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## ABSTRACT

### **The Working Hours of Immigrants in Germany: Temporary versus Permanent**

Migration is often viewed as an investment decision. Temporary migrants can be expected to invest less in accumulating human capital specific to the host country. Instead, they work more hours in order to accumulate savings and invest in financial capital that can be transferred back to their country of origin upon return. In this paper, using German panel data, we explore how temporary migrants differ from permanent migrants in their labor supply decisions and behavior. Upon correcting for endogeneity bias, temporary migrants are found to work more hours than permanent ones. This result supports the human capital theory and a household production model of migration where migrants may be temporary by choice and not because of legal restrictions or even a bad experience in the labor market.

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## Introduction

Migration, whether internal or international, is often viewed as an investment decision. The costs of migration, which include physical costs of the move and costs of adjusting to a new location, are incurred in order to earn higher income in the future. When exploring international migration, these adjustment costs have been viewed as the costs of adapting to the labor market in the destination country. A large part of these adjustment costs may be the costs of investing in human capital, such as becoming more fluent in a language, at the destination. Decisions regarding migration partly depend on whether the move is viewed to be permanent or temporary. We will concentrate on the demand for migrants in Germany and the adjustments migrants make when living in Germany. Temporary migrants are expected to invest less in accumulating human capital specific to Germany. Instead of spending time accumulating specific human capital, they are expected to work more hours in order to accumulate savings and invest in financial capital that can be transferred back to their country of origin when they return. In this paper, we will explore temporary migration and how temporary migrants differ from permanent migrants in their labor supply decision making and behavior. In the first section we will explain what is meant by temporary migration and review some of the literature. Next, we will develop and discuss a model of temporary migration. Third, we will discuss the data and the estimation procedures to be employed in testing the model. Finally, we will discuss the conclusions implied by these estimates and some implications for policy.

## Temporary Migrants

Temporary migration differs from permanent migration in terms of the migrant's attachment to the labor market in the host country. The temporary migrant plans on returning to the origin.

This intention may be reinforced by contract, by immigration laws or it may simply be the intention of the migrant. Temporary migration is a common and growing phenomenon (Dustman, 2000). Temporary migration exists when the migrant expects to return to the home country and behaves accordingly while in the host country. One type of temporary migration entails temporary residence permits which reinforce the intentions to return. Examples include temporary migration from South Asia and South-East Asia to countries in the Gulf and migration from East Europe to the European Community. However, temporary migration without these temporary residence permits is common in the US and in Europe. Indeed, European migration after the recent EU enlargements is predominantly of temporary nature, at least when judged by migrants' intentions.<sup>1</sup>

One of the issues concerning temporary migration is that temporary migrants may invest less than permanent ones in human capital that is specific to the host economy. The shorter the intended stay, the less such investment will be made. An example of this type of investment is learning the language of the host country. Another type of investment that is less likely to occur for temporary migrants involves job training conducted by employers. A free rider problem may be more severe for temporary migrants than for other workers in that firms may be hesitant to invest in job training for temporary migrants because they will lose the benefits of this investment when the migrant returns to the home country. Consequently, as Amin and Matoo (2005) point out, employers may prefer hiring permanent versus temporary migrants because they are more likely to capture the returns from this investment.

Amin and Matoo develop a model where the country receiving immigrants faces a tradeoff between the lower social costs attributed to temporary migrants and external benefits of job training which are higher for permanent migrants. They identify social costs of migration

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<sup>1</sup> See Kahanec et al. (2010) and the evidence summarized in Kahanec and Zimmermann (2010).

such as the provision of publicly provided services not fully supported by the tax contributions of the migrants. Temporary migrants might have lower social costs in part because they are less likely to move their family with them decreasing the demand for medical, educational and social services. They also might be less of a threat to a society with xenophobic issues. However, permanent migrants may invest more time assimilating to the host country. Furthermore, on the job training is less likely to be lost when the temporary migrant returns to the source country because the probability of return migration is lower for permanent migrants. Amin and Matoo argue that countries face a commitment problem in that they can not credibly commit to returning temporary migrants particularly when they receive training by firms. As a result of this commitment problem, host countries restrict migration to a level below the optimum level but have too many permanent migrants.

The reduction of these social costs has become a major concern in the migration literature. Social costs can be categorized as economic costs and cultural costs. Much of the attention has focused on economic costs. Chiswick (1978) and Borjas (1987) find that assimilation does occur. Chiswick argues that gradual cultural assimilation of immigrants in the US has resulted in increased earnings. Furthermore, this assimilation came through personal investment in human capital and not from on the job training provided by firms because firms are reluctant to invest in training immigrants partly because they perceive a higher risk of job mobility. Borjas argues that the heterogeneity of immigrants is the source of assimilation differences and that immigrants, such as political refugees, who are more attached to the destination are the most likely to assimilate. Since temporary migrants have less attachment to the destination than permanent migrants, we would expect less assimilation.

