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The improvement of housing conditions in post communist Germany - Market Mechanisms and Subsidy Impacts

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THE IMPROVEMENT OF HOUSING CONDITIONS IN POST COMMUNIST GERMANY – SUBSIDY IMPACTS

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Paper prepared for the ERSa Congress 2011

Comments and suggestions on the methods and results presented are welcome.

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Abstract

The objective of this paper is to explain the mechanisms that have led to the remarkable improvement of the East German Housing Market during transition after the political change in 1989 and the reunification of Germany in 1990. Theoretical analysis suggests, that housing policy of the former GDR did not maximize consumer's utility. Socialistic housing and construction policy limited the welfare with and distorted construction costs and rent control. The reason for that was not alone a lack of quantity but also a lack of quality and diversity. Therefore we argue that diversification of quality and tenure in the post communist era enhanced the welfare of consumers. We propose that welfare on the East German Housing market was significantly increased by creating a new variety of housing types and qualities which fits better with different preferences of the households. A filtering model predicts theoretically the observable trends of segmentation and the development of a higher diversity of housing market segments. But additionally to the transition a bunch of subsidies were set up during transition. Therefore the paper is focused on the interdependency between housing market subsidies, the supply cost function, the qualitative development of the housing stock and the choice of demand. Empirically we observe the change and qualitative improvement of housing conditions in East Germany during transition and quantitative effects like increased vacancy risk in a shifted hierarchy of housing qualities.

1 Introduction

The consumption of housing is part of the households' utility function and a key element of the overall standard of living. In a general consumption function utility maximizing households chose the level of housing consumption according to their preferences subject to prices of housing, the price of overall consumption, maybe additional savings, and their income as budget constraint (Henderson and Ioannides 1986; Megbolugbe et al. 1991). Higher incomes allow for increased housing consumption, but higher rents and generally increasing prices are counterbalancing this effect. Since the housing market may have several inefficiencies housing policy should contribute to a good allocation. But ideological motivated misuse of housing policy instruments result in severe welfare losses. This was also the case in the German Democratic Republic (GDR). Therefore this paper analyzes the transition of the East German housing market that was run down by decades of socialistic housing policy in a centrally planned economy.

Unsustainable housing policy was responsible for the lack of housing quality in the German Democratic Republic (GDR). About 400.000 uninhabitable and vacant dwellings¹ are a testimonial for the disastrous housing conditions in the socialistic part of Germany. Poor revenues due to rent ceilings caused did not allow for renovation and caused wide deterioration of the existing housing stock. Especially historic buildings, old town quarters and neighborhoods in the city centers were in a dilapidated condition. Instead of refurbishing the existing stock, the East German government preferred the construction of new industrially prefabricated housing blocks with similar standard units. Whereas this type of housing matched with the ideal of a socialist city it did not always meet with population's preferences. In fact, some authors describe the resentments against the disastrous living conditions and urban blight as one of the important factors that lead to the peaceful revolution of 1989 (Kahl 1991, Schwarzbach 1991).

One can argue that East Germany's supply function was restrained due to limited resources in the housing market and therefore people did not find enough and no adequate space of living. Politicians in reunified Germany promised a fast process of convergence in the standard of living between east and west, including the housing market. The strategy was to speed up the refurbishment of the housing stock by a bundle of subsidies for renovation, new construction and general urban renewal as well as financial support for home-buyers. The latter aimed to increase the share home-ownership, which was significantly below the West German average.

The objective of this paper is to provide economic explanations for the change of Housing quality in light of the transition to an open market economic and democratic system. This will be done with a filtering model that predicts theoretically the observable trends of segmentation and the development of a higher diversity of housing market segments.

¹ Nagel and Preibisch (2002), 539

Theoretical analysis suggests, that housing policy of the former GDR did not maximize consumer's utility. The reason for that was not alone a lack of quantity but also a lack of quality and diversity. Furthermore we argue that diversification of quality and tenure in the post communist era enhanced the welfare of consumers.

Empirically we observe the change and qualitative improvement of housing conditions in East Germany during transition. Since a former study (Michelsen/Weiß 2010) addressed the interdependency between housing market subsidies and the quantitative reaction of supply, we now focus on the qualitative development of the housing stock and the choice of demand.

The paper proceeds with micro economic considerations the consequences of limited supply in a centrally planned economy for the utility of households. With a filtering model we transfer the assumptions about socialistic housing policy in a theoretical framework of housing economics and derive statements about the expected development of different qualities, including the question of home ownership. Section 3 provides an overview about different housing market subsidies according to different policy strategies. As one main reason for the failure of the GDR housing was the lack diversity, subsidies that are able to create a greater variety of qualities should be a policy goal. We find out that the variety of subsidy programs supported the improvement of nearly every type of housing for all social and income levels. Section 4 is focused on empirical findings that can document changes of the housing market by several parameters. Thereby we have a focus on housing quality and tenure and vacancy and judge the development in the light of predictions by the filtering model and considerations about the subsidy impact. In the last section we evaluate the outcome of housing market transition and discuss implications for future housing policy.

2 Theoretical Framework

2.1 Housing preferences limited allocation and utility.

It is obvious that East German housing policy and the planned economic system of German Democratic Republic was not able to fulfill population's demand for decent housing standards. Regarding the limited housing quality supplied by state owned housing companies we suppose that these limitations of supply reduced welfare in this country.

To analyze the welfare contribution of a diversified housing market with sufficient supply and different housing qualities we present a stylized framework of income and preferences in which households are optimizing their utility between housing and other consumption.

The typical budget function of a household consist of housing, and a non housing good Z that consists of other consumption and savings.

$$Y = [(r) H] + Z \text{ where } Z = [(p) C] + [S]$$

The variety of combinations of H and Z a household with same income can chose to maximize his utility is usually depicted as an indifference curve. But different preferences of households may determine the position of the indifference curve.

Figure 1 displays two different types of households (A,B) with different preference structures at different utility levels (1-4). Households of type A have a strong taste for housing at a good quality. Household of type B prefer to spend a higher share of their income for the consumption of the Z good.

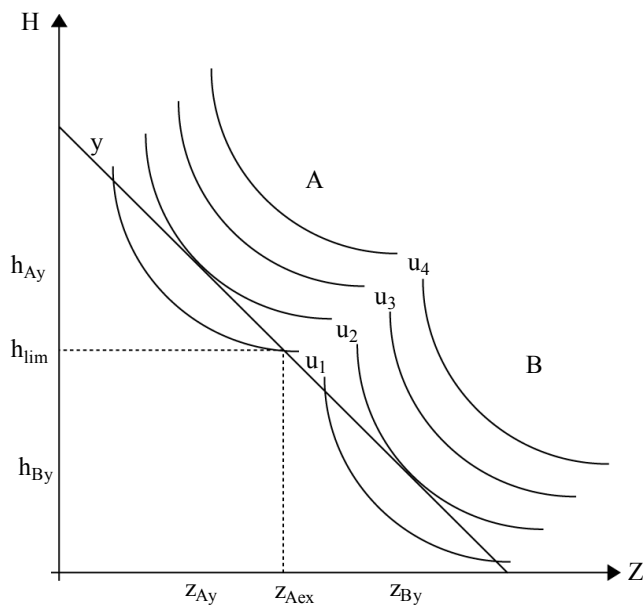


Figure 1: Preferences and Welfare –Restrictions through limited Supply in the GDR Housing Market

The vertical axis in figure 1 represents the quality level of housing units as a function of size, interior and exterior quality. The dotted line at h_{lim} indicates the maximum housing quality supplied by GDR housing policy.

The horizontal axis represents the non housing good Z, which is not limited because savings are included.

The downward sloping line shows the possible budget distribution of households with the same income (y).

Since optimal budget allocation results maximal utility if the budget line touches the indifference curve we find that household B with income y is fully satisfied at utility u_2 in point (h_{By}, Z_{By}) . Household A(y) in contrast can not purchase the preferred level of housing quality (h_{Ay}) due to the limitation of supply. His best alternative is to chose the maximum level of Housing quality that is available on the market and spent the rest of his budget for Z. This limitation of choice pushes the household to a lower utility level

u_1 which is indicated by the indifference curve that crosses the budget line at h_{lim} , resulting to an excess consumption z_{Aex} of non housing goods².

Furthermore follows from this setting that an increase of income by shifting the budget line to the right can only lift the utility of type B households to u_3 or u_4 . Households of type A remain at u_1 as long as h_{lim} is the maximum quality of housing.

This example shows that an elastic supply is an important precondition to find an optimal allocation for all households.

We therefore suppose that introduction of new housing policy and free market structures contribute to better allocation of housing. This could take place in several ways:

- (i) People with a high preference for housing quality became able to spend money for that, leading to increasing prices.
- (ii) The development of higher income groups allows construction Housing of higher quality.
- (iii) Due to exogenous deterioration some of the stock formerly used decreases in quality and turns into vacancy.

