate, the average rate of pharmacy closure remained the same.

4.2.3 Effects on the location of pharmacies

Before the reform, the location of pharmacies was becoming more dispersed as the 53.9% of entrants located over 1 kilometer away from the nearest operating pharmacy and 60.6% of the closures occurred within 500 meters from the nearest existing pharmacy. After the reform was

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5 The report also assessed the impact of the reform on the regulatory burden for businesses and quantified the change in consumer welfare. The quantified benefits to consumers are 24.7-32.8 million pounds (plus non-quantified benefits) while the costs to businesses and the NHS are estimated add up to 12.5 million pounds, compared to the benchmark (what would be the situation “without reform” situation, i.e. with the 1992 regulation).

6 It is important to notice that the dispersion effect was relatively small given that the annual net increase of pharmacies before the reform was 0.4%.
implemented, this trend was reversed. Effectively, 78% of the new entrants located within 1 kilometer from the nearest operating pharmacy. The clustering is mainly explained by pharmacies under the 100 hour per week exemption.

In conclusion, the reform has facilitated entry in areas that were already served by pharmacies.

5 The effects on retail of deregulation in Hungary

In this section we describe the effects of the deregulation on the Hungarian market. In particular, we focus on entry and location. Finally, to conclude we compare the experiences with Spain and the UK.

5.1.1 Effects on entry of pharmacies

In the first year of the new regime substantial number of new pharmacies was opened increasing the total number of pharmacies by almost 17%. Furthermore, by the end of the regime in 2010 the number of pharmacies was more than 21% larger than before the deregulation. We can also observe decreasing average margins over time, which is due to increased competition in the OTC segment of the market. These findings (based on GKI, 2010) are summarized in the table below.

<table>
<thead>
<tr>
<th>Changes in the Hungarian pharmacy market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of pharmacies</td>
</tr>
<tr>
<td>Change (in %, base: 2006)</td>
</tr>
<tr>
<td>Average margin</td>
</tr>
</tbody>
</table>

5.1.2 Effects on the location of pharmacies

Although, the data available on the Hungarian market are not directly comparable with the data regarding the benchmark countries, it can still draw some conclusions analysing them. The table below shows how entry and exit happened in different categories of municipalities in Hungary (based on GKI, 2010).

7 It has to be noted that there were no changes in the regulated margin in the subsidised segment. Furthermore, the significance of the OTC segment can be illustrated by the fact that it accounts for approximately 45% of the sales.
Entry and exit by size of the municipality 2007-2010

<table>
<thead>
<tr>
<th>Population</th>
<th>Pharmacies opened</th>
<th>Pharmacies closed</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1000</td>
<td>47</td>
<td>69</td>
<td>-22</td>
</tr>
<tr>
<td>1000-5000</td>
<td>71</td>
<td>35</td>
<td>36</td>
</tr>
<tr>
<td>5000-10000</td>
<td>53</td>
<td>4</td>
<td>49</td>
</tr>
<tr>
<td>10000-50000</td>
<td>161</td>
<td>30</td>
<td>131</td>
</tr>
<tr>
<td>50000-100000</td>
<td>67</td>
<td>15</td>
<td>52</td>
</tr>
<tr>
<td>100000-150000</td>
<td>108</td>
<td>23</td>
<td>85</td>
</tr>
<tr>
<td>Total</td>
<td>507</td>
<td>176</td>
<td>331</td>
</tr>
</tbody>
</table>

Although, we do not have data on individual geographic markets, it is worth noting that in all municipalities above 1000 citizens the total number of pharmacies has increased. Nevertheless it is also true that the total number of pharmacies in municipalities below 1000 population has decreased. However, it well can be the case that in some markets the number of pharmacies has increased and in others has decreased, it is important that the overall effect is positive as we have pointed out in section 5.1.1. In any case, the exit of pharmacies in small municipalities is unlikely to be a consequence of the entry liberalization, since in these villages demand is unlikely to be able to support more than one pharmacy, so it is unlikely that these exits can be attributed to the change in competitive conditions.

5.1.3 Further remarks

It is worth pointing out that the table above is not only useful to assess the effects on location but also to check whether the competition affects productive efficiency in this sector. In conjecture with the fact that in 2008 26% of the pharmacies were making losses, we can infer that indeed, the less efficient pharmacies have exited the market and more efficient ones have entered.