Migration, both temporary and permanent, has had a considerable impact on the economies and cultures of industrialized nations. Germany has perhaps the most experience with assimilating migrants. From 1945 until 1960 about twelve million persons of German descent migrated into West Germany.<sup>2</sup> Because these migrants were forced to move by political changes and their language was German, they were almost entirely permanent migrants and their assimilation was relatively easy. A rapidly expanding economy and a good experience in assimilating migrants resulted in a policy of bringing in new, temporary workers into Germany beginning in the 1950s. These workers were from Southern Europe and Turkey. The vast majority of these workers returned to their home country.<sup>3</sup> They were replaced by new immigrants, sometimes from the same country. This pattern of migration is called circular migration, which results in a large proportion of workers that are not native born, being temporary instead of permanent migrants.

The result of this immigration pattern is that many German immigrants are and continue to be temporary. Temporary migrants might differ from permanent migrants in many predictable ways. First, they might be expected to save more and remit more of their income. For example, Bauer and Sinning (2005) find that permanent migrants in Germany save less than native Germans. This might be expected because part of what they would save is invested in acquiring human capital that aids in assimilation such as learning German. Temporary migrants, however, make much less of this type of investment. Bauer and Sinning found that their savings were similar to that of natives and, hence, higher than permanent migrants. Their savings might have been higher than the savings of permanent migrants because of their greater desire to accumulate and transfer assets to the home country.

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<sup>2</sup> See Schmidt (1994).

<sup>3</sup> Bohning (???) estimates that over two thirds of these workers returned.

Another feature of temporary migration concerns home ownership. Germany has a very low rate of home ownership. According to Constant, Roberts and Zimmermann (2007) only 42% of Germans own their own home compared with about 63% in the US. Much of this low rate is probably due to the high requirements for down payment on loans in Germany. These requirements can be as high as 40% of the purchase price. Migrants, particularly temporary migrants might be expected to be much less likely to own a home than the population in general. It is not surprising that the home ownership rate for migrants is only 20%. Constant, Roberts, and Zimmermann find that for migrants classified as having strong cultural attachments to German are much more likely to own their home even if they also maintain strong attachments to the country of origin.

A third feature of temporary migration concerns the response to economic adversity in the destination. An adverse experience with unemployment might shorten the stay of the migrant. This might particularly be the case for migrants who come on a short term visa. Bellemare (2007) models the dynamics of their behavior. Since migrant workers who experience high unemployment have less time to recoup lost income, their stay becomes undesirable, and they leave sooner than intended. Bellemare points out that this is more likely to occur for unskilled workers because they face higher rates of unemployment. Hence, skilled temporary migrants might be encouraged to stay and unskilled temporary migrants might be encouraged to leave.

A fourth feature of temporary migration, which is our primary interest in this paper, is that temporary migrants may on average work more hours than permanent migrants. Part of the reason for this higher anticipated number of hours is because they may invest less in becoming assimilated to the local labor market. This assimilation has been studied by Chiswick (1972) who found that for the US wage rates of migrants and natives converged with time due to early



investment in human capital specific to the destination labor market. Most studies have followed Chiswick in looking at earnings. For Germany, the results are mixed depending upon the design of the study. For example, Dustmann (1993) found a large and persistent earnings gap while Schmidt (1997) finds little initial gap upon accounting for education differences.<sup>4</sup> Temporary migrants, being less interested in assimilation and more interested in accumulating assets and transferring these assets to the home country, may supply more labor. This implication has received little attention in the literature. An exception is Dustmann and Schmidt (2001) who consider the labor supply of immigrant women. They find that these women, while receiving lower wage rates than native women, are more likely to have a full-time job. We would expect a similar result in comparing temporary with permanent migrants. We will now consider a model of temporary migration to explore this implication for all immigrants.

## Model of Temporary Migration

That temporary migrants supply more hours than their permanent counterparts can be explained using a household production model as developed by Becker (1965). In this model the household does not receive direct utility from consuming goods. Instead, the household receives utility from consuming commodities. These commodities are produced using time and goods purchased on the market. The household receives utility from consuming these household produced commodities. The implicit prices of these commodities are derived from the household production functions. These prices will differ with the human capital of the household, other features of the background of household members and, of particular concern here, the location of the household.

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<sup>4</sup> See Bauer, Dietz, Zimmermann and Zwintz (2005) for a review of the literature on Germany.

Household production models have been formally extended to migration decisions by Shields and Shields (1993) and Shields (1995). In these models, the household technology differs by location. These differences are reflected in the implicit prices of commodities consumed. For example, assume the household maximizes the utility of consuming commodities at the two different locations. In other words a migrant maximizes

$$(1) \quad U = U(Z_D, Z_O)$$

Subject to

$$(2) \quad I = A + w_D T_D + w_O T_O = \pi_D Z_D + \pi_O Z_O,$$

where the subscripts  $D$  and  $O$  represent the destination and the origin,  $Z_i$  represents commodities consumed;  $\pi_i$  represents the shadow price of an aggregate commodity,  $w_i$  the wage rate and  $T_i$  the amount of time that is spent at each location, where  $i = O, D$ .  $O$  is the original country of the migrant and  $D$  is the destination country to which the migrant has moved, in this case Germany. The person or family is assumed to have already migrated. Hence, all variables refer to future values. In this case, a permanent migrant is at a corner solution where  $Z_O$  and  $T_O$  are both zero.