2.2 Home ownership as a quality segment

This neoclassical scheme is quite descriptive from a didactic point of view. But it neglects that what features of housing drive the extend of utility in real life. Housing quality is surely defined by size and equipment of a flat. But dependent from the type of household there are also different utilities connected with renting or owning a flat. The analysis of development and changes in tenure is especially interesting for East Germany, because ownership of property was rather proscribed in the GdR. Socialistic ideology with the main focus on rental housing is responsible for the big gap in home ownership rates between East and West Germany at the beginning of transition. Different studies and explanations exist about the question why the share of Homeownership is different between countries. While countries like the U.S. Spain and Ireland most households possess the home they are living in countries like Germany or Austria and Switzerland more households are renting (Hilbers et al. , 2008 20). A good deal of this difference seems to be related to institutional basic conditions in the financial sector (Jäger/Voigtländer 2006). It is widely accepted, that access to flexible and innovative mortgage products with low equity requirements make it easier for low income house-

² Households of type A were forced to spend their excess budget for additional consumption or to save it in a bank account. Since people were faced not only with limited housing supply was but also with a lack of the choice and de facto shortage of consumer goods it is not surprising that East Germanys collected savings were able to generate a demand boom after reunification. The hypothesis of enforced savings is also mentioned by Siebert (1993) due to insufficient supply in the retail sector.

holds to purchase property. In countries with a conservative mortgage system like Germany banks are more risk-averse. Usually 20-40 % of the property value has to be financed by own equity resulting to a generally lower home ownership rate. Furthermore regional wealth differences in Germany like the price to income ratio or the price to rent ratio could have influenced the adjustment of the homeownership rate in East and West Germany. The aggregate decision of renting or buying (owning) a flat can be modeled in a purely financial approach based on a no- arbitrage condition that cost of renting must equal the total cost of owning a flat. But theoretical models based on this approach neglect that rental units are generally quite different from owner- occupied housing and that renters and owners are very different people (Glaeser Gyourko 2009, 125). Owner occupied housing has some qualities besides physical elements that are able to generate excess returns for owning; for example independence from a landlord and the freedom to configure or redevelop the property. People with preferences for those qualities have difficulties to realize favored lifestyle in a planned market economy that was dominated by the rental sector. A catching up process in terms of home ownership was expected because households which could not realize their wish for residential property during the time of the GDR regimes would probably try to get owners during transition. Access to subsidies should foster this development.

2.3 Graphical Filtering model

In the next step we integrate the situation of welfare loss, caused by socialistic housing policy into a filtering model and compare these outcomes with the long-run situation generated by the transition process. Filtering models in general assume, that households select from the variety of housing qualities according to household income to maximize their utility.³ Although housing is often defined as a durable good it is obvious that housing deteriorates with time and that a new dwelling has a higher quality than an old building. Finally the lowest quality housing segment is now fully depreciated and will be abandoned or demolished for new construction if in the meantime no rehabilitation takes place.

³ Therefore high income households live in high quality flats and low income households at the bottom of the housing quality hierarchy. Another finding is that the long-run quality improvement rate of the housing stock should roughly match the long-run growth rate of real consumer income (Di Pasquale and Wheaton 1996, 237)

The resulting segmentation of qualities is a basic feature of filtering models and a lot of literature on housing quality builds on this concept.⁴ Different implications for housing policy can be derived from filtering models.⁵

To model the transition effect in the East German Housing Market we adopt the graphical explanation of a filtering model by Braid (1985). He examines different long-run steady state equilibriums for the diversity of housing quality that depend from bid-rents of households with different incomes and the gradient of an exogenous supply function that is based on construction costs and proportional increasing with housing quality. Our modulation is that we apply transition-related changes in the supply function and consider different preferences.

He varies the shares of two household-types with different incomes and the number of initial qualities that can be built. In his model construction occurs at a quality Q_c where the profits of constructing at this quality in terms of discounted future revenues turn to zero. Potential revenues are indicated graphically by bid-rent curves. In a price quality diagram Q_c is a point where the bid-rent curve intersects the supply function from above. Once build, a house deteriorates exogenously and turns will be abandoned by the investor when quality falls below a minimum level q_v .

Unlike Braid (1985) we analyze a housing market with a supply function that is distorted by housing policy. Furthermore we do not assume that all consumers have the same utility function, but recognize different preferences for housing quality at the same income level modeled by the indifference curves in figure 1. We further assume that these preferences are constant over time.

⁴ Firstly described by Ratcliff (1949) and discussed by Lowry (1960) Sweeny (1974) provided a model to test the filtering concept rigorously. He assumes an equilibrium in the housing market based on a hierarchy of quality segments it predicts demand reactions if the equilibrium is disturbed by adding or reducing the amount of a distinct quality segment. If an urban renewal project that creates new housing of a special quality segment but also destroys old low quality housing Sweeny predicts rent price reductions in all quality segments above and an increase of the rents for segments below this special quality. See also the further applications of the model by Arnott et al. (1983) and Braid (1981, 1984).

⁵ A famous hypothesis is that government subsidies targeted to the construction of high quality housing eventually benefit the poor, because high income households move to the new flats and the middle class move to the flats formerly occupied by the rich leaving the flats of medium quality free for the low income households. Similar results generate Anas and Arnott (1991) with an advanced simulation method. In reality redevelopment takes places not only by replacing low quality dwellings but also by maintenance and rehabilitation. This phenomenon is examined by Arnott and Braid (1997). Their model predict that housing built at a high quality is downgrading to a minimum quality level and then rehabilitated to a medium quality level and then remaining in this low quality range according to a perpetual rehabilitation cycle. They find that subsidizing maintenance cost lead to an increase of housing quality for low income households.

Starting with the preferences we translate the two groups of households with equal income but a different willingness to pay for housing quality measured by the share of income. This results in two different bid rent curves $P(q,u,y)$:⁶

$$P_1(q,u,y) = y_1 - Z_1 \quad U_{\max}(q; Z_1 = y_1/x_1) \quad \text{for } q_v < q < q_1$$

$$P_2(q,u,y) = y_2 - Z_2 \quad U_{\max}(q; Z_2 = y_2/x_2) \quad \text{for } q_1 < q < q_2$$

With: $1 < x_1 < x_2$ and $y_1 = y_2$

The rent that a household would pay for a distinct quality depends from the optimal income allocation on housing consumption $H(q)$ and a non housing good Z defined by the preference parameter x . Housing consumption is measured as quality level by a normalized unit q integrating space, equipment and other quality related features of a flat.

Households of type 1 spent a bigger share of income for the consumption of non housing goods and are therefore happy with a lower quality standard of their flat.

Households of type 2 have greater taste for housing quality. They are probably less materialistic and will abstain rather from consumption of the non housing good. With the same income households of type 2 would purchase more housing quality.

As mentioned above the improvement of housing quality was one main political task within the transition process. The different policy instruments applied after transition have changed capital and construction costs (Michelsen/Weiß 2010). In figure 2 we apply the graphical filtering model to show the changes in average housing quality, vacancy rates and supply of different qualities, that come along with transition from socialistic to current housing market conditions. The upper part of figure 2 show socialistic conditions. In the middle part we translate the impact of transformation in a changed supply function. After that we implement housing policy instruments that have been applied in the post transition period.

2.3.1 Filtering model of the socialistic housing market

To draw the socialistic supply-function we recall the socialistic housing policy that was focused on the stately mass construction of standard flats and make assumption about user costs at different qualities. Main instruments of GDR's Marxist housing policy had been rent control and stately or cooperatively organized housing for a class less society within standard units at a homogeneous quality. Rent control should made new constructed standard housing quite affordable. The consequence of this setting is the stately construction of rental housing at quality level q_1 . Unlike in an equilibrium the level of

⁶ The bid-rent curve $z = P(q,u,y)$ in (g,z) space represents rent as a function of housing quality that a customer of income y can afford to pay Consultant with attaining utility level u . Mathematically, $P(q,u,y) = y - f(q,u)$, where $f(q,u)$ is the consumption of z that yields utility u in combination with housing consumption q (Braid 1985).

q_1 at which construction occurs is not defined by a bid rent curve and real supply cost, but by political decision.

To recapitulate the available quality spectrum within the GDR policy setting we start in the upper diagram A part in figure 2 from the left: Recall that supply will be abandoned if offered rent is lower than supply cost. All qualities left from the point Q_v where the bid rent curve p_1 intersects the supply function, which is determined by stately given rent level from below stay vacant because willingness to pay is less than fixed rent. Due to lack of maintenance real cost of supply might be at the lowest thinkable level, determined only fix operating expenses.

The rent control policy is displayed by the dotted line, which represents a fixed rent level below average real supply cost. The result of this policy was that old flats that had undergone years of deterioration were not much cheaper than new build well equipped standard flats with an up to date quality. Therefore people queued to move in a new constructed flat. Waiting time should be considered as non-monetary cost of housing⁷.

The price for the loss due to the difference between rent and supply was reduced maintenance resulting to faster depreciation. Due to rent control renovation or supply at higher quality levels than q_1 did not occur on the rental market neither by private sector nor by public housing.

For households that appreciated higher quality, home ownership was the only way to realize higher housing quality. But scarceness of construction material that had to be organized on the black market lead to very high construction costs in this segment.

Therefore the supply function of the socialistic housing market starts with marginal low cost increases per quality unit but takes an exponential course at a higher quality level. Therefore willingness of p_2 households is exhausted quite quickly at q_2 which can be interpreted as the level of individually constructed housing during GDR times.

