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Visible and Invisible Walls
World trade patterns and the end of the Cold War

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Abstract

This paper revisits the empirical trade literature on East West trade in the early 1990s. Using the estimation technology commonly in use in 1989, I re-estimate a simple gravity model for 48 countries using 1988 data covering 88% of world trade and 92% of world GDP and find significant barriers to trade both in East West trade and against Chinese exports. My estimates that only cover direct trade effects and do not include spill-overs and dynamic effects (for example on long term growth) indicate that these walls together significantly reduced bilateral trade flows. Breaking down those walls according to my calculations increased world trade by 20% or 3.6% of world GDP (this amounts to a good third of the increase in global trade openness since 1990).

Typically the trade impact of walls is especially strong at the regional level. Comparing the regional impact to the global impact (using trade potential in per cent of GDP), I find that the regional impact was 2 to 4 time larger than the global impact (the ratios are: Western Europe 1.8, Asia 2.3 and Eastern Europe 3.8, respectively). In 1989 the Berlin Wall and Iron Curtain exerted a much stronger impact than the 'invisible Chinese wall' (at the global level about 15 times as large). This is even true in the Asian trade with China where low levels of bilateral trade in 1988 are by and large explained by low levels of GDP. This does not mean that this invisible wall was less significant per se, but rather that the regional conditions in this particular case in 1988 were such that trade would be low both with and without walls. An indication of the potential impact of the 'invisible Chinese wall' is that its influence in terms of percentage trade reduction was stronger in developed but far away markets (in particular the Netherlands and the Nordic countries) than in less developed nearby markets (such as Malaysia, Thailand and India). This suggests that the 'invisible Chinese wall' would have started to bite once development in Asia took off.

In order to check the latter hypothesis I perform a thought experiment introducing the visible and invisible walls in a gravity simulation for the world trade system in 2008, based on parameter estimates for 1988. I use 2008 population and GDP data and take account of the break down of a number of former Communist countries, shifts in capital cities in Nigeria and Germany and the German unification. The relative global impact of the regional walls is smaller in the less concentrated context of 2008. Introducing the hypothetical 'invisible Chinese wall', the simulation finds an impact on trade potential of 1% of GDP for an invisible Chinese Wall, which is comparable to the 1.5% that I find for a hypothetical 're-erection' of the Berlin Wall and Iron Curtain.

Keywords

Walls, East West trade, China, globalisation, economic history.

Acronyms

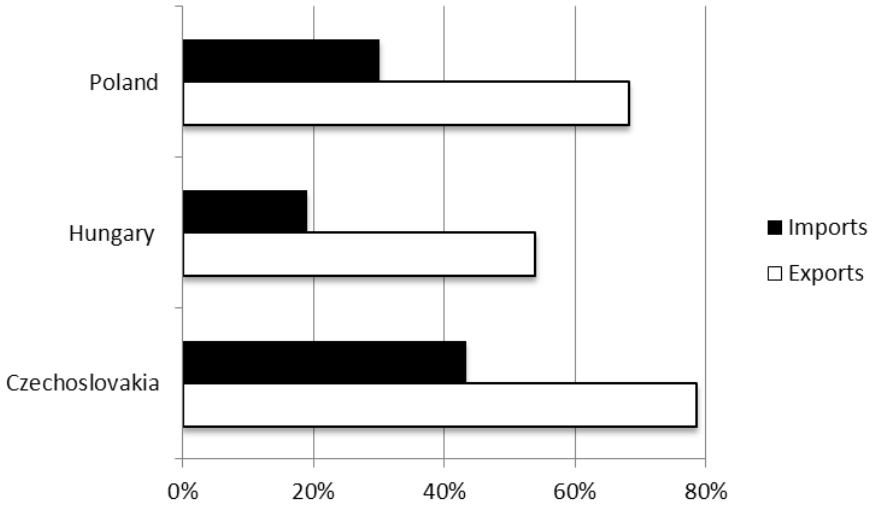
BRD	Federal Republic of Germany (West Germany)
BRIICS	Brazil, Russia, India, Indonesia, China, South Africa
CMEA	Council of Mutual Economic Assistance
COMECON	See CMEA
DDR	German Democratic Republic (East Germany)
GDP	Gross Domestic Product
ICP	International Comparisons Project
OLS	Ordinary Least Squares
PPP	Purchasing Power Parity
USSR	Soviet Union

Visible and invisible walls
World trade patterns and the end of the Cold War

1 Introduction

During the Cold War trade at the European continent was substantially distorted both by the Communist reliance on self-sufficiency, by the difficulties imposed by the East's lack of hard and convertible currency and by the West imposing embargoes on dual use and technologically advanced goods. The fall of the Berlin Wall and the Iron Curtain did not only ensure that people could travel freely, but also removed political barriers to trade that went far beyond the break down of the visible wall between the peoples of East and West Europe. Indeed, during a number of years double-digit growth rates characterized the trade flows from East to West Europe and from West to East (Figure 1; see, for a more detailed picture, Afman and Maurel, 2010).