The household technology for producing these commodities depends on the location of the household, its human capital, where this human capital was developed and the strength of its ties to that location. Since the initial human capital of migrants was developed while they were residing in the source country, the human capital is partly specific to the source. Therefore, the implicit price of commodities would be expected to be lower at the source, particularly for recent migrants than at the destination. Consequently, we would expect that the shadow price at the destination exceeds the shadow price at the source. In other words, that

$$(3) \quad \pi_D > \pi_O.$$

Furthermore, family ties to the source would be expected to further widen this difference in shadow prices because contacts with these family members may be an important commodity which the household consumes. Temporary migrants can take advantage of this difference in shadow prices. The optimal strategy might well be to temporarily migrate in order to generate savings that can then be transferred to the source when the migrant returns, where the cost of commodities is much lower than at the destination. Consumption would be suppressed at the destination because of its higher costs coupled with the desire to transfer this consumption to the source for future consumption at lower prices. A permanent move would imply higher costs of consumption for a much longer period of time and, even though it may imply higher wage rates, it could be sub-optimal.

If the motivation for a move is for higher wages, instead of for political or lifestyle reasons, the wage rate at the destination will exceed the wage rate at the origin,  $w_D > w_O$ . Permanent migration will be preferred to remaining at the source country if real income, evaluated in terms of shadow prices, is higher at the destination. In other words if

$$(4) \quad w_D/\pi_D > w_O/\pi_O.$$

Higher wage rates at the destination would have to be large enough to cover higher living costs plus the costs of a move in order for a family to migrate. However, even if inequality (4) holds, the family may still prefer temporary to permanent migration. The difference in shadow prices, equation (3), provides an incentive for temporary migration. A migrant family can earn income at the destination, where income is higher, save and transfer the foregone consumption to the origin where consumption costs are lower.

To illustrate the investment nature of temporary migration, consider two time periods. The first period begins at the time the household made the migration decision. This decision

involves whether to remain at the origin, to temporarily migrate or to permanently migrate.

Consumption in each period is denoted as  $z^1$  and  $z^2$  in periods 1 and 2. The temporary migrant consumes  $z_D^1$  and  $z_O^2$  in each period. The permanent migrant consumes  $z_D^1$  and  $z_D^2$  in each period.

This framework can be used to characterize the expected lifetime consumption of the household at the time of the migration decision. There are three possible choices. They are not to migrate, to temporarily migrate and to migrate permanently. In making this decision, the family will need to evaluate differences in the shadow prices of commodities with differences in full income. On the simplifying assumption that shadow prices and full income are the same in each period, the choices will amount to selecting different paths of lifetime consumption.

Lifetime consumption for household that do not migrate is

$$(5) \quad z_O^1 + z_O^2, \text{ where}$$

$$z_O^2 = I_O / \pi_O + [(I_O / \pi_O) - z_O^1] \cdot (1 + r).$$

Lifetime consumption for households that permanently migrate is

$$(6) \quad z_D^1 + z_D^2, \text{ where}$$

$$z_D^2 = I_D / \pi_D + [(I_D / \pi_D) - z_D^1] \cdot (1 + r).$$

Finally, lifetime consumption for household that temporarily migrate is

$$(7) \quad z_D^1 + z_O^2, \text{ where}$$

$$z_O^2 = I_O / \pi_O + [(I_D / \pi_D) - z_D^1] \cdot (1 + r).$$

Note that the bracketed terms in (5), (6) and (7) represents savings from the first period used to augment consumption in the second period.

Since interest rates and exchange rates will influence the rate of return on savings, they will also influence the temporary versus permanent migration decision. It should be emphasized, however, that exchange rates will not be able to generate parity in the costs of commodity consumption. This is because commodities are non-tradable. They are produced, by the household, from inputs of time and goods. Even if all goods are tradable, time is not. Hence, exchange rates can not equalize the shadow prices of commodities in the two markets, origin and destination. This is a key difference in emphasis between the household production approach and standard approaches in terms of the costs of buying goods. Exchange rate shocks, however, will still influence household decisions. While using a conventional model, Yang (2008) tests the investment nature of the savings of temporary migration. Yang (2008) argues that exchange rate shocks are a source of transitory income for families with a temporary migrant outside the source country. A deterioration in the value of a source country's currency with respect to the currency in the destination will increase the value of savings at the destination that can be remitted back to the family in the source. Yang found that this windfall had a positive and significant effect on investment, in physical and human capital, at the source but had no significant impact on consumption at the source. This result would also hold for a household production approach because there would be a windfall due to the lower cost of purchasing goods when the migrant returns to the origin.