To the right from q_1 the households with bid function p_2 will outbid households of p_1 . Due to the gradient of the supply function the willingness to pay of household group 2 is already exhausted at quality q_2 . The share of households in this group that can afford the preferred level of housing quality is very small. They have to allocate their income on housing at a lower quality and a higher than optimal share of non housing goods.

2.3.2 The effects of transition to market economy

Transition as systemic change means in the special case of GDR the monetary union and the political union with the federal republic of Germany. As a consequence all western goods were available very fast at market prices. Purchasing of construction ma-

⁷ There are various social reasons (e.g. benefits for young families) but also political reasons (party line loyalty) known that reduced waiting time for the households, that had applied for a new flat.

terials to invest in the high quality investment was not longer restricted. This flattens supply function in the higher quality segment compared to the socialist housing market.

Transition means also especially for the housing market a stepwise abolishment of rent control and restitution of socialized property from the state to the former owners. As a consequence rents will converge to the real supply costs. This leads to an increase of rents at the lower end of housing quality. Since rent revenues cover productions costs enough housing will be supplied so the in the market economic equilibrium there is no waiting time for housing anymore. Remember that bid rent curves remain unchanged as we assume fix preferences.⁸

To analyze the changes in housing quality segmentation we start again from the left of figure 2 (part B). Due to the increased supply cost function the first intersection with the bid rent curve p_1 occurs more to the right resulting to a higher quality level q_v at which flats stay vacant. The shaded area can be interpreted also as a potential of additional homelessness compared to the socialist housing policy since households that were able to pay the low fixed rent under socialistic conditions are now faced with a higher rent above their willingness to pay. As a consequence they have to move but may not find another appropriate flat. Other households are flexible enough and pay now a higher rent that lies within their willingness to pay. Some of them change the waiting time by a higher rent. The bid rent curve p_1 intersects the supply cost function somewhat more to the right. This means that new construction of the basic quality segment q_1 occurs at a higher quality than under socialistic conditions. More supplier competition, cost efficiency of private suppliers and their access to state of the art construction materials and technologies cause this effect. To meet the equilibrium condition for a continuous housing quality spectrum the bid rent curve of p_2 households is shifted to the right so that it intersects supply costs from below at q_1 .

Due to the adjusted supply cost curve p_2 would intersect the supply function again from above far more to the right. This means that new construction and renovation of type 2 housing can take place at a higher quality level than under the socialistic setting. One important interpretation is that more households of group 2 are now able to realize their preference for a higher level of housing quality.

The bid rent functions are determined not only by the preference of the household scheme but also by income. Incomes have increased during transformation and studies show that income disparities have increased in East Germany (Grabka 2000). Therefore we can assume a third group of households with a bid rent $P_3(q,u,y)$. higher income than the households in group 1 and 2. We adopt the Braids assumption of housing as a normal good so that all high- income consumers live in higher quality level than all

⁸ The wind of change in socialistic societies and the fact of transition is the best evidence that political education and indoctrination of the population with the aim to develop streamlined preferences that fits with a socialistic urban ideal have failed.

lower – income consumers with the same preference order between Z and Q. But preference order, determined by parameter x_3 may be different.

The bid rent curve of high income consumers is higher and situated right from the others.

$$P_3(q, u, y) = y_3 - Z_3 \qquad U_{\max}(q; Z_3 = y_3/x_3) \qquad \text{for } q_2 < q < q_3$$

With: $1 > x_3$ and $y_3 > \{y_1, y_2\}$

The graphical model shows that the introduction of a higher income generates a point q_3 as new top quality constructed for high income consumers.

If we assume constant population the generation of a group with higher incomes results to a declining number of households in the lower income groups. Additionally new housing constructed at q_3 and q_2 filters down to quality levels between q_v and q_1 . Since there are now more flats of that quality and the number of type 1 households is constant or declining q_v should increase resulting in a higher vacancy rate.

2.3.3 Effects of housing policy beyond transition

Transition as a process was not be done by switching some basic regulations and institutions. It was accompanied by housing policy instruments that are commonly used also in a market economy to prevent social imbalances and to reach distinct politic goals concerning housing standards.

As examples for policy actions we implement the social housing grants and a home ownership grant, general investment subsidies and the adoption of higher construction standards (energy efficiency, preservation order, building codes, safety at work)

It can be assumed that average supply costs are increasing with regulation of construction standards. Minimum standards often have a fix cost characteristic. Therefore supply cost would be increase especially in the lower quality segment. The higher quality segment may have implemented some aspects of regulation already before.

With investment grants and direct subsidies and tax deductions for renovation and new construction the supply cost of housing will be reduced. But housing policy probably would not subsidize neither unhealthy substandard flats. Therefore we assume a transitional supply function that is higher at the left tail and has a flat gradient in the middle of the quality range where subsidies could reach the mass of population. At the right tail would supply cost would only be steeper than a supply function without housing subsidies if there would be a kind of luxury tax.

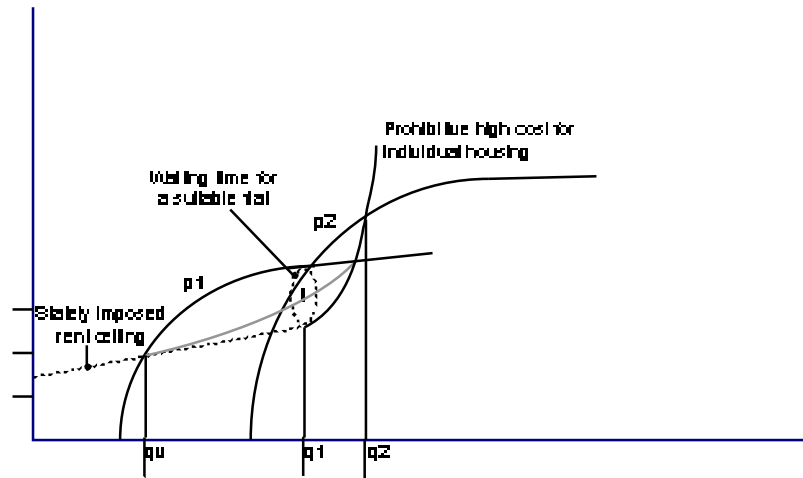
But policy also subsidizes the households directly. To reduce the risk of homelessness, that have been increased compared to the socialistic housing market government grants housing benefits to low income households. This can graphically modeled by a upper

right shift of the bid rent curve p_1 . Also homeownership subsidies enlarge willingness to pay of the households modeled by a shift of bid rent curve p_2 .

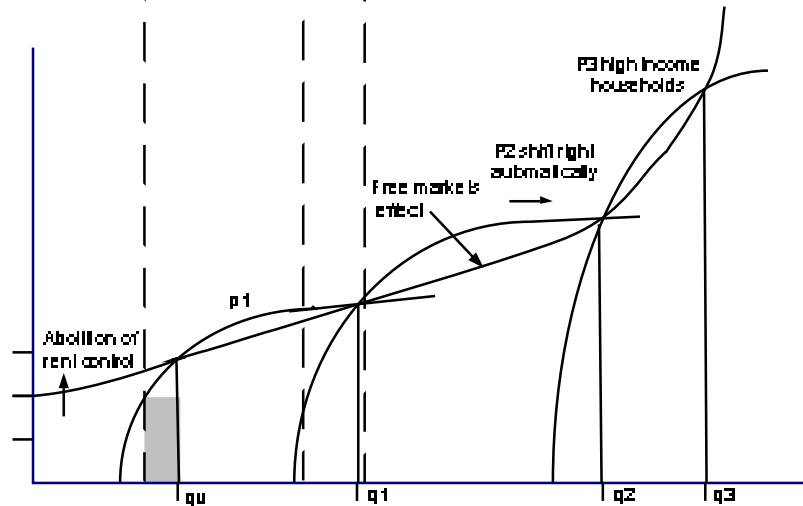
Figure 2c reveals the outcomes of a changed supply function: Social housing grants and investment incentives allow to build at a higher quality level for household group 1. As a consequence more households can afford flat with better quality and more flats at the lower quality range turn into vacancy. The level of q_v has moved to the right compared to the former situations. That means a higher vacancy risk for flats of same quality compared to the situation in panel B. With the shift of bid rent curve p_2 the quality level constructed for this household group q_2 increases also. Even the quality level of luxury homes q_3 increases, because high income households can profit by tax deductions that result in a flat gradient of supply cost curve.

Under the assumption that households are mobile and move to flat with higher quality if they can keep up their optimal mix of housing and other consumption, new construction at a higher quality and renovation in all quality segments lead quickly to an increase of average housing quality used by the households.