Figure 1
Average real annual growth of trade with OECD (1990-92)



Source: OECD (1993), Table 25, p. 122

The break up of a number of formerly communist nations (the USSR, Yugoslavia and Czechoslovakia) into many new nations and the unification of the BRD and DDR into the one Germany that we know today complicate the analysis, but in general it is clear that the trade between East and West Europe (and *vice versa*) increased many-fold and did so at a pace that was much faster than foreseen by optimistic observers in 1990. This paper revisits the empirical trade literature on East West trade in the early 1990s in order to find out if

trade economists that, on the one hand, competently dealt with the consequences of political and diplomatic trade barriers that were associated with the very visible Berlin Wall (and Iron Curtain), on the other hand, overlooked the consequences of invisible – and more gradual – reductions of similar barriers to trade, in particular in the external trade relationships of China.

This paper investigates the issue of the impact of walls in a similar framework as the earliest econometric investigation of this issue (van Bergeijk and Oldersma 1990) that deals with the Berlin Wall and Iron Curtain.[1] The methodology of this study yields estimates of the trade reducing impact of walls and the increase of trade potentials (in per cent of GDP) around the globe due to the destruction of these walls. These estimates yield insight into the opportunity costs of walls on commercial exchange.

I move beyond the stage of replication (which in itself is already useful since I can use better estimates for Gross Domestic Product than those that were readily available in 1990) as I also uncover and illustrate some of the basic economics of walls in an empirically relevant context and this provides three add-ons. I use the gravity methodology to analyse the impact of another politically inspired, but invisible wall, that crumbled in the 1990s, namely the diplomatic and political barriers against Chinese exports (see Kaplinsky and Messner, 2008, on the broad based integration of China in the global political and economic system and Bussière and Schnatz, 2006, for an empirical analysis of the advent of China). I also use 2008 data to guesstimate the impact that these visible and invisible walls could have exerted in the context of the present day trade system.

The remainder of this working paper is organized as follows. The next section sets out the groundwork for the methodology and my analysis as it reviews the literature on the impact of the breakdown of the Berlin Wall and Iron Curtain that developed in the early 1990s. As will become clear, the empirical analyses in the 1990s relied heavily on the so-called gravity analysis. I discuss this model and also pay attention to some of the recent applications that deal with the impact of invisible trade barriers such as trust and cultural and institutional factors. Section 2 sets out the empirical approach and deals with data issues. Section 3 discusses the econometric results of a gravity equation that uses dummy variables to mimic walls. Section 4 presents the results of two simulations that use the gravity parameter estimates for 1988 but differ because they are based on data, dyads and distances for 1988 and 2008, respectively. Section 5 summarizes the main findings and draws a number of methodological lessons that are relevant for research on the economics of walls and discusses policy relevance of the findings both with a view to the 1990s and for the 2010s.

[1] The article appeared earlier in Dutch as 'Normalisering van het Oost-West handelsverkeer,' *ESB*, 12 december 1989, **74** (Nr. 3737), pp. 1244-6.

2 On gravity

The dramatic political changes that led to the fall of the Berlin Wall and the Iron Curtain inspired many applied trade analyses in the early 1990s. It was recognized early on that walls distort economic exchanges between locations and therefore the analysis of any wall essentially has to deal with the geography of economic activity. The key question on this research agenda was thus: 'how do walls distort the existing network of trade – or prevent the emergence of such networks – between agents that are defined by location (in addition to other economic characteristics)? A useful research tool to describe the geographical patterns of bilateral economic exchange and interaction between economic agents is the gravity model.

