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Secondary Labor in the Meatpacking Industry: Demographic Change and Student Mobility in Rural Iowa Schools

Mark A. Grey
University of Northern Iowa

This article addresses the relationship between dual labor markets and rural schools in Iowa. Particular attention is paid to the demographic transformation of school districts in rural communities that host large meatpacking plants. Most meatpacking jobs are secondary sector jobs because they offer low wages and experience high injury rates and worker turnover. The industry's ability to maintain these jobs depends on its ability to recruit sufficient workers to occupy them. As a result, meatpacking has become increasingly dependent on immigrant and refugee workers. The dependence on these workers has two consequences. The first is that enrollments of non-English speaking students climb in rural schools that previously had little or no experience with minority and limited-English speaking populations. The second consequence is that employee turnover in the plants is reflected in school enrollment patterns. In order to illustrate this first situation, data from every rural Iowa school district associated with a large meatpacking plant are used. To illustrate the point about enrollment turnover, a case study from one community is used.

The role of schools in capitalist economies has drawn a good deal of attention in the education literature. Throughout the last decade or so, particular attention has been paid to the role of schools in the emergence of a dual or segmented labor force (Apple, 1986, 1996; DeYoung, 1989; Howley, 1991). Fundamental changes in the labor structure of our economy have produced more secondary sector jobs that provide low wages, few or no benefits, little or no job security, and low status. Most of these jobs are in the services, but some manufacturing jobs qualify as well. In contrast, primary sector jobs offer high incomes, job security, high status and fringe benefits. Demographic evidence clearly indicates that white males dominate primary sector jobs, while women and minorities hold a disproportionate share of secondary jobs (Apple 1996, pp. 76-80).

Although researchers have demonstrated how schools reproduce labor market structures, we also need to consider the effects of dual labor markets on schools. The purpose of the present study is to demonstrate how the transformation of primary sector jobs into secondary jobs in rural communities impacts school enrollments. The essential contribution of this study is to advance our understanding of how changes in rural labor markets affect schools. It emphasizes what happens to rural schools when segmented labor structures are *imposed* on rural communities rather than how schools contribute to the formation of segmented labor.

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Correspondence concerning this article should be addressed to Mark A. Grey, 1314 Clay Street, Cedar Falls, IA 50613. (grey@uni.edu)

The Study

The school districts analyzed are in rural Iowa communities that host large meatpacking plants. Although meatpacking has always been unpleasant work, meatpackers in rural Iowa used to enjoy many of the benefits of primary sector employment. However, beginning in the early 1980s, meatpacking jobs decidedly became secondary jobs. Wages were slashed. Real hourly compensation peaked in 1980 at about $19 per hour (including benefits, 1992 price level). Between 1981 and 1984, compensation fell by 25%. By 1995, it was roughly $12 per hour, lower than in 1960 (Huffman & Miranowski, 1996). High turnover rates followed. Conservative estimates place industry-wide turnover at 50%-60% per year, but annual rates over 100% in single plants are common (McKay, 1997a; McKay, 1997b; Wood, 1988). Benefits became available only after 6 months in most plants (Stull & Broadway, 1995).

The new plants also have higher capacities than older plants. Large pork plants in Iowa, for example, can slaughter and process up to 1,000 hogs *per hour.* These higher capacities mean that workers must repeat the same operation several hundred times a day, which can lead to high injury rates. As a result, meatpacking is the nation's most

hazardous industry, with 44.4 work-related injuries or illnesses per 100 full-time workers (U.S. Department of Labor, 1995).

Theoretical Background to the New Meatpacking Workforce

The aforementioned changes made meatpacking jobs less attractive to the majority of Anglo Iowans who used to occupy them. Many packing plants were also less willing to hire veteran workers because of their high wage expectations and history of union support (Grey, 1995). In short, meatpacking companies created secondary sector jobs in the midst of populations that expected primary sector incomes. But the emergence of these new jobs in rural Iowa communities was not simply a matter of replacing old workers with new workers who were willing to earn lower wages. Piore (1979) argued that when native workers rejected low-wage and low-status jobs, employers would be forced to recruit from other social and demographic groups who seemed indifferent to secondary job characteristics or were powerless to resist them. But who are these new workers and where do they come from?