(A) Socialistic housing policy



(B) Transition to market economy



(C) Post transition Policy instruments

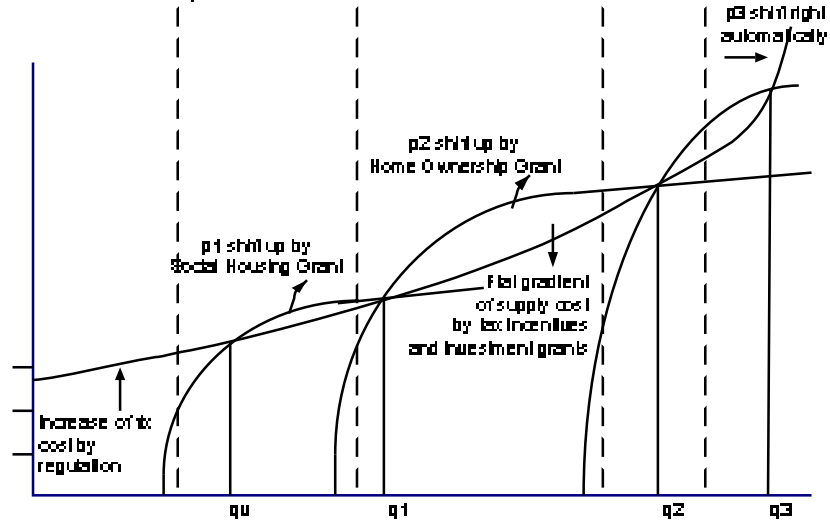


Figure 2 Graphical Filtering Model for the transition process in East Germany

2.3.4 The Process of Filtering during transition process

The first expectation that can be drawn from the filtering concept for the housing market in East Germany is an improvement of housing quality the higher income groups. We understand how GDR housing policy before 1990 provided construction of only two housing quality segments. The high quality segment of private home owners was very small. The second quality was rental housing and consisted of comfortable apartments in new constructed blocks of flats, equipped with modern facilities like central heating, elevator and complete bathrooms. Of course there existed a third quality at the lower end of quality range but it was not constructed but the result of the filtering process. The low quality segment was located in the old housing stock in the inner city. These flats were poorly maintained and without modern facilities. While the fixed rent system allowed only marginal nominal price differences between the quality segments the allocation of flats was regulated by an informal socialistic payment scheme of waiting, social criteria, and political privilege (Markuse 1991, 275f).

The construction boom after reunification caused by housing subsidies that were given as tax allowances or direct grants has potential to lift up the quality in many dimensions. The new constructed flats are not only better because they newer. They provide also the latest technologies and individual flair that is mostly missing in the socialist style blocks of flats. Renovation of existing flats occurred at different intensity.

Housing was graded up also by replacement and rehabilitation of deteriorated buildings. New constructed flats and renovated old town apartments now form the highest and medium quality segment. Since the renovation cost of historic buildings reach or exaggerates the price of new construction we do not expect that low quality housing will be the result. The low quality segment is located within the socialist housing stock and the old town apartment houses where just simple maintenance and basic renovations take place. The rest of the stock which is not maintained and that people leave to higher qualities is doomed to deterioration and vacancy. Figure 3 shows the directions how quality segments may have shifted during the transition process between 1990 and 2010. If we take into account the combinations depicted by the connecting lines in figure 2 the new quality spectrum is much broader than the three stages low medium and high. This argument considers that consumers may have not only a taste for a distinct quality but also for a special kind of architecture or building type.

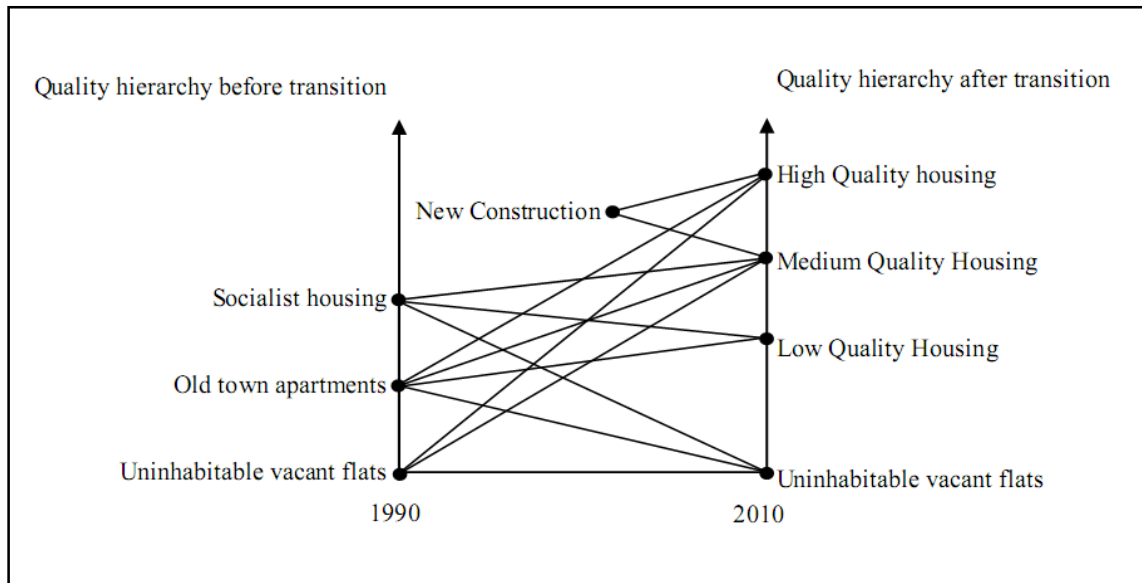


Figure 3: Filtering Model of the East German Housing market during transition

It is widely accepted, that the housing policy of the GDR with stately controlled allocation of flats implicated a well balanced social structure. I.e. the location of residence was not correlated with income. But as seen in section 2 this situation is mediocre since a greater supply with possibility of choice should be welfare enhancing. The transition to a market economy and investment subsidies changed the initial situation. Filtering theory suggests that high income households outbid lower income households and move into the newly high quality housing segments supplied by subsidized urban renewal projects. Also the middle class selects a new or renovated flat in medium quality. It may also be the case that their current flat is renovated to a medium quality. Low income households on the contrary do not move or move to similar flats as they used to live before housing market transition. In fact they have the possibility to occupy the best flats within the low quality segment which means that the remaining flats go into vacancy. This process of passive segregation and connected problems has been reported (Hill and Wiest 2004).

But what does this mean for the average quality of the housing stock in East Germany? If we follow this development of a wider spread of qualities, where only low income households remain at their initial level we expect on average a higher quality level.

The subsidized new supply makes high quality housing more affordable. But also the increasing real income of households contributes to the improvement of housing.

3 Housing Subsidies in East Germany:

Housing subsidies can be defined as government actions that reduce the relative cost for production or consumption of housing (Haffner and Oxley 1999). Direct grants, loans, tax incentives and also non fiscal policies like rent control are typical instruments of housing policy. Most important aspects of housing policies are laws for rent regulation, public and social housing, investment subsidies as well as housing grants.

We examine these policy instruments in regard to their relevance for the discussion around the improvement of housing conditions.

- **Rent regulation**

Policies of rent regulation are generally accused of reducing welfare because they often cause an undersupply of housing (Gyourko and Linneman, 1989), misallocation of housing supply to households types (Glaeser and Luttmer 2003) and to urban areas i.e. quality segments (Hackner and Nyberg 2000) as well as negative impacts on maintenance of the housing stock (Albon and Stafford 1990).⁹ East Germany's housing market system with fixed rent levels has undergone a fundamental deregulation in the transition from a centrally planned economy to market economy. For the existing housing stock this process was regulated by the rent level adjustment law that defined the steps of rent increase until 1998 (Jenkis 1996, 711f). The current rent law limits the gradient of increase but not the level of rent price. We therefore assume a free rental and housing market and can neglect marginal regulations by the rent law (MietG). This deregulation should have improved the condition for renovation and the improvement of living conditions.

- **Public and Social Housing**

In Germany social housing is not solely part of the public housing stock. It can also be provided by private landlords.¹⁰ The social housing subsidy is more or less organized as kind of an earmarked investment subsidy for which every investor can apply. After a series of reforms¹¹ the instrument is mainly focused on the creation of flats for people that are not able to find an appropriate flat on the

⁹ See also Olsen (1972), Fraser Institute (1975) and Downs (1988).

¹⁰ At the same time local public housing companies are engaged in the free housing market, competing with private landlords.

¹¹ The last reforms were the replacement of the Second Housing construction law (II.WBauG) by the housing support law (WoFG) in 2002 and the assignment of the full responsibility for social housing to the federal states in 2006. Since 2007 the federal government has declared to pay an annual fix amount of 512 Mio Euro to the federal states as lump-sum compensation (BMF 2007, 38).

free housing market (Kühne-Büning et al. 2005, 283ff). We analyze social housing subsidies together with general investment subsidies.

- **Investment Subsidies**

The variety of investment subsidies including grants for renovation and different tax allowances form the most important housing policy instruments. The investment subsidies target the supply side by reducing the construction cost or the expected rate of return.¹² These subsidies contributed significantly to the change of housing stock. Therefore we expect that investment subsidies play also an important role to explain changes of housing consumption in East Germany. Together with subsidies for social housing we focus on these investment subsidies and tax allowances to analyze the development of housing quality.

- **Housing Grants**

The policy instrument of direct housing grants for low-income households is aimed at the demand-side. The recipients of earmarked allowances get their money to choose autonomously a flat in the market. This kind of subjective subsidy is supposed to cause less distortion in the housing market than rent regulations or investment grants (Eekhoff 2002, 175ff). Thus, housing grants form part of the disposable income. After a reform of the social security system the costs for housing are included in the social benefits *ulgo* Hartz IV. Since these subsidies are strongly embedded in the social transfer system and hardly to separate we neglect the subsidization by direct housing grants in the rest of the paper.