Migrants have choices regarding the types of investment they wish to make upon arriving at their destination. They can invest in human capital specific to the destination. This will increase their rate of assimilation thereby increasing the wage rate they will earn. Permanent migrants are more likely to make this sort of investment. They could alternatively accept a lower wage rate and invest in financial assets that can be transferred if they return to their home

country. Temporary migrants are more likely to make this sort of investment. They would suppress the consumption of commodities in the destination and work more hours in order to transfer money for later consumption at the origin. The first type of investment is more attractive to those intending to migrate permanently and the second is more attractive to temporary migrants. Consequently, temporary migrants would be expected to, on average, work more hours than permanent migrants. It is this proposition that we will test in the next section.

## Empirical Model and Data

The German Socioeconomic Panel is the main source of data for this study. It is a household-based study that annually surveys a representative sample of the German population since 1984. The study includes many socio-economic and demographic variables including variables that can be used to identify the attachment immigrants have to the German labor market. Respondents are asked about their intentions to remain in Germany. Up to and including 1995, respondents were asked if they “planned to return to their native country.” After 1995 respondents were asked if they “wish to remain in Germany permanently.” A dummy variable, *permanent?*, was created (*permanent?* = 0 for those with a desire to either leave Germany or to return to their native country depending upon the phrasing of the question).

The hours worked by migrants in a month will be estimated as a function of the following variables: *Permanent?* (defined above), *female?* (the gender of the person equals 1 if female and 0 otherwise), *age*, *age*<sup>2</sup>, *school* (years of education), and *years since migration*. *Permanent?*, as discussed previously is expected to be negatively related to hours worked because temporary migrants will spend less time investing in human capital specific to the German labor market. *Age* and *age*<sup>2</sup> are related to human capital. Workers initially are expected to work more hours as

they become more experienced, accumulate more relevant human capital and become more attractive to employers. Eventually, however, their mental and physical skills may diminish and they either become less able to work or more likely to retire. Consequently, we might expect *age* to have a positive impact on hours worked and  $age^2$  to have a negative impact. The sign of *Married?* would be negative if marriage results in at least one spouse having less attachment to the labor market. *School*, years of schooling, also represents human capital. Since education is thought to be general human capital<sup>5</sup>, it enhances the migrant's ability to adapt to changing economic conditions and to more easily maintain steady employment. Hence, *school* is expected to have a positive impact on hours worked. Finally, the length of time the migrant has been in Germany, *ysm*, is expected to be related to human capital specific to Germany and, hence, positively related to hours worked.

Since the data set is a panel, we know the year the questions were asked. We also know the state within Germany in which the person lived in that year. The region and year are both expected to influence hours worked. Furthermore, they are both expected to influence the number of permanent versus temporary migrants. Temporary migrants may be recruited to work in areas and in years when workers are in short supply and leave when they are no longer in high demand. Consequently, the proportion of migrants who are temporary may be higher in years and states with a prosperous economy. Consequently, fixed and random time and state effects need to be considered to correct for possible biases.

Another possible source of bias comes from the likelihood that *permanent?* is endogenous. The plans and attitudes of migrants toward remaining in Germany will in part depend upon their success in the German labor force. Those workers who experience difficulty in finding stable employment and thus work fewer hours than they wish may, as a result, become

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<sup>5</sup> See T, W, Schultz (1975).

less attached to Germany. Consequently, the endogeneity of *permanent?* could imply that those migrants who indicate that they are temporary work fewer hours. Recall, however, that we expected temporary migrants to supply more labor. Consequently, the endogeneity bias in a model with hours worked on the left hand side and *permanent?* on the right hand side would be in the positive direction. Since we believe the structural direction is negative, we would expect reduced form estimates to be biased toward the null hypothesis or even lead to an incorrect sign. Hence, our main model will attempt to solve the endogeneity problem by introducing an instrumental variable.

The instrument we have chosen is whether the household reports family networks in another country. *Relatives abroad?* is a candidate to be an instrument because it is exogenous to the labor market in Germany. The dummy variable, *Relatives abroad?*, reporting the existence of these networks is expected to be negatively related to the attachment an immigrant feels towards Germany. It picks up the existence of relatives living abroad other than mother or father, (ex-spouse, children, siblings or grand parents) with whom the respondent has close contacts.<sup>6</sup> Those immigrants, for which *Relatives abroad?* = 1, are expected to be less attached to Germany for numerous reasons. First, the existence of such a network might indicate an emotional attachment to another country. Second, regardless the strength of this emotional attachment, the existence of such a network provides information about another labor market and perhaps a greater opportunity of a successful move to that market. Note that for these arguments to hold it is not necessary that these relatives live in the country of immigrant's origin.

For the analysis we consider foreign born males (1,542 individuals with 13,477 observations) and females (1,024 individuals with 7,275 observations) with at least 10 and at

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<sup>6</sup> This information was collected in 1991, 1996, 2001, and 2006. The values for the missing years are imputed backward.



most 350 hours worked per month, 1.5 to 300 EUR hourly wage, and 16-60 and 16-55 years of age for males and females, respectively. We prudently omit individuals who are very recent arrivals with less than one year since migration, as these might include a large share of temporary seasonal workers and posted professionals. We also disregard individuals with missing information for the considered variables.