The gravity model is most often applied to international bilateral trade and investment, but many more applications exist (see van Bergeijk and Brakman 2010 for the state of the art). The gravity model derives its name from its similarity with the Newtonian Law of gravity as the simple and very intuitive idea of this model is that economic masses interact stronger if they are large and or in close range of one another. Economic gravity rests on an elementary concept: bilateral interaction increases in the economic masses of the trade partners (approximated by GDP and population) and decreases in the distance between the trade partners. This simple idea has now for half a century been used to analyse bilateral trade flows with remarkably good statistical performance and robust results regarding the main drivers of and obstacles to international trade. The model has been out of vogue for some time amongst academics because the gravity equation can be derived from any international economics theory (and could thus not be used to test which theory is right), but actually this kind of theoretical independence is a strong argument for applied research especially if it considers long periods and many different systems as in the present study. Other strong points include gravity's ability to deal with many 'empirical regularities' such as intra-industry trade. This is important in view of the international fragmentation of production due to the emergence of international value chains.

All in all, the gravity approach fitted the research questions of one of the biggest natural experiments of the 1990s quite well. Breuss and Egger (1999, p. 82) argue that 'the opening up of Eastern Europe in 1989 revealed a new field of application for the gravity approach'. Also in view of the gravity model's excellent empirical/statistical performance it was no surprise that this model became the most important tool to analyse the impact of the fall of the Berlin Wall and the Iron Curtain.

2.1 Literature of the 1990s

The most striking reaction amongst Western policy makers to the collapse of Communism in 1989 was a common disbelieve in the trade potential of

Eastern Europe.[2] The popular perception was that the quality of export products from Eastern Europe was simply insufficient to meet international competition. This perception was built both on the a-typical pattern of international specialization that existed in the COMECON and on the low volume of trade between East and West (and *vice versa*). Also the widespread inefficiency of production was used to support the argument that exports from East Europe could not be competitive on OECD markets.[3]

Still applied trade research showed that major shifts in trade patterns were eminent, essentially because these researchers recognized the validity of the key concept of comparative advantage, that is that international trade is also beneficial for countries that are inefficient in the production of all goods (they have absolute disadvantage in all goods). These countries can specialize in the good(s) or industry/industries in which they are relatively least *in*efficient and that provides opportunities for mutual beneficial trade. Breaking down walls enables this process to start, although much more might be needed in order to make real progress. So while it was *a priori* unknown how long it would take before the trade benefits of the breakdown of the Berlin Wall and the Iron Curtain would emerge, it was beyond doubt that trade potential increased due to the removal of these manmade physical barriers to trade.

Most researchers (e.g., Havrylyshyn and Pritchett 1991, Wang and Winters 1991, Döhrn and Milton 1992, Ezran et al. 1992 and Hamilton and Winters 1992) estimated the gravity model for a large number of countries and used the parameters and the observed distances, GDPs and populations to calculate the 'normal' trade levels for each of the CMEA countries. Next, conclusions were drawn from the comparison of the actually observed trade flows and the 'normal' or predicted trade flows. In particular the studies predict that a turnaround will occur in the geographical pattern of trade: the share of Northern Europe in the trade of East Europe would increase from 25%-30% to 70%-75%. With hindsight these studies were very helpful for understanding and predicting the enormous trade reorientation due to the fall of the Berlin Wall (as part of the Iron Curtain's collapse). One drawback, however, is that these studies while rightly indicating the shifts in the relative geographical patterns, especially in Europe, did not investigate (or report) the increase in global and regional potential trade.

The procedure in van Bergeijk and Oldersma (1990) differs from the basic methodology in the other studies in the 1990s, because it directly estimated the impact of the wall by means of a dummy variable rather than deriving the impact from a comparison between actual and predicted trade flows as was done by most authors. In stead the predicted trade flows were used as the starting point for the simulations. By comparing predictions with and predictions without the wall, many measurement and interpretation problems

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[2] Many policy makers thus opted for unrealistic plans to supply Eastern European countries with enormous capital injections (see van Bergeijk and Lensink 1993).
[3] In those years it was often asked what kind of products the Eastern European countries would be exporting. It took some time before the convincing answer was found: 'non-traditional exports'.

could be avoided at the same time arriving at an estimate of changes of trade potentials around the globe.

2.2 Literature on the 'new' trade barriers

It is relevant to review some of the new avenues in the empirical literature because this line of research substantiates the idea that 'unseen walls' exist and that these invisible (at least not directly observable) barriers to trade can exert strong impact in the real economy. Of course these manner of barriers have always existed, but they remained unobserved because transportation costs were exerting a much stronger impact on trade. The substantial reductions in the costs of transportation and communication (travel and exchange of ideas) in recent decades have removed that veil. Indeed, although the 'dead of distance' has been claimed many times in the popular press on globalization, a persistent finding in the application of gravity models is that distance continuous to matter and that the importance of this factor increased in recent decades (see the meta-analysis by Disdier and Head 2008). Recent studies therefore focus on other forms of distance effects related to indirectly observed differences in trust, value systems (cultural norms) and institutional quality often uncovering very significant impacts on trade flows (Table 1). The message conveyed by Table 1 is that invisible barriers clearly matter.