3.1 Design of subsidy groups by Policy strategies

The literature about investment subsidy evaluation contains different approaches to classify or distinguish subsidy groups. Very common but not very accurate is a classification of subsidies in technical and fiscal dimensions. These approaches differentiate between the political subdivision that issues the subsidy or distinguish between tax incentive and direct financial grants (Boss / Rosenschon 2008). Our approach in contrast should reflect the political intention that was crucial to issue a special type of subsidy. This method should help to clarify the impact of these subsidies. Therefore we try to find a classification of the housing expenditures based on policy strategies.

The principles of housing policy were formulated in the 1950s, when Germany was faced with very poor housing conditions in the aftermath of World War II. The housing shortage was a social problem and the supply of people with adequate and sufficient housing an urgent task. To fulfill this challenging reconstruction of the mainly de-

¹² In a previous paper we analyzed subsidy impacts on supply and propose that the massive investment subsidy triggered construction activity resulting to a high vacancy level and negative price shocks in the short run (Michelsen and Weiß 2010).

stroyed housing stock, politicians pursued a doubled strategy to address different target groups. First social housing should help to accommodate low income households. Secondly home ownership was supported with a focus on family orientated homes (Kornemann 1996, 126f). Reviewing 40 years of policy both strategies were modified only gradually in terms of policy instruments but remained fundamentally the same (Kornemann 1996, 141).

As a consequence of political path dependency these two main aspects of the West German housing policy were transferred to East Germany after the reunification. According to these two strands of policy we identify and compare those subsidies which improve the housing stock in general to those which aim to increase the level of home ownership. Although the subsidies for homeowners are also used for new construction and renovation of flats and dwellings, their main aim is to increase ownership rates. Subsidies in the first group address mainly the market of rented flats. Within these subsidy groups exist a lot of different programs to address the different needs and different preferences of households.

Most of the information presented here stems from the subsidy reports of the federal government (BMF 1991-2008). We account for the reported subsidies in the period 1990 to 2008. This allows us to trace the impact of reunification and the following transition process in East Germany. We must concentrate on the housing subsidies provided by the federal government, because of the unmanageable amount of different programs and special funds that are provided by the federal states and which are not documented systematically¹³.

3.2 Urban renewal and Housing policy related subsidies:

We identify a group of subsidies for urban renewal, renovation and new construction that allows investment in new and existing rented flats and collect them in table 1. The criterion for a subsidy to be sorted in this group is that it is not exclusively dedicated to support homeownership. We find direct grants for renovation, credits and tax allowances according to the classification of the subsidy reports of the federal government (BMF 1991-2008).

¹³ Indeed, also in the federal subsidy reports exist some inconsistencies. Some allowances are counted as a subsidy in a later report but were not counted before (BMF 2007, 15). Generally this problem seems to be insignificant (Boss and Rosenschon 2008). But in the special case of housing related subsidies the practice of the subsidy reports neglected the urban renewal grants until 2003. In the following years one third of the expenditures for urban renewal was declared as a housing subsidy that is paid finally to private households and investors (BMF 2006). We therefore used other documents e.g. administrative agreements and an urban renewal report (BMVBS 2004) to get information about the expenditures of urban renewal for the former years.

As mentioned above social housing subsidies were adapted to East Germany, but with regard to special need of the specific situation. Because of the dilapidated stock social housing subsidies were not only dedicated to build new flats but also for renovation and modernization within the available housing stock. Furthermore the expenditures for social housing in East Germany are completely direct grants. That is different from West Germany, where a relevant part of the subsidies is given as credits with reduced interest rates.

Urban renewal programs foster the adjustment of the poor housing conditions in terms of the residential environment quality. About one third of the urban renewal subsidies are estimated as subsidy to private investors. Since urban renewal areas are rather inner city or old town quarters with apartment houses rather than neighborhoods with single family homes we sort this subsidy in the first group.

Several other credit programs and allowances for the modernization and construction of flats were issued for East Germany. These are namely the *Housing Modernization Credit Programs I and II* of the state owned bank KfW and ad hoc programs with direct grants for the completion and new construction of rented flats.

To improve the housing conditions very quickly the *Assist Area Act* was passed to support renovation and new construction investments in East Germany by a very effective tax subsidy. Between 1992 and 1998 it was possible to write off up to 50 percent of a real estate investment within the first 5 years. Especially high income households were attracted by the tax deductions. Since this group of wealthy people mostly already had an own home the Assist Area Act was used much stronger for investments in rented flats than for owner occupied flats. Therewith connected is a notable stream of West German private capital into the East German Housing market. In 1999 Later on this extensive tax subsidy was reformed by the *Investment Grant Act* (InvZulG). The new instrument consists of tax-free grants that are limited to a percentage of the investment cost according to the kind of investment. The new regulation that was in duty until 2004 had a strong focus on inner city areas and the renovation of historic buildings.

The variety and liberal allocation of housing subsidies in East Germany offered support for nearly every type of housing to build up a diverse supply for all social and income levels. In the diversified market of West Germany subsidies were concentrated on social housing for lower income households, local neighborhood problems (Urban renewal) and energy efficiency (CO₂-Reduction).

Not all subsidies are explicitly attributable to East or West Germany because the subsidy reports do not split of the regional allocation of these expenditures. These are special tax allowances for ecologic renovations and investment in historic monuments or within formally designated redevelopment areas, several subsidies for energy saving investments within the housing stock and some smaller programs supporting the construction of additional flats.

Table 1: Subsidy Programs for renovation and new construction

Subsidy Programs for renovation and new construction	Amount in Mio. Euro 1990-2007	Fiscal type
West Germany		
Social Housing	12511.0	Grant
Urban renewal program	490.5	Grant
KFW CO2 Reduction Program	59.1	Credit
Sum	13060.6	
East Germany		
Social Housing	4601.4	Credit Grant
Urban renewal program	1753.2	Grant
KFW Modernization Program I &II	6879.63	Credit
Other Construction subsidies (Completion of construction works of rented flats started before reunification and renovation and rehabilitation within the existing housing stock)	832.9	Grant
Assist Area Act / Investment Grant Act (rented flats)	4254.0	Tax allowance
Sum	18321.2	
No documentation of regional allocation		
Support of historic monuments and private investment within urban renewal areas	606.4	Tax allowance
Renovation subsidies for energy saving investments	2503.4	Credit Tax Allowance
Other Subsidies for additional flats	1300,7	Credit Tax Allowance
Sum	4410.5	

Data Source: Federal ministry of finance (BMF); Federal Ministry for Transport, Construction and Urban Renewal; Compilation and calculation by the authors

3.3 Home ownership policy related subsidies:

In the second group we collect the subsidies that support the renovation and new construction of owner occupied housing. Table 2 displays the allocation of these subsidies to East and West Germany as far as possible. While more subsidies passed on to West Germany in East Germany there have been more particular programs. These subsidies for home-buyers and privatization strategies addressed the low home ownership rate in East Germany.

At the beginning of the 1990s a small ad hoc program supported the completion of construction works of single family homes started before the reunification. A further support of home ownership for East Germany was connected with the partial privatization of the public housing companies. Renters that were willing to buy their own flat were supported by this program. Also the part of the tax allowances for owner occupied flats by the assist area act is added solely to East Germany.

Table 2: Home-ownership related subsidy programs

Home-ownership related subsidy programs	Amount in Mio. Euro 1990-2007	Fiscal type
West Germany		
1 st Homebuyer subsidy (EigZulG)	27381.6	Tax allowance
Sum	27381.6	
East Germany		
1 st Homebuyer subsidy (EigZulG)	8086.8	Tax allowance
Assist Area Act & Investment Grant Act (owner-occupied flats)	894.6	Tax allowance
Privatization of public housing to renters	160,1	Grant
Completion of construction works of single family homes (started before reunification)	7.4	Grant
Sum	9148.9	
No documentation of regional allocation		
Previous Homebuyer subsidies (§7b EstG, § 10e EstG)	23341.7	Tax allowance
Sum	23341.7	

Data Source: Federal ministry of finance (BMF); Compilation and calculation by the authors

The home ownership grant act (EigZulG) is the biggest subsidy in the 1990s aimed to enable more low income households to buy or build an owner occupied home (Kornemann 2000). In contrast to the former regulations of the income tax law (§ 7b EStGB, § 10e EStG) the home ownership grant is independent from the progression rate. Although this subsidy has no regional limitation we find another study that showed that about 23 % of the expenditures is connected with investments in East Germany (Färber 2003, 20).

We did not find any documentation about the regional allocation of the previous home ownership tax subsidies (§7b EstG, § 10e EstG). However, these subsidies are fading out during the examination period. A good deal of this tax losses occurring in the 1990s in caused by deductions for homes constructed in West Germany before 1990 and therefore not so relevant for the evaluation of transition related changes in East Germany.

4 Empirical findings

4.1 The development of housing conditions during transition

This section describes the development of housing conditions in both parts of Germany after the reunification. We present the renovation status and the equipment of flats as purely quality orientated indicators and living space per person and the satisfaction with the size of the flat as in indicators for quantitative housing consumption.

The indicators of housing quality presented here are mainly taken from German Socio-economic panel survey. The results are weighted with appropriate factors to get a representative picture from the sample of about 12000 households. Additionally we refer to census data.¹⁴ To value the success of the adjustment process, we compare with the East German results West German values of the indicators.