Table 0 summarizes the key variables. We consider permanent migrants, those that do not want to stay permanently, and those that would like to return within next three years. We observe that hours worked decrease with tenure whereas the wage rate increases with tenure.<sup>7</sup> These raw results are in line with the theoretical model developed above. Looking at Table 0, we see that migrants in Germany work an average of about 160 hours per month. The average hours worked per week is then approximately 36.7. There is considerable variation in hours worked with a monthly standard deviation that is close to 50 hours per month. If we assume a normal distribution, look at the histograms shown in Figure 1 for a visual assessment of whether the distribution is normal, the probability that someone works at least 26.5 hours per month more than the average is 0.3. Similarly, the probability that someone works at least 26.5 hours per month less than the average is 0.3. Let us now look at the results of the empirical strategy to see whether they are robust with respect to the various confounding factors.

## The Results

The results of the various regressions are shown in Tables 1 through 5. Results for some explanatory variables are not reported. These results include dummy variables for 16 (of 17)

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<sup>7</sup> Permanent3 is 1 for anyone who plans to stay in Germany more than 3 years, 0 otherwise.

German states and dummy variables for each parity (the number of children). Results for state dummies are not reported because they are not of primary interest in this study. The parity results are not reported because they are typically insignificant.<sup>8</sup>

Table 1 shows results for both males and females. In addition to the explanatory variables discussed above, a dummy variable indicating gender is introduced. This variable is *Female?*, which would be negatively related to migration if migrants follow a typical pattern where women are less attached to the labor market than men. Four different types of estimates are shown. The first column is a fixed individual effect model of monthly hours worked by German immigrants. All the variables have the expected sign. It should be noted, however, that while *permanent?* is negative, it is insignificant. This possibility was anticipated since endogeneity bias was expected to be positive while the anticipated structural effect was expected to be negative. The results for random individual effects shown in column two are close to the fixed effects results.

The two stages of the instrumental variable model are shown in the next two columns. The first stage results are shown in column three. *Relatives abroad?* has a strong negative impact on the worker's attachment to Germany. Using *relatives abroad?* as an instrument results in a significant and negative impact of *permanent?* on hours worked. Furthermore the size of the estimated coefficient is substantial. It indicates that workers with strong ties to the German market on average work 68 fewer hours per month than their temporary migrants. On a weekly basis, the results indicate that temporary migrants *ceteris paribus* work about 15 more hours than permanent migrants.

Tables 2 and 3 show estimates for males. There is, of course, no gender dummy variable. Another difference is that the hourly wage rate is included in some models. Since there may be

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<sup>8</sup> We will gladly provide the complete results upon request.

another endogeneity problem in introducing the hourly wage rate, results are shown both without (A) and with (B) this variable in Table 2 and again in Table 4. Whether or not the hourly wage rate is included in the model does not appear to have influenced the results for other variables. Table 2 shows a comparison of OLS results with a fixed effect model. In both models, *permanent?*, while negative, is insignificant. The only differences between the models worth noting are that married, while significant in the OLS model, was insignificant in the fixed effect model, and years since migration were dropped from the fixed effect model.

Instrumental variable results for males are shown in Table 3. Estimates using both two stage least squares and generalized two stage least squares (i.e. with individual fixed effects) are reported. There is little difference in the results for either procedure. In addition, in the second stage *permanent?* Becomes significant and of a magnitude similar to what was found in Table 1. Temporary migrant males would seem to work from 59 hours to 77 hours more per month than their permanent migrant counterparts.<sup>910</sup>

Tables 4 and 5 show estimates for females. The primary difference for females is that there is no support for the hypothesis that temporary female migrants work more hours than permanent female migrants.<sup>11</sup> Another difference is in Table 5. There is a substantial difference between the results of two stage least squares and generalized two stage least squares suggesting that caution should be exercised in interpreting the results for females.

## Conclusions

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<sup>9</sup> The mean and standard deviation of monthlhrs are 174.1 and 41.1 for males and 135.2 and 54.0 for females. See the histogram in Figure 1.

<sup>10</sup> We estimated the IV model for immigrant males with various years since emigration. It turns out that the result that permanent migrants supply less hours holds for immigrants with less years since migration, for those with many (e.g. >15) years since migration the standard errors increase way beyond significance.

<sup>11</sup> This result differs from Dustman (2000), who found that women who are temporary migrants worked more hours than men.