TABLE 1
Impact of a one standard deviation change in intangible trade barriers on exports (% change)

Increase in trust	24–38 [a,b,c]
Decrease in cultural diversity	–14–8 [a,d,e]
Increase institutional quality	22–45 [d]

Source: Adapted from van den Berg et al. (2008), Table 3.6, pp. 37–38.

Notes: a. Dekker et al. (2006), b. den Butter and Mosch (2003), c. Guiso et al. (2004), d. Linders et al. (2005), e. Lankhuizen et al. (2008)

A second more recent strand of literature that is relevant for the issue of invisible, politically inspired barriers to trade deals with the impact of economic diplomacy (negative and positive political interactions between countries). This literature was pioneered in the 1980s and 1990s and at that time it studied so called events data and intensively used gravity models (see van Bergeijk 1994, Chapter 2 for a detailed review of that literature). In the mid-2000s the topic returned on the research agenda again but was more focused on concrete structures (such as the network of embassies and consulates) and activities (such as state visits). Again most analyses used gravity as a basic concept. Moons and van Bergeijk (2011) provide a meta-analysis of 24 studies covering both the early and the recent studies finding that diplomacy exerts a strong impact on trade.

3 Empirical design and data issues

The empirical design deploys the basic equation of van Bergeijk and Oldersma (1990), Wang and Winters (1991) and Hamilton and Winters (1992) who all relate exports to GDPs, populations and distance. Using this traditional form, I estimate cross country a gravity model for the global pattern of bilateral trade from 1988 data in which politically induced distortions in the bilateral Chinese and East-West trade flows are included:

$$\ln E_{ij} = c + \alpha \ln Y_i + \beta \ln Y_j + \gamma \ln D_{ij} + \delta \ln N_i + \zeta \ln N_j + \eta dum_{EWWE} + \theta dum_{China} + \varepsilon$$

Where E_{ij} = exports of country i to country j
Y_x = GDP country x
N_x = population of country x
D_{ij} = distance between capitals of country i and j
dum_{EWWE} = dummy variable for trade between East and West
dum_{China} = dummy variable for trade by and with China
ε = error term

Due to the logarithmic transformation the model cannot handle zero flows (no bilateral trade) and therefore an arbitrary linear transformation was performed adding the threshold value ($0.5 million) to all export flows (as in van Bergeijk and Oldersma 1990). Compared to most studies in the field, the zero flow problem is limited in my dataset (65 flows or 3% of the 2162 observations) and, moreover, the problem is concentrated in Africa which covers 82% of the zero trade flows (in particular half the zero trade cases involve South Africa, due to official sanctions and consumer boycotts against Apartheid). Anyhow, as Africa is not of major concern in the simulation exercises, the zero flow issue is of limited relevance for my research.

Many explanatory variables could be added to this equation (as is common practice in most gravity analyses). I am, however, interested in simulations for 1988 and 2008 and only need a reasonably good approximation for the key determinants of the network of world trade. For that reason I want to focus on geography (distance) and on the time variant variables GDP and population. (Similarity of languages, for example, will not change during the simulations.) Importantly, one of the most commonly applied explanatory variables (adjacency or a common border between nations) is problematic in my investigation because this would cause problems with the German unification (Poland and Hungary, for example, become Germany's neighbour in addition to the disappearance of the Berlin Wall and Iron Curtain so that it would be difficult to logically distinguish the contributions of adjacency and wall).

Country coverage

The country coverage is almost the same selection as the one that was originally made in 1990 guided by the considerations to cover the most important trading nations, all continents, different economic systems and levels of development. With hindsight that selection was rather lucky since almost all G20 countries are on board, in particular the country group known as the BRIICS (Brazil, Russia, India, Indonesia, China and South Africa) and this is of course important in view of the relevance of the simulation for 2008.