Figure 4 displays the development of renovation status of buildings and the equipment with central heating and balconies as indicators for housing quality. The status of renovation in East Germany has significantly increased especially during the second half of the 1990s. Since 2004 the share of East German households that live in a well renovated house is similar to West Germany at around 70 %.

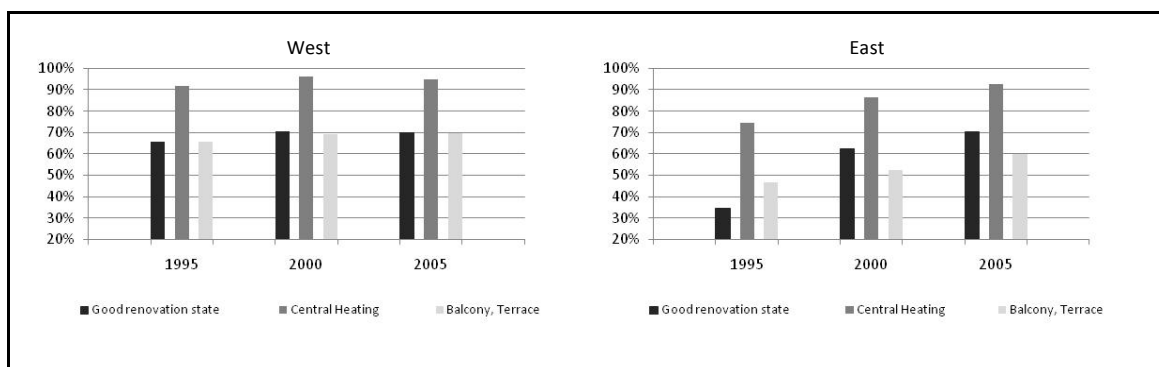


Figure 4: Share of statements about good renovation, Equipment status and subsidies for renovation and new construction. Data Source: Authors' calculations; Socio Economic Panel.

The improvement of housing quality is also visible in the equipment of flats. New central heating facilities made housing more convenient and improved also energy efficiency and reduced the pollution connected with coal heating. We observe an increase of

¹⁴ Another data source about the development of the housing quality in East Germany is the Housing Stock Panel which was performed by the Federal Research Agency for Spatial Planning. This survey provides a detailed analysis about the renovation activity within a sample of about 7500 flats in 1000 houses (Osenberg and Waltersbacher 1997; Strubelt et al. 1998).

households moving in flats that are equipped with central heating. East German households catch up to the West German level that is nearly constant at more than 90% of all households with central heating.

Also the share of households with a balcony or terrace, which can be seen as an element of convenience is also increasing in East Germany. But there is still a significant gap compared to West Germany in the 2005 values of this indicator. The difference is probably caused by a different building structure i.e. more apartment houses and higher average age of buildings in East Germany. Balconies or terraces are difficult to integrate into an existing structure.

Also the quantitative living standard of East German Households has increased as we show in figure 5. The consumption of living space per person is continuously rising in Germany. In 1965 Statistics for West Germany report 22.3 sqm per capita in 1965 and 32,6 in 1980 (Stat. Bundesamt 2000, 70). Unfortunately there are no reliable statistics about the development in socialistic East Germany but the low level of 29.5 sqm in 1993 which is a gap of 8.3 sqm (22%) to the West German level revealed that the socialistic housing policy did not offer enough supply of habitable flats.¹⁵ With the transformation process after the reunification the housing space consumption per capita jumped especially in the late 1990s when the mass of the new and renovated supply came into the market. But in 2006 there is still a gap of about 5.4 sqm (12%) to the West German level of living space consumption.

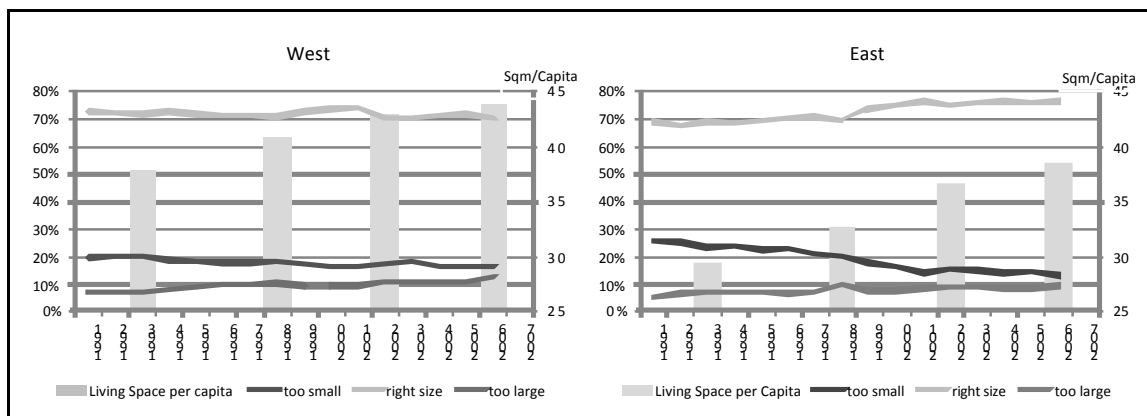


Figure 5: Living Space per capita and households' satisfaction with the size of the flat. Data Source: Authors' calculations Federal bureau of statistics, Socio Economic Panel

Concerning the disparities in living space per capita it seems somewhat surprising that the satisfaction with the size of the flat in East Germany was only a few percent lower than in West Germany in the early 1990s. Since 1999 the share of households that are satisfied with their size of living space is even higher than in West Germany. Figure 4

¹⁵ This is remarkable because the statistical number of flats per inhabitant were higher than in West Germany in every period since 1950 (Stat. Bundesamt 2000, 54). The dilapidated state of many houses forced the population to move closer together.

shows the slight increase of this value for East Germany and the according decrease of households that state their flat as too small. In West Germany the satisfaction with the size of the flat is stagnating. In both parts of Germany a small but slightly increasing share of households thinks that their flat is too big.

The high level of satisfaction with the space of the flat in East Germany contradicts the catch up process in terms of living space at the first look. But table 3 reveals a higher income elasticity of demand for living space between 1993 and 2006 in West Germany. That could mean less taste for living space in East Germany. The stronger adjustment of these indicators housing indicators (Figure 3) may also reveal a stronger preference for the improvement of housing quality. It is also possible that this development is based on a path dependency caused by the initial housing quality situation in 1990 and the following renovation subsidies and the increase of rents. Also a demographic process development resulting to a higher share of single households and so called “empty nester households” where children have left the home of their parents may explain somewhat the growth of living space per capita.

Table 3 Income elasticity of demand for living space per capita 1993-2006

Growth	West	East
Per Capita Living Space Growth in %	19,2%	31,7%
Per capita Real Disposable income Growth in %	5,7%	16,8%
Income elasticity	3,36	1,89

Data Source: Authors' Calculations; Federal bureau of statistics Economic

According to the selected housing quality indicators we can state, that the housing situation has been improved in East Germany. Quality indicators that are connected with investor decisions like the renovation status and equipment with central facilities seem to reach saturation like in West Germany due to support by subsidies. But there is still a gap in terms of living space consumption. Considering the correlation between housing consumption and income, the remaining gap can be explained by the remaining income disparity between East and West Germany. It is very obvious that subsidization of housing construction and the creation of a wider quality range enabled households to select a flat according to their preferences and income.

4.2 The changes of homeownership during transition

In this section we describe the changes of Home Ownership Rates in East Germany after the reunification and compare it with the development in West Germany.

The data of the SOEP revealed that the share of home owners in East Germany increased quite strongly from about 30% to nearly 40% between 1995 and 2006. Increase in West Germany was much lower from about 45% & to nearly 50% despite the massive support by the home ownership grant act in this period.

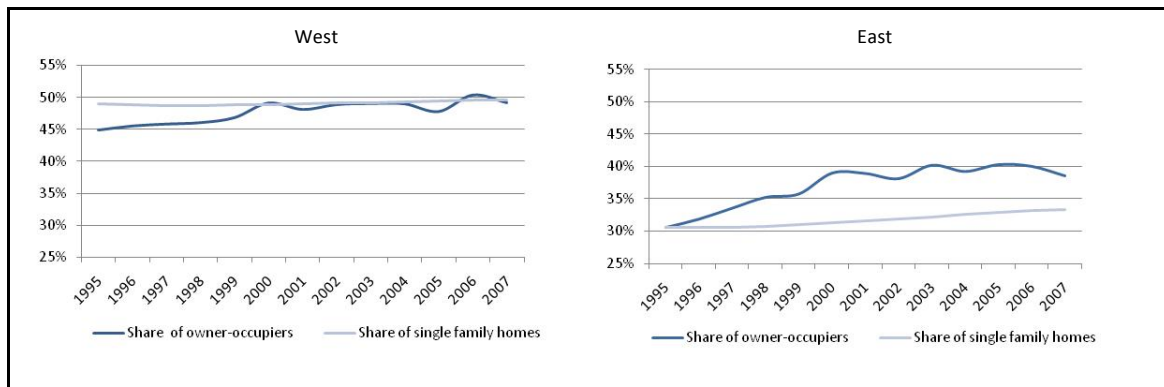


Figure 6: Shares of homeowners and single family homes and home ownership supporting subsidies. Data Source: Authors calculations; BMF; Socio Economic Panel

This supports the thesis of a catching up effect of East German households to purchase residential property. But the majority of this increase took place in the 1990s. We see, that home ownership rate is nearly stagnating after the year 2000. Although home ownership rate has increased strongly, it is obvious that East Germany is still lagging behind compared with West Germany in this point. It seems that the potential for home ownership within the East German Housing market is somewhat limited due to economic capabilities of households and the good qualities offered by the rental housing market.