Upon correcting for endogeneity, bias temporary migrants are found to work more hours than permanent workers. This result supports a household production model of migration where migrants may be temporary by choice and not because of legal restrictions or even a bad experience in the labor market. Workers may be temporary because of strong ties to the source country that is manifested in lower costs of household production for the commodities they wish to consume. The results provide a dramatic example of the need to account for possible endogeneity bias in studies involving intentions, in this case the intent to remain in Germany. They also suggest that recruiting migrants who will become assimilated easily is not necessarily welfare improving. Migrants who intend to only partially assimilate may be more motivated to succeed and to work hard. Indeed, compared to permanent immigrants, temporary immigrants have stronger attachment to the labor market, but downskilling and brain waste are of concern. If initial perceptions differ from actual realizations (want to stay but leave; want to return but stay), suboptimal investment in country specific human capital can occur. Therefore, immigration and integration policies targeting temporary and permanent immigrants need to account for the different incentives these two groups have in host economies

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Table 0: Descriptive Statistics

Permanent Migrants		
Variable	mean	Standard deviation
Age	38.44	10.46
% female	0.36	0.48
Hourly wage	12.16	8.67
Monthly hours	159.68	50.51
Temporary Migrants		
Age	38.96	10.58
% female	0.35	0.47
Hourly wage	12.04	8.72
Monthly hours	161.68	48.47

Table 1: Hours worked by German immigrants

Variable	Fixed Effect Model	Random Effect Model	First Stage	Instrumental Variable Model
Constant	110.91	6.012	0.457	141.53
Permanent?	-0.275 (-0.43)	-0.624 (-0.97)	Dependant Variable	-68.742 (-4.43)**
Age	3.727 (19.94)**	4.334 (19.62)**	-0.004 (-2.02)*	3.452 (13.35)**
Age <sup>2</sup>	-0.044 (-19.49)**	-0.051 (-19.35)**	-0.000 (-0.45)	-0.045 (-14.71)**
Female?	-36.998 (-61.89)**	-40.415 (-31.99)**	0.006 (-0.95)	-38.392 (-48.71)**
Married?	-6.586 (-8.69)**	-6.501 (-6.60)**	-0.034 (-4.28)**	-9.517 (-8.43)**
School	1.052 (7.39)**	1.532 (6.78)**	0.005 (3.44)**	1.460 (7.35)**
Years since migration	0.425 (8.38)**	0.645 (7.84)**	0.006 (11.03)**	0.784 (7.02)**
Relatives abroad?	.....	.....	-0.457 (-8.23)**	.....

Numbers in parentheses are t-statistics.

\*Significant at 5% level.

\*\*Significant at 1% level.

Table 2: Hours worked by German Immigrant Males

Variable	Basic Model A	Basic Model B	Fixed Effect Model A	Fixed Effect Model B
Constant	74.009	57.794	4.624	-34.684
Hourly wage	.....	-1.395 (-36.10)**	.....	-1.678 (-46.85)**
Permanent?	-0.638 (-0.85)	-0.251 (-0.35)	-1.608 (-1.90)	-1.242 (-1.60)
Age	3.668 (14.25)**	4.847 (18.84)**	4.657 (13.37)**	6.295 (18.84)**
Age <sup>2</sup>	-0.043 (-13.43)**	-0.548 (-17.75)**	-0.055 (-12.74)**	-0.694 (-17.44)**
Married?	3.758 (3.61)**	5.964 (5.99)**	-0.098 (-0.06)	1.617 (1.13)
School	0.953 (5.30)**	1.551 (8.99)**	1.346 (2.91)**	1.981 (4.66)**
Years since migration	0.069 (1.12)	0.238 (4.06)**	.....	.....

Numbers in parentheses are t-statistics.

\*Significant at 5% level.

\*\*Significant at 1% level.



Table 3: Hours worked by German Immigrant Males

Variable	First Stage	2SLS	First Stage	G2SLS (fixed effects)
Constant	0.499	96.225	0.441	102.117
Hourly wage	0.001 (1.69)	-1.334 (-23.86)**	0.000 (1.01)	-1.504 (-32.91)**
Permanent?	Dependent variable	-77.614 (3.33)**	Dependent variable	-59.117 (-2.02)*
Age	-0.007 (-2.36)*	4.080 (-12.53)**	-0.006 (-1.80)	4.953 (13.42)**
Age <sup>2</sup>	0.000 (-0.46)	-0.053 (-12.53)**	0.000 (0.04)	-0.062 (-15.37)**
Married?	-0.009 (-0.74)	5.336 (3.89)**	-0.015 (-1.13)	3.869 (2.69)**
School	0.008 (3.84)**	2.125 (7.28)**	0.008 (3.03)**	2.233 (6.27)**
Years since migration	0.005 (7.74)**	0.663 (4.39)**	0.005 (5.15)**	0.543 (3.12)**
Relatives abroad	-0.041 (-4.89)**		-0.032 (-3.51)**	.....

Numbers in parentheses are t-statistics.

\*Significant at 5% level.

\*\*Significant at 1% level.

Table 4: Hours worked by German Immigrant Females

Variable	Basic Model A	Basic Model B	Fixed Effect Model A	Fixed Effect Model B
Constant	97.288	89.352	144.764	157.130
Hourly wage	.....	-0.787 (-10.04)**	.....	-1.662 (-23.66)**
Permanent?	-1.034 (-0.77)	-1.020 (-0.76)	0.257 (0.18)	0.894 (0.67)
Age	4.114 (7.85)**	4.589 (8.78)**	.....	.....
Age <sup>2</sup>	-0.052 (-7.44)**	-0.057 (-8.27)**	-0.039 (-4.48)**	-0.047 (-5.82)**
Married?	-19.435 (-12.39)**	-19.202 (-12.32)**	-10.314 (-4.48)**	10.034 (-4.55)**
School	-0.199 (-0.69)	0.219 (0.75)	1.338 (2.04)*	1.525 (2.43)*
Years since migration	0.493 (4.53)**	0.572 (5.28)**	2.871 (4.29)**	3.897 (2.43)*

Numbers in parentheses are t-statistics.