Finally, probably, because of the decreased average profitability the pharmacies decreased the size of their inventories, especially in the case of more expensive types of medication.

5.1.4 Comparison of the effects

The following table summarizes the results we found in the countries under examination regarding the changes in the supply side due to the liberalization reform.

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8 The table does not contain information about the capital, Budapest. This explains the discrepancy with respect to the numbers in the previous table.
### Summary of the effects

<table>
<thead>
<tr>
<th>Country</th>
<th>Effects on entry</th>
<th>Effects on location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number of pharmacies</td>
<td>number of municipalities without pharmacy</td>
</tr>
<tr>
<td>Spain (Navarre)</td>
<td>significant increase (+&gt;80%)</td>
<td>slight decrease</td>
</tr>
<tr>
<td>UK</td>
<td>increase (+8.8%)</td>
<td>n.a</td>
</tr>
<tr>
<td>Hungary</td>
<td>increase (+21%)</td>
<td>probable increase but not due to the entry reform</td>
</tr>
</tbody>
</table>

We can witness a net increase in the number of pharmacies in all geographic areas we analysed, however the magnitude of increase differs significantly among countries. The Hungarian increase is substantially larger than in the UK but is less than the one experienced in Navarre. However, we have to mention, that the 80% increase in Navarre realized during eight years compared to the four year period in Hungary.

We do not have data for the number of municipalities without pharmacy in Hungary but we saw that the number of pharmacies in the smallest municipalities decreased so it is very likely that we would find a result contradicting the Spanish finding.

The question of entry location was examined in details in both the UK and Spain as this is a crucial question from the point of view of consumer welfare. To be able to evaluate the impacts of the Hungarian reform, it would be necessary to collect detailed data on how scattered the entry was after the reform.

### 6 Side effects

First of all, we call side effects the unintended consequences of the reform without any prejudice regarding their effects on welfare. Besides the changes described above, another major development can be contemplated in the sector. In particular, non-competition became stronger

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⁹ The term probable refers to the fact that the data available does not allow us to come to more precise conclusions.
(since new pharmacies were obliged to provide additional services) the market players have found ways to efficiently adapt to the new environment by forming vertical agreements.

6.1 Vertical agreements

In order to understand this side-effect of the reform it is necessary to have a quick glance on the upstream market, the wholesale market of pharmaceuticals. Although, there were 97 registered wholesalers in Hungary in June 2008, the market is concentrated with the three big firms, Hungaropharma, Phoenix Pharma and Teva, having 37% 41% and 15% of the market, respectively. The other players are small and typically producers who only deal with the marketing of their own products. So, these players have very limited effect on the market.

The two vertical agreements that exist were initiated by the two major players, Hungaropharma and Phoenix Pharma in 2007, right after the reforms had been implemented. The vertical agreement of Hungaropharma is signed by 490 pharmacies and it accounted for 22% of downstream sales in 2008. On the other hand, the vertical agreement of Phoenix Pharma covered 397 pharmacies in 2008.

We only have the details of the agreement for Hungaropharma in the decision of Hungarian Competition Authority (HCA) who investigated the agreement after a complaint. So, we focus our attention on this one, but we would expect that the details of the other agreement are quite similar to this.

Until the end of 2008 the agreement of Hungaropharma (which is called “strategic alliance” and managed by the council of the members, but de facto organized by Hungaropharma) had the following main points:

- 80% of individual demand had to be bought from Hungaropharma,
- the members engage in common promotional and discounting policy,
- Hungaropharma facilitates the common procurement of some inputs (communications, equipment necessary for additional services),
- common marketing of advertising space,
- individual promotions had to be improved by the council of the members
- recommended prices for common discounted products.

However, in the end of 2008 the HCA found an infringement regarding the last two points which had to be removed from the agreement.
6.2 Assessment of the agreements

In this section we concentrate on the parts of the agreement that are still in place. Before examining the effects we would like to point out that according to the data available it is unlikely that either one of the two big wholesalers who engaged in vertical agreements has a single dominant position. Their market shares are rather symmetric, so in order to prove single dominance one would have to show that decisions of either one of them are not significantly constrained by the other. As a consequence, the prospects of any anti-competitive effects of the agreements are negligible. On the other hand, we can distinguish two types of pro-competitive effects which we examine below.