The country sample covers: Algeria, Austria, Australia, Belgium, Brazil, BRD, Bulgaria, Canada, China, Czechoslovakia*, DDR*, Denmark, Egypt, Finland, France, Greece, Hungary, India, Indonesia, Ireland, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Poland, Portugal, Rumania, Saudi Arabia, Singapore, South-Africa, South-Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, UK, USA, USSR*/Russia, Venezuela, Yugoslavia*.[4]

Trade

Clearly a dataset that deals with history needs to take into account that countries disappeared since the 1990s. In addition since I want to study the invisible Chinese wall, I want to include Taiwan for obvious reasons. These requirements imply that I cannot use data sources that only use countries that are identified in the last ISO country list (as for example is the case with the Head and Mayer dataset that is available from CEPII) or that have to be politically correct and thus exclude Taiwan (such as trade data sets provided by the international organizations). For these reasons I use Gleditsch's comprehensive trade data set although it does not provide data on Hong Kong (available at http://privatewww.essex.ac.uk/~ksg/exptradegdp.html; see also Gleditsch 2002). The trade data relate to 1988 exports.

GDP and population

I rely on Maddison's historical series for population in 1000s and GDP per capita (in millions of 1990 international Geary-Khamis dollars). Van Bergeijk and Oldersma (1990) use PPP data form the International Comparisons Project, but I prefer Maddison's data for three reasons.[5] First, Maddison's benchmark year is closer to the year of observation for the data (1990 *versus* 1985 or 1996 for the ICP). Second, my model relates to GDP and international trade and thus is best served by a method that does not correct for differences in purchasing power due to different prices for non traded goods as is done in the ICP. Third ICP uses procedures to ensure consistency of levels at

[4] The countries that were included in the regression for 1988, but not in the simulation for 2008, are indicated by an asterisk.

[5] The choice for Maddison's data rather than the ICP data that were used originally in van Bergeijk and Oldersma (1990) also reflects that the developments of countries that do no longer exist are not reported in recent vintages of the Penn World Tables.

benchmark years and growth rates between benchmark years. I am not interested in growth rates of GDP but at GDP levels at a specific point in time that is close to Maddison's benchmark. Hence the choice for the data set of Angus Maddison's *Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD*. This source is also known as "Maddison's historical series" and is available from the website of the Groningen Growth and Development Centre www.ggdc.net. Although this dataset provides data for communist states and there derivatives and successor states in case of collapse of a nation, Maddison does not provide the data for DDR and BRD but simply seems to have aggregated them into one number for 'Germany'. Luckily his 1995 study (pp. 130-132) provides details on his treatment of the Germanies so that I can reconstruct the data for BRD and DDR in 1988.

The data for 2008 are straight forwardly derived from his historical series.

Distance

I measure distance as the crow flies using basic geometrics. Distances are calculated from the degrees of longitude and latitude of the capital cities of the trade partners in 1988. In the counterfactual simulation I take care of changes in the capitals of Nigeria and Germany between 1988 and 2008.

Assume the Earth to be a perfect sphere with a circumference of 40,000 kilometers. The coordinates of a point on the unit sphere are

$$x = \sin\theta \times \cos\varphi,$$
$$y = \sin\theta \times \sin\varphi \text{ and}$$
$$z = \cos\theta,$$

where θ is the normalized latitude $0 \leq \theta \leq \pi$ and φ is the normalized longitude $0 \leq \varphi \leq 2\pi$. The angle α between the vectors $a = [x, y, z]$ and $a' = [x', y', z']$ can be obtained from $\cos\alpha = a \times a'$ and $\alpha < \pi$. The shortest distance between the two points over the surface of the globe is roughly $20{,}000\alpha/\pi$.

Walls

My walls are not made of bricks and mortar but are dummy variables that assume the value 1 if countries are on opposite sides of the wall and 0 if they are on the same side of the wall. I let the data decide about the strength of the wall: the estimated coefficients for this dummy provide an indication of both the statistical significance and the economic importance of the wall.

4 Econometric results

The econometric results for the gravity equation are reported in the second column of Table 2. The model performs quite well in statistical terms as it explains about two thirds of the variance and has highly significant coefficients (the dummy for trade to and from China is, however, only significant at the 90% confidence level). For comparison the results of van Bergeijk and Oldersma, 1990, are reported in the first column of Table 2. Typically, the sign, size and significance of the 1990 study are quite well replicated for another year (1988 versus 1985), a slightly different set of countries (I leave Iceland out because I do not have comparable data on its GDP and Hong Kong is integrated in the Chinese trade statistics in the 1988 trade data base that I use and for that reason drops out) and for a different source for GDP and population. This robustness further increases the confidence in the econometric findings.