The development of a higher home ownership rate may have consequences on the living space consumption and the structure of the city. The consumption of living space per capita is highly connected with the modus of tenure. Owner-occupier households in general show higher living space consumption than tenant households. The reason is that owner occupiers are wealthier on average and purchase mostly single family homes. Indeed, single-family homes and two family houses are usually constructed for home buyers and not for renters. Therefore we expect a high correlation with the share of houses with one or two flats from the housing stock. But the relation between the increase in one and 2-family houses with the development of the residential property rate is ambiguous.

In West Germany the share of single family homes is very closed to the share of home owners, but in East Germany home ownership rate increased stronger than the share of single family and detached homes. This may be due to the fact that residential property is increasingly realized within the existing housing stock. An evaluation of the Home buyer subsidy reports that about 44% of the supported households purchased a new constructed home (*ARGEBAU*, 2002). On the other hand, attempts to privatize a good deal of the East German public housing stock to the renters were not very successful.

Another hint to the distortion relation of detached single family homes and the home ownership rate reveals a look on the allocation of subsidies. Subsidies for renovation and new construction that favored mainly the sector of apartment housing are summed up 18.2 billion Euros for East Germany (table 1). This is the double of home ownership related subsidies in table 2 with a sum of 9.1 billion Euros. As we described in an earlier

paper a subsidy driven investment boom caused an oversupply and high vacancy rates in the East German rented housing sector (Michelsen /Weiß 2010). This is probably disturbing the natural relationship between home-ownership rate and the share of detached single family homes.

The high share of vacant apartments can also be seen as a result of the filtering process. The ability of tenure choice and the implementation of Homeownership subsidies enhanced the supply structure of different housing qualities. Consequently maximizing their individual utility a lot of households in East Germany took the chance to be owners, which was very difficult and suppressed by socialistic housing policy during the GDR-Time. They moved out from flats that obviously do not meet the preferences of demand.

4.3 High vacancy – the other side of the coin

The latter sections document that the situation on the East German property market had clearly changed compared to the situation at the breakdown of the socialistic system. A lot of indicators for housing quality and homeownership are converging to the west values. But the improvement process comes along with another problem. The filtering model presented in section 2.2 predicts increasing vacancy in the lowest quality segments when more homes are constructed at a higher quality. That is firstly because more flats are filtering down to qualities for low income household and secondly with general increase of higher incomes the share of low income people may decline with willingness to pay for low quality housing will decline. The increase of vacancy started rapidly in the second half of the 1990s with a doubling of the vacancy rate from about 6.5% to about 13.2% between 1995 and 1998 (Pfeiffer et al. 2000). Different surveys on the distribution of vacancy in different housing segments confirm the presumption made by the filtering model. These studies reveal that flats with a worse renovation state are more often vacant than modernized flats (Table 4).

Furthermore vacancy is concentrated in old buildings that mostly situated in inner city homogenous old towns quarters but also in the segment of apartment houses that were build during GDR time. It is likely and follows from the filtering model that the vacant housing segments do not match the preferences of the households respectively that there are not enough households with demand for low quality housing. The high vacancy rate is an obstacle for further urban development because it causes several negative externalities on residential environment, social structure, real estate values and investment.

On account of the durability of housing and the demographic trends with stagnating and even declining number of households demolition seems to be the only possibility to reduce the extreme vacancy in the low quality segment. The support of renovations of empty flats in old buildings is probably no alternative, because this would generate new empty state in the segments that now are still inhabited.

Table 4: Vacancy rates in East Germany by housing market segments in 2005/2006

<i>Survey Housing Companies¹</i>		<i>Survey municipalities</i>	
<i>Year of construction</i>	<i>Vacancy rate</i>	<i>Location</i>	<i>Vacancy rate</i>
before 1919	44%		
1919-1948	20%	Old Town Quarters	19%
1949-1969	8%		
1970-1990	13%	GDR-Housing	14%
since 1991	7%	other	7%

<i>Status of modernization</i>	<i>Survey among</i>	
	<i>Housing Companies</i>	<i>Private Landlords</i>
	<i>Vacancy rate</i>	<i>Vacancy rate</i>
no renovation / modernization	46%	76 %
partially renovated / modernized	15%	19%
fully renovated / modernized	6%	11%
total	13%	20%

Data Source: Authors' Compilation; Liebmann et al. (2007, 28); Beckmann et al. (2008, 205; 220)

5 Concluding Remarks

The aim of this paper was to explain the mechanisms that have led to the remarkable improvement of housing quality in East Germany during transition after the political change in 1989 and the reunification of Germany in 1990.

We propose that welfare on the East German Housing market was significantly increased by creating a new variety of housing types and qualities which fits better with different preferences of the households. Socialistic Housing and construction policy limited the welfare with distorted construction costs and rent control.

The description of the housing quality structure with a filtering model makes clear how construction quality levels change from a socialistic to a market economic environment. The integration of an expansive and liberate housing policy that leads to a flatter construction cost curve shows first that constructed qualities are higher than without subsidies and second that the vacancy risk for flats with same quality is higher compared to a situation without subsidies.

In the empirical part of the paper we analyze the development of several indicators of housing quality and the amount of subsidies for renovation and new construction in East

Germany that was predominantly increasing until 2001 and was later continuously reduced. This means that the East German Housing market was favored much stronger than the housing market in West Germany where subsidies were reduced earlier and were also mostly lower, especially if the subsidies would be measured per households or per capita. The indicators presented in the latter sections show unambiguously that East German households were able to improve their housing conditions significantly during the transition process after the reunification. This statement holds for the quality in terms of technical equipment, renovation state and average living space consumption per capita. This regional allocation was expected because the political goal was to improve the East German housing conditions with the West German level as a benchmark.

There have been two signals to start fading out special subsidies for the East German housing market. The first reason is the approximation of housing quality indicators compared to West Germany and the other reason is the upcoming vacancy, making clear the success of higher housing qualities is only the one side of a coin. The policy to satisfy high demand for housing in the early 1990 has led to a notable oversupply of housing in many regions. It is hard to say, whether policy reacted to reluctant in cutting back subsidies. In any case, the change is reflected by a reduction of expansive housing subsidies since the late 1990s.

Also the homeownership rate has increased. Since owner occupied property was proscribed and partially socialized in GDR most East German Households lived in rented flats and had therefore no influence on the housing stock investment. To change this and to increase social responsibility and connectivity to the urban environment it seems to be a good strategy to support home ownership in East Germany.

But the level of households living in an own home still doesn't reach the West German level. The risk of oversupply and decreasing property prices limits the probability for further increase of homeownership in East Germany. Therefore subsidies for new construction and home ownership are no current policy instrument any more. It seems that the potential for home ownership within the East German Housing market is somewhat limited due to economic capabilities of households and the good qualities offered by the rental housing market.

Literature

- Albon, R.; Stafford, D. (1990): Rent Control and Housing Maintenance. in: *Urban Studies*, Vol. 27, No. 2, pp. 233-240.
- Anas, A.; Arnott, R. J. (1991): Dynamic housing market equilibrium with taste heterogeneity, idiosyncratic perfect foresight and stock conversion. In: *Journal of Housing Economics*, No.1, 2-32.
- ARGEBAU (Arbeitsgruppe Wirkungsanalyse Eigenheimzulage des Ausschusses für Wohnungswesen der ARGEBAU) (2002): Bericht zur Inanspruchnahme der Eigenheimzulage 1996-2000. Bundesamt für Bauwesen und Raumordnung. Bonn.
- Arnott, R.; Davidson, R.; Pines, D. (1983): Housing Quality, maintenance and rehabilitation. *Review of Economic Studies* No. 50, 467-494.
- Arnott, R.J.; Braid, R.M (1997): A Filtering Model with Steady State Housing. In: *Regional Science and Urban Economics* No. 27, 515-546.
- Boss A.; Rosenschon A. (2008): Der Kieler Subventionsbericht: eine Aktualisierung. Kieler Diskussionsbeiträge NR: 452/453, Mai 2008, Kiel.
- Braid, R.M. (1981): The Short Run Comparative Statics of a Rental Housing Market. *Journal of Urban Economics* No. 10, 286-310.
- Braid, R.M. (1984): The Effects of Government housing Policies in a vintage Filtering Model. *Journal of Urban Economics* No. 16, 272-296.
- Braid, R.M. (1985): The Comparative Statics of a Filtering Model of Housing with Two Income Groups. In: *Regional Science and Urban Economics* No. 12, 437-448.
- Bundesministerium der Finanzen BMF (1991): 13. Subventionsbericht Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 1989 – 1992. Bonn.
- Bundesministerium der Finanzen BMF (1993): 14. Subventionsbericht Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 1991 – 1994. Bonn.
- Bundesministerium der Finanzen BMF (1995): 15. Subventionsbericht Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 1993 – 1996. Bonn.
- Bundesministerium der Finanzen BMF (1997): 16. Subventionsbericht Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 1995 – 1998. Bonn.
- Bundesministerium der Finanzen BMF (1999): 17. Subventionsbericht Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 1997 – 2000. Bonn.
- Bundesministerium der Finanzen BMF (2001): 18. Subventionsbericht Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 1999 – 2002. Berlin.