\*Significant at 5% level.

\*\*Significant at 1% level.

Table 5: Hours worked by German Immigrant Females

Variable	First Stage	2SLS	First Stage	G2SLS (fixed effects)
Constant	0.285	95.015	-0.162	52.266
Hourly wage	0.000 (0.03)	-0.786 (-9.87)**	0.001 (1.39)	-1.436 (-1.90)
Permanent?	Dependent variable	-21.236 (-0.89)	Dependent variable	-121.111 (-0.15)
Age	0.001 (0.29)	4.618 (8.68)**	0.019 (3.48)**	6.300 (0.42)
Age <sup>2</sup>	-0.000 (0.82)	-0.058 (-8.16)**	-0.000 (-4.34)**	-0.086 (-0.34)
Married?	-0.105 (-7.75)**	-21.362 (-7.11)**	-0.056 (-3.06)**	-19.755 (0.34)
School	0.005 (1.91)	0.303 (0.97)	0.001 (0.34)	1.418 (0.99)
Years since migration	0.005 (4.90)**	0.670 (4.20)**	0.006 (2.74)**	1.805 (0.35)
Relatives abroad	-0.055 (-4.84)**	.....	-0.003 (-0.19)	.....

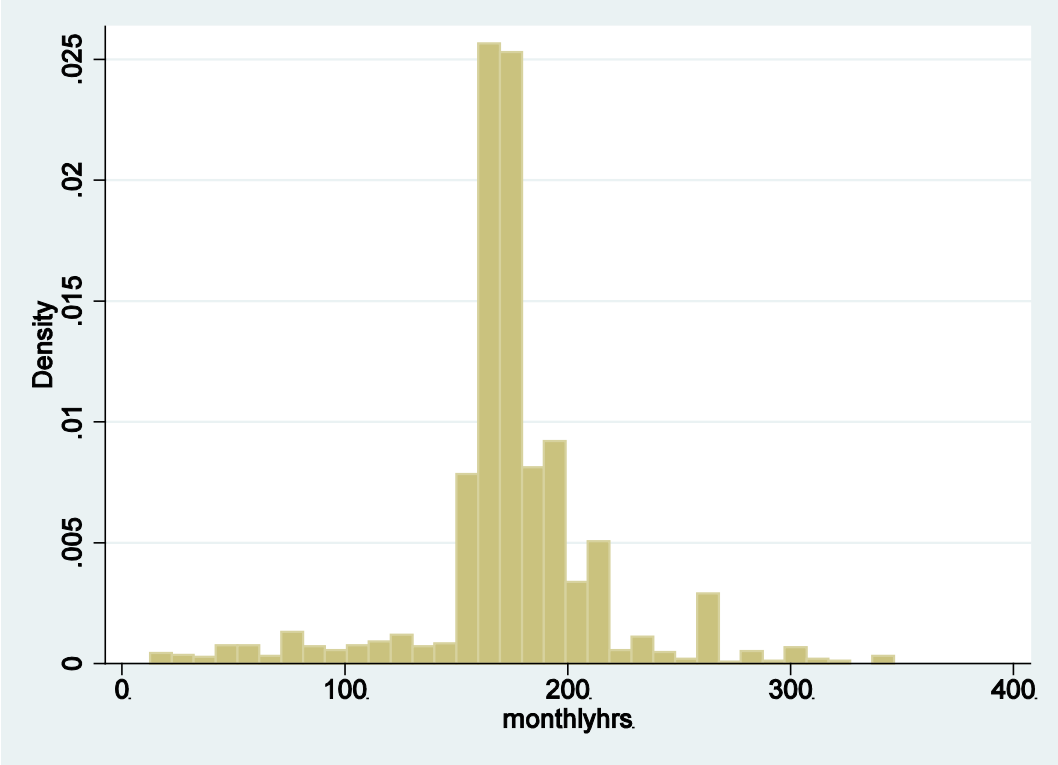
Numbers in parentheses are t-statistics.

\*Significant at 5% level.