TABLE 2
OLS estimates for bilateral trade flows countries
(49 countries in 1985 and 48 countries in 1988)

	Van Bergeijk and Oldersma 1990	**Replication (present study)**
	(1)	**(2)**
Based on data for	**1985**	**1988**
GNP Exporter	1.8	1.6
	(36.9)	(37.4)
GNP Importer	1.3	1.4
	(22.9)	(31.2)
Population Exporter	-1.0	-0.9
	(-19.8)	(-23.4)
Population Importer	-0.6	-0.6
	(-12.1)	(16.8)
Distance	-1.0	-0.9
	(30.6)	(-28.7)
Trade from and/or to East (dummy)	-2.1	-1.4
	(-29.8)	(-20.6)
Trade from and/or to China (dummy)		-0.3
		(-1.6)
Constant	-3.8	-8.7
	(-18.7)	(16.2)
Adjusted R^2	0.65	0.66
F	718	592

(t-values in brackets)

5 Simulation results

The next step is to use actual observations for explanatory variables and estimated parameters to simulate the expected trade patterns. (Note that the constant term reported in Table 2 cannot be used in this calculation due to the logarithmic transformation of the original model and has to be derived from the necessary equality of observed total trade and predicted total trade.) The only purpose of the expected trade matrix is to serve as the basis for the scenarios. So it can (and does) deviate from the observed trade matrix, but the ranking of trading nations and trading partners is *grosso modo* the same for observations and predictions and in this sense we have a reasonable good description of the world trade system to start with.

5.1 Impact of visible and invisible walls in 1988

The first scenario to be investigated concerns the consequences of breaking down the visible wall between East and West Europe (that is setting $dum_{EWWEij} = 0$ for all *i* and *j*) and the invisible wall surrounding China (so θdum_{China} becomes 0 for all *i* and *j*). My estimates that only cover direct trade effects and do not include spill-overs and dynamic effects (for example on long term growth) indicate that these walls together significantly reduced bilateral trade flows. Breaking down those walls according to my calculations increased world trade by 20% or 3.5% of world GDP (that is a good third of the increase in global trade openness since 1990).

TABLE 3
Simulation of the impact of walls based on 1988 data constellation

	Berlin Wall (1)	Chinese wall (2)	Ratio (1)/(2)
Africa	0.6%	0.0%	20
Asia	0.4%	0.4%	1
Australia, New Zealand	0.8%	0.1%	6
E-Europe and USSR	12.3%	0.1%	183
Latin America	0.4%	0.0%	12
Middle East	2.1%	0.1%	26
N-America	1.0%	0.1%	13
W-Europe	5.5%	0.1%	42
World	3.3%	0.2%	19

Typically the trade impact is especially strong at the regional level. Comparing the regional impact to the global impact (using trade potential in per cent of GDP), I find that the regional impact was 2 to 4 time larger than the global impact (the ratios are: Western Europe 1.8, Asia 2.3 and Eastern Europe 3.8, respectively). The Berlin Wall and Iron Curtain exerted a much stronger impact

than the 'invisible Chinese wall' (at the global level about 15 times as large). This is even true for the Asian trade with China.

Based on these findings it is fair to conclude that the economic context at the time of the break down of the Berlin Wall and the Iron Curtain was such that it was unreasonable to assume big changes in world trade due to the changes that were taking place in China. Although significant in a statistical sense, its economic significance seemed to be of second order only.

5.2 2008 counter factual

The findings for 1988 do not necessarily mean that the removal of the invisible Chinese wall is less significant from a historic perspective. Indeed, it is probable that the regional conditions in this particular case in 1989 were such that trade would be low both with and without walls. Walls cannot distort economic *non*-activity.[6] An indication, however, of the potential impact of the 'invisible Chinese wall' is that its influence in terms of percentage trade reduction was stronger in developed but far away markets (in particular the Netherlands and the Nordic countries) than in less developed nearby markets (such as Malaysia, Thailand and India). This suggests that the 'invisible Chinese wall' would have started to bite once development in Asia took off.

In order to check the latter hypothesis I perform a second simulation based on a thought experiment by introducing the visible and invisible walls in a gravity simulation for the world trade system in 2008, based on parameter estimates for 1988. I use 2008 population and GDP data and take account of the break down of a number of formerly Communist countries, shifts in capital cities and the German unification. In particular I exclude Czechoslovakia and Yugoslavia, the West and East Germanies are unified and capitals are relocated from Bonn to Berlin and from Lagos to Abuja.