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- Bundesministerium der Finanzen BMF (2003): 19. Subventionsbericht Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 2001 – 2004. Berlin.
- Bundesministerium der Finanzen BMF (2006): 20. Subventionsbericht Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 2003 – 2006. Berlin.
- Bundesministerium der Finanzen BMF (2007): 21. Subventionsbericht Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 2005 – 2008. Berlin.
- Bundesministeriums für Verkehr, Bau- und Wohnungswesen BMVBS (2004): Städtebaulicher Bericht der Bundesregierung 2004 Nachhaltige Stadtentwicklung – ein Gemeinschaftswerk. Berlin.
- DiPasquale D.; Wheaton W. C. (1996): Urban Economics and Real Estate Markets. Prentice-Hall Inc: New Jersey.
- Downs, A. (1988): Residential rent controls: An evaluation. Urban Land Institute. Washington, DC.
- Eekhoff, J. (2002): Wohnungspolitik. 2. Auflage. J.C.B. Mohr (Paul Siebeck). Tübingen.
- Färber, G. (2003): Wirkungen der Eigenheimzulage Probleme der Subventionierung des Erwerbs von Wohnungseigentum durch die Eigenheimzulage. Institut für Landes- und Stadtentwicklungsforschung und Bauwesen des Landes Nordrhein-Westfalen, Dortmund.
- Fraser Institute (1975): Rent control: A popular paradox. Vancouver, BC.
- Glaeser, E., Luttmer, E. (2003): The Misallocation of Housing under Rent Control. in: The American Economic Review, Vol. 93, No. 4, pp. 1027-1046.
- Glaeser, E.L.; Gyouko, J. (2009): Arbitrage in Housing Markets. In: Glaeser, E.L Quigley, J.M.: HOUSING MARKETS AND THE ECONOMY Risk, Regulation, and Policy ESSAYS IN HONOR OF KARL E. CASE. Danbury Connecticut, 113-148.
- Grabka, M. M. (2000): Einkommensverteilung in Deutschland - Stärkere Umverteilungseffekte in Ostdeutschland. DIW-Wochenbericht 19/00 Link: <http://www.diw.de/sixcms/detail.php/285797> (11.5.2010).
- Hackner J.; Nyberg S. (2000): Rent Control and Prices of Owner-Occupied Housing. in: The Scandinavian Journal of Economics, Vol. 102, No. 2, pp. 311-324
- Haffner, M.E.A., Oxley, M.J. (1999): Housing Subsidies: Definitions and Comparisons. in: Housing Studies, Vol. 14, No. 2, pp. 145-162.
- Henderson V.; Ioannides Y. M. (1986): Tenure Choice and the Demand for Housing. In: *Economica*, New Series, Vol. 53, No. 210, pp. 231-246
- Heydemann G. (2003) Die Innenpolitik der DDR Enzyklopädie deutscher Geschichte, Oldenbourg, München
- Hilbers, P. / Hoffmeister, A. / Banerji, A / Shi, H. (2008), House Price Developments in Europe: A Comparison, IMF WP/08/211, European Department.
- Hill, A. & K. Wiest (2004): Segregation und Gentrifikation in der schrumpfenden Stadt? Eine Längsschnittstudie in Leipziger Altbaugebieten. In: Oswald, Ph.

-
- (Hrsg.): Working Papers des Projektes schrumpfende Stadt, Bd. IV. Halle Leipzig. S. 88-100.
- Jäger, M. / Voigtländer, M. (2006), Immobilienfinanzierung - Hypothekenmärkte und ihre gesamtwirtschaftliche Bedeutung, IW-Analyse, Nr. 22, Institut der deutschen Wirtschaft, Köln.
- Jenkis H. (1996): Die Überführung der ostdeutschen Wohnungswirtschaft in die soziale Marktwirtschaft In Helmut Jenkis (Hrsg.): Kompendium der Wohnungswirtschaft; München 1996, S. 673-733.
- Kahl A. (1991): Leipzig- ungelöste Probleme führen zum Aufbruch in: Marcuse P. Staufenbiel F. (Hrsg.) Wohnen und Stadtpolitik im Umbruch Akademie Verlag Berlin, 66-78
- Kornemann R. (1996): Die wohnungspolitischen Zielsetzungen in den Regierungserklärungen. In Helmut Jenkis (Hrsg.): Kompendium der Wohnungswirtschaft; München 1996, S. 123-143.
- Kornemann, R. (2000) : Paradigmenwechsel Von der Steueroptimierung zur Objektorientierung. IfS Schriftenreihe des Institut für Städtebau Heft 62, S92ff
- Kühne Büning L.; Steveling L.; Nordalm V. (2005): Grundlagen der Wohnungs- und Immobilienwirtschaft. Hamburg 2005.
- Leung, C., Wang, W. (2007): An Examination of the Chinese Housing Market through the Lens of the DiPasquale-Wheaton Model: a Graphical Attempt. in: International Real Estate Review, Vol. 10, No. 2, pp. 131-165.
- Lowry, I.S.: (1960): Filtering and Housing Standards: A conceptual analysis. In: Land Economics, Vol. 36, 362-370.
- Marcuse P. (1991) Die Merkmale einer widersprüchlichen Politik des städtischen Wohnens. in: Marcuse P. Staufenbiel F. (Hrsg.) Wohnen und Stadtpolitik im Umbruch Akademie Verlag Berlin, 266-282
- Megbolugbe, Isaac F.; Marks, Allen P.; Schwartz, Mary B. (1991): The Economic Theory of Housing Demand: A Critical Review, in: Journal of Real Estate Research.
- Michelsen, C.; Weiß, D. (2010): What happened to the East German Housing Market? A Historical Perspective on the Role of Public Funding, in: Post-Communist Economies, Vol. 22, No. 3, pp. 387-409.
- Nagel R.; Preibisch W. (2002): Stadtumbau Ost: Den Wandel als Chance nutzen. In: W. Strubelt et al. (Hrsg.): Städtebauförderung – historisch gewachsen und zukunftsfähig. Informationen zur Raumentwicklung Heft 9/ 10.2001 Bundesamt für Bauwesen und Raumordnung, Bonn.
- Olsen, E. O. (1972): An Econometric Analysis of Rent Control. The Journal of Political Economy, Vol. 80, No. 6 (Nov. - Dec., 1972), pp. 1081-1100.
- Osenberg H.; Waltersbacher M. (1997): Wohnungsbestandspanel für die neuen Bundesländer. Forschungen zur Raumentwicklung Band 24 Bundesforschungsanstalt für Landeskunde und Raumordnung, Bonn.
- Peuckert R. (2008): Familienformen im sozialen Wandel. 7. Aufl. VS Verlag Wiesbaden.

-
- Pfeiffer, U., Simons, H., Porsch, L. (2000): Wohnungswirtschaftlicher Strukturwandel in den neuen Bundesländern – Bericht der Kommission, im Auftrag des Bundesministeriums für Verkehr, Bau- und Wohnungswesen, Berlin.
- Ratcliff, R.U. (1949): Urban Land Economics. McGraw-Hill. New York, 321-34.
- Rietdorf, W.; Baeseler, H.; Herden E.; Liebmann, H.; Seidel, A.: Bund-Länder-Förderprogramm Städtebauliche Weiterentwicklung großer Neubaugebiete in den neuen Ländern und im Ostteil Berlins , Bonn Berlin 1996.
- Schumann W. Markuse P. (1991): Wohnungsprobleme und widersprüchliche Wohnungspolitiken in: Markuse P. Staufenberg F. (Hrsg.) Wohnen und Stadtpolitik im Umbruch Akademie Verlag, Berlin.
- Schwarzbach H. (1991) Bürgerbeteiligung für Demokratische Stadtplanung. in: Marcuse P. Staufenberg F. (Hrsg.) Wohnen und Stadtpolitik im Umbruch Akademie Verlag Berlin, 250-265.
- Siebert, H. (1993): Das Wagnis der Einheit. Eine wirtschaftspolitische Therapie, 2. aktualisierte Neuauflage. Deutsche Verlags-Anstalt, Stuttgart.
- Statistisches Bundesamt 2000: 50 Jahre Wohnen in Deutschland. Ergebnisse aus Gebäude- und Wohnungszählungen, -stichproben, Mikrozensus-Ergänzungserhebungen und Bautätigkeitsstatistiken; Wiesbaden , Stuttgart.
- Strubelt W.; Gatzweiler H. P; Schön K. P. (1997): Strukturwandel des Wohnungsmarktes in den neuen Ländern. Informationen zur Raumentwicklung, Heft 11/12 2007, Bundesforschungsanstalt für Landeskunde und Raumordnung, Bonn.
- Sweeney, J. L., (1974). A commodity hierarchy model of the rental housing market. In: Journal of Urban Economics, 1, 288-323.