First, because of the nature of the advertising it is in the interest of the wholesalers to prevent free-riding. The main type of advertising is the investment in brand image by the wholesaler which brand (logo) is presented in the pharmacies which are part of the agreement. Hence, if the brand image attracts additional consumers and pharmacies can sell the other wholesalers’ products as well, it would jeopardize the incentives to invest in the first place. That is, this would lead to free-riding by other wholesalers on the brand image, which would result in underinvestment. So, the restriction on market shares is necessary to promote inter-brand non-price competition between the wholesalers.

Second, the agreement creates economies of scale in procurement of some inputs and in marketing of advertising space in the pharmacies. In other words, the pharmacies jointly can obtain better deals for themselves both vis-a-vis suppliers of inputs and purchasers of advertising space. Taking into account the highly competitive nature of the pharmacy market it is very likely that these better deals are passed on to final consumers in the form of higher quality and/or quantity of the additional services such as measuring weight, blood pressure and blood glucose level.

Based on the above discussion we can firmly conclude that the existence of the vertical agreements besides the consumer benefits discussed above can further increase consumer welfare primarily in non-price dimensions.

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10 Because of the symmetry and the fact that together they have 80% of the market one might argue that they are jointly dominant in the market. However, because the standard of proof for joint dominance is very high and it is not the focus of our study, we leave this question open.
7 Conclusions

The entry of pharmacies remains heavily regulated in the vast majority of European countries. The strong regulatory stance taken by Governments relies on the social importance of having a sound medicine distribution and the serious doubts as to whether a free market approach would increase consumer welfare. Particularly, entry regulations are justified in order to maintain control over local service planning and provision, to guarantee steady access to medicines by the entire population, and to avoid deterioration of quality services.

Although these doubts are reasonable, the effect of free entry on consumer welfare mainly depends on the location of pharmacies and the incentives to invest in improving the quality of the services. Entry might be welfare increasing if pharmacies’ location reduces consumers’ transportation costs (e.g. the median distance to the nearest pharmacy is diminished) and/or pharmacies try to gain market share through non-price strategies such as the improvement of the quality of the service. On the contrary, entry might be welfare decreasing if pharmacies’ location tends to concentrate in one specific area, encourages existing pharmacies to leave small and less dense municipalities unattended, and/or reduce the incentives to invest in quality due to lower profitability. Clearly, the effect on entry on consumer welfare is an empirical matter and it will depend on the intrinsic characteristics of the analyzed markets.

The experiences of Spain, the United Kingdom, and Hungary provide evidence regarding the positive and negative effects from facilitating entry of pharmacies. In these three cases, the number of pharmacies increased substantially after a more liberalized regime was adopted. The greater number of pharmacies increased consumer welfare in the United Kingdom (as measured by the OFT study in its 2010) and significantly reduced the median distance to the nearest pharmacy in the majority of small municipalities in the Spanish state of Navarre. In the Hungarian case, consumers are likely to benefit due to the pro-competitive effects generated by the enhanced inter-brand competition (which is partly due to the vertical agreements in place).

Nonetheless, these experiences also show that the risk of having more unattended areas might be present. Effectively, the case of Navarre highlights that new pharmacies tend to concentrate around the health facility in the smallest municipalities and that a dispersion pattern only materialized in municipalities with larger population and greater number of pharmacies. Similarly, the deregulation in the United Kingdom reversed the dispersion trend the industry had shown before the reform since the new pharmacies tend to locate near to the existing ones. Finally, the 2007 deregulation in Hungary reduced the number of pharmacies in the less populated municipalities but it is most probably not an effect of the change in entry restrictions.
A balance between free entry and a very strict entry regulation would be desirable. This approach might allow Governments to reap the benefits of entry and minimize the risk of having too many unattended areas or municipalities. This approach was adopted in the United Kingdom and Hungary through the introduction of exemptions to the existing geographic and demographic limitations. These exemptions imposed further requirements related to quality of the services to new pharmacies with the objective of reducing the potential negative impact on consumers from a more concentrated location (e.g. longer opening hours, delivery, and internet/mail orders).

In this context, the new regulatory wave adopted in Hungary in 2010 with strict entry limitations is not the most desirable policy alternative. The Hungarian Government might be able to improve welfare and guarantee a sound medicine distribution network by implementing a regulatory framework based on quality and coverage exemptions. Also, if the presence of pharmacies in small municipalities is an important policy goal, the government could reach it by giving direct subsidies to these pharmacies while having less entry limitations.
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