TABLE 4
Simulation of the impact of walls based on 2008 data constellation

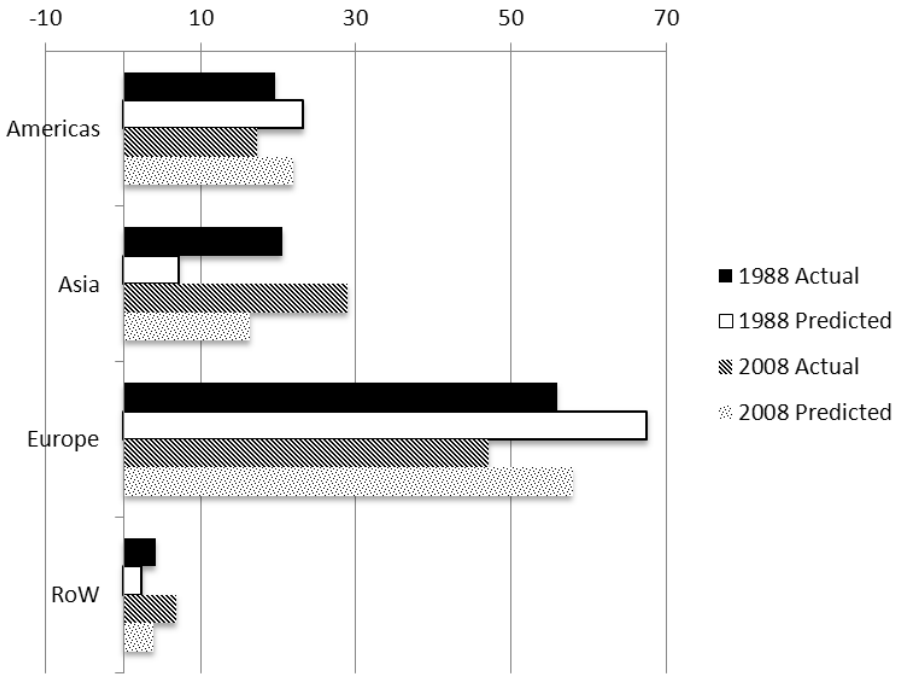
	Berlin Wall (1)	Chinese Wall (2)	Ratio (1)/(2)
Africa	0,3%	0,1%	2
Asia	0,2%	1,8%	0,1
Australia and New Zealand	0,5%	0,8%	0,6
E-Europe and Russia	14,1%	0,3%	46
Latin America	0,2%	0,2%	1,3
Middle East	1,1%	0,4%	3
N-America	0,6%	0,4%	1,3
W-Europe	3,4%	0,8%	4
World	1,5%	1,0%	1,5

[6] By implication: a wall that does not bite yet, is difficult to detect in economic statistics.

As before I start from the predicted trade pattern (but this time the starting point is of course the situation without walls, as that is the 2008 case) that I calculate from the 2008 observations but using the gravity model's parameter estimates for 1988. Next I so to say 'switch on' the wall dummies and analyse how the predicted trade flows change (Table 4).

The global impact of the regional walls in combination is at the world level a third smaller in the less concentrated context of 2008, even though at the regional level impacts increase in Asia and Eastern Europe. A hypothetical 'invisible Chinese wall' could reduce world trade by about 1% of world GDP, which is comparable to the 1.5% that I find for a hypothetical 're-erection' of the Berlin Wall and Iron Curtain. At the world level the trade potential reduction (2.5% of GDP) of the walls in 2008 can be compared to the 3.5% in 1988.

Figure 2
Actual and predicted shares in world trade in 1988 and 2008



In order to give some idea regarding the issue whether the model is on track, Figure 2 compares actual and predicted shares in world trade (I use the total trade of the countries in this study as the denominator). The modelling exercise over-predicts American and European trade shares and under-predicts

the share of Asia both in 1988 and in 2008.[7] However, comparing the predictions we can see that they move into the right direction that is from the predicted trade pattern in 1988 towards the observed trade pattern in 2008. All in all the predictions are rough rather than precise but also seem to give a reasonably good idea of the orders of magnitude involved.

The second thought experiment is of course much more speculative, but one should not forget that the idea of almost full trade integration in a few years time also was considered to be highly speculative in 1989.[8] Admittedly, a wall in Europe is much more difficult to conceive as it was before 1961 when the Berlin Wall was erected, but at the same time one is aware that it is in the present geopolitical context not difficult to imagine a political conflict that would create significant barriers in the trade relations with China. In this sense a seemingly unlikely scenario may ultimately not be unrealistic. The simulations indicate that the impact of walls depends on local conditions on both sides of the wall.