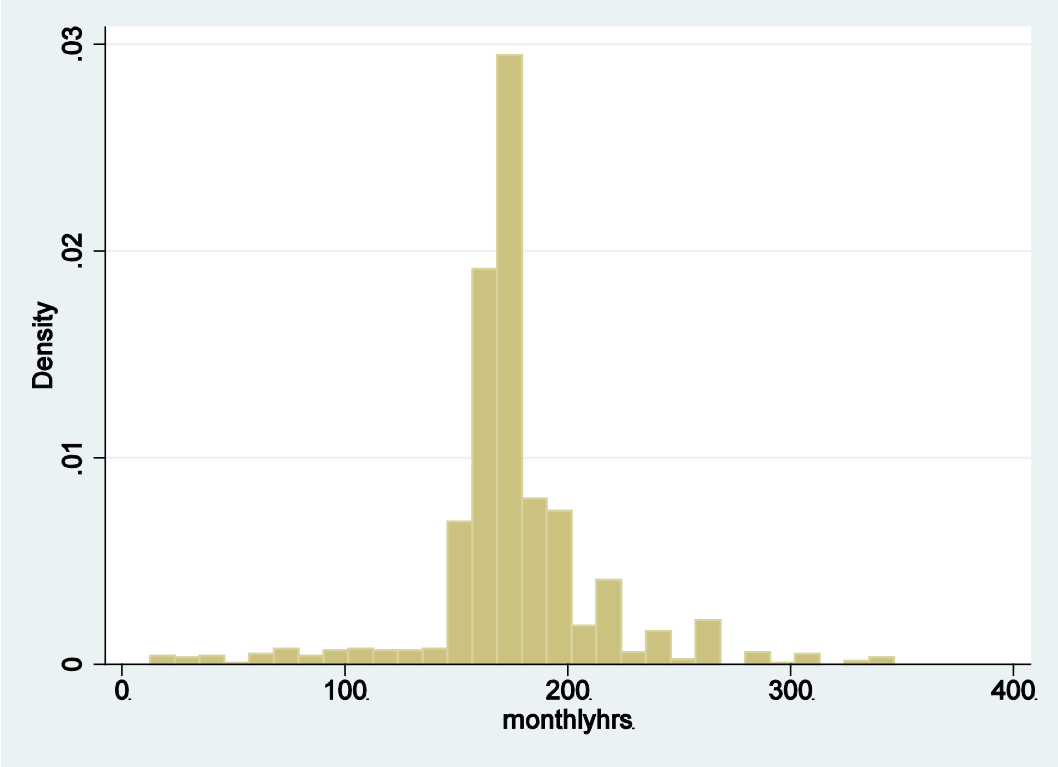
\*\*Significant at 1% level.

Figure 1: Histograms

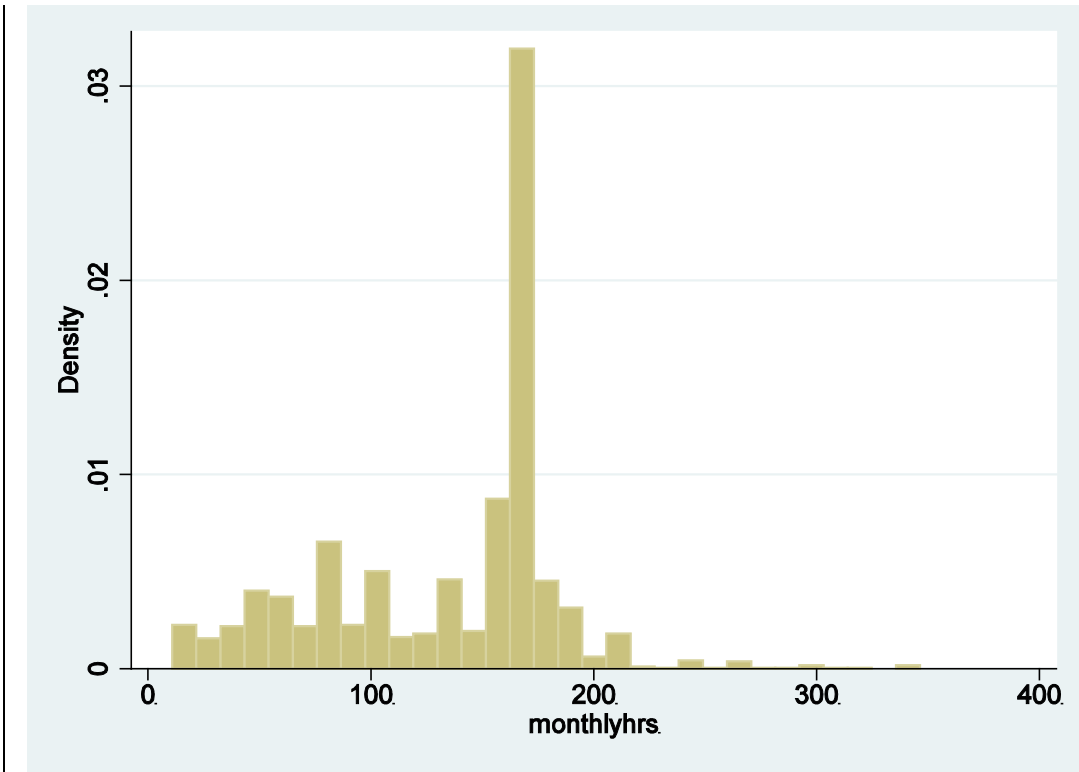
a. males, all



a. males, temporary



b. Females, all



b. females, temporary