6 Discussion and conclusions

The results in the previous section should not be seen as accurate predictions (*cf.* Breuss and Egger 1999), but rather as a serious attempt to uncover the size of the potential impact of a wall that played a major role in recent history. We know from observation that the fall of the Berlin Wall and the Iron Curtain led to an enormous surge in intra European trade. This observation and the fact that this trade potential was *ex ante* indicated by a number of gravity analyses in the 1990s motivated a revisit of the empirical trade literature on East West trade in order to find out if trade economists that, on the one hand, competently dealt with the consequences of political and diplomatic trade barriers that were associated with the very visible Berlin Wall (and Iron Curtain), on the other hand, might have overlooked the consequences of invisible – and more gradual – reductions of similar barriers to trade, in particular in the external trade relationships of China.

In view of the findings in this working paper, the signals that important change was eminent in China's trade were weak at most. An interesting finding

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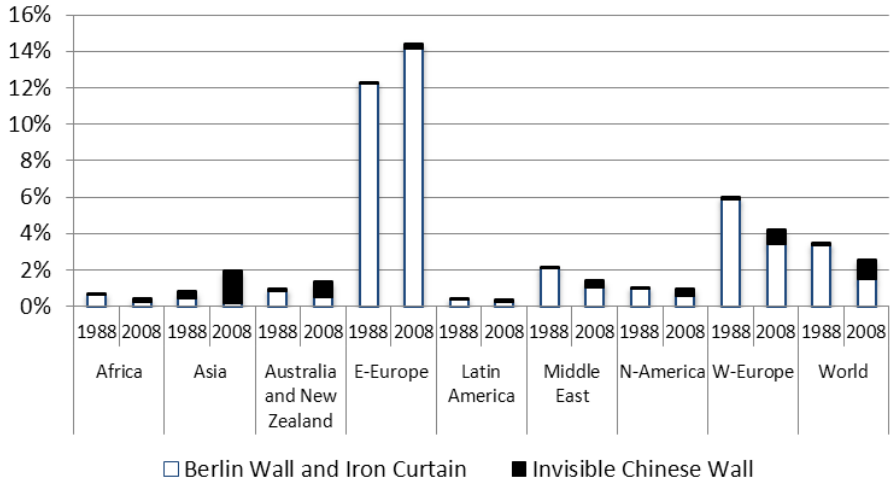
[7] Note that an alterative interpretation exists for the excess of actual over predicted values in 2008 as this has been interpreted as an indication of the trade creating impact of the removal of trade barriers (Erzan et al., 1992). In Asia and East Europe trade creation occurs; in West Europe the fall of the wall yields trade diversion, that is a reallocation of trade to East Europe at the expense of non European countries. A possible interpretation of the latter is that this is a result of the fact that the Eastern European countries have joined the European Union.

[8] Actually, we met so much resistance with our 1990 research that we felt obliged to include the qualifier that it could take 'some decades before the potential trade increases fully materialize' (van Bergeijk and Oldersma 1990, p. 604). In the same sense Smith (1992, p. 109) while supporting the appropriateness of the gravity approach notes 'though, of course, only the next two decades will show whether this confidence is well-founded'.

is that the costs of the visible and invisible walls in 1988 relative to world GDP exceed the impact that can reasonably be expected in the 2008 context (even though the impact is locally stronger in Asia and Eastern Europe), because of the fragmentation of world production and the reduced concentration in trade (Figure 3)

Figure 3
Trade potential impact of walls (per cent of GDP, 1988 and 2008 data)



The empirical analysis of the world trade system just before the end of the Cold War provides some useful numerical illustrations of general patterns regarding the economic impact of walls. First, walls are not mirrors. The economics of walls should consider the possibility of asymmetries, in particular because the costs of walls and the benefits of their removal can be distributed quite unevenly between the two sides of the wall. Second, the two simulations clarify that the impact of walls depends on local conditions on both sides of the wall, but also on the opportunities that exist for economic interaction with and between entities in wall-free locations. Third, while walls do not disturb economic non-activity (or very low levels of activity), they may still act as potential economic distortions that become evident only once economic development sets in. Fourth, although the impact of walls is obviously the strongest the closest one is to the wall, their impact beyond the local level will often be not negligible.

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