The answer lies in examining the interplay between domestic dual labor markets and international migration of capital and labor. So-called "transnational" corporations readily move production to other regions of the world to take advantage of low wages and production costs. For these corporations, the political borders that separate nations are becoming increasingly irrelevant. By now the evidence is overwhelming: corporations are willing and able to move production to virtually any region of the world in order to achieve the most profitable arrangement (Barber, 1995). In this sense, the corporations take production *to* the labor.

However, there remain some forms of production that are less mobile than others and taking production to new sources of labor is often difficult or impossible. Meatpacking is such an industry. Despite the location of a handful of production facilities in other countries, fresh meat production remains a domestic enterprise. There are three critical reasons for this. First, packing plants need to be near large supplies of livestock. (As one example, large pork plants in Iowa typically slaughter more than 3.5 million hogs per year.) Not only is the size of available herds important, but distances from farm to plant are important as well. When livestock are hauled over long distances, there is more loss in terms of death, stress, and dehydration, and therefore, profits. Secondly, livestock herds are usually associated with abundant and relatively cheap sources of feed grains. And third, although exports markets for American meat are growing, the primary market for meat products is still in the United States. In order for meat to be fresh when it reaches reach grocers' shelves, the plants must be able to deliver product in a relatively short period of time.

Despite their relative lack of physical mobility, meatpacking plants are still able to take advantage of the increasingly fluid nature of the global economy. Instead of moving plants to sources of labor, meatpacking has brought new sources of labor to the plants. This was necessitated by the creation of secondary sector jobs that were less attractive to established residents and the fact that many rural areas of the American Midwest have experienced population decline and low unemployment rates. In addition, high turnover means that new workers must be hired on a continuing basis. Without the ability to identify and tap new sources of labor, the advantages associated with creating and maintaining dual labor structures (such as lower wages) begin to disappear.

In order to do this, meatpacking plants are particularly adept in using "informal social qualifications" (Bailey, Sinclair, Bliss, & Perez, 1996), such as language and ethnicity, to determine which populations are suitable for these jobs (Grey, 1997a). The primary groups that packers choose are immigrants and refugees. The advantages of using these groups are numerous. They generally have few opportunities in the job market—particularly if they don't speak English. They are less likely to have pro-union sentiments. They have lower wages expectations because the wages in meatpacking plants that most Anglos consider low (typically $7.00/hour to start) are still higher than those available in sending regions.

In addition to language and ethnicity, migration plays a critical role in the dual labor structure as well. Just as corporations take advantage of mobility to maintain profits, meatpacking plants often take advantage of the "willingness" of immigrants and refugees to migrate to packing towns. Communities that send workers to take low-wage jobs, particularly in Latin America, have become inextricably linked to a regional economy dominated by the United States. Such communities have become "transnational" because they have become part of, and are no longer marginal to, uneven capitalist expansion in the region (Griffith, 1993). In other words, former peasant communities that used to be on the periphery of the regional economy have now become a part of the same economic system as Iowa. These new members of the regional economy make themselves available to take secondary sector employment because of limited job opportunities at home and because survival in the new order of affairs leaves them with little alternative. Much the same can be said for refugees who have limited job opportunities when they arrive in the United States as well. Thus, an integral relationship is forged between the packing plants which create and need to fill secondary sector jobs and immigrants and refugees who take them largely because they have relatively few alternatives.

Meatpacking's growing dependence on immigrant and refugee labor through the years has had tremendous conse-

Table 1
Rural Meatpacking Communities, 1990 Populations, Plants, Products, Years Plants Opened, and 1995 Workforces

Community	1990 Population	Plant Owner	Product	Plant Opened	Approximate 1995 Workforce
Columbus Junction	1,616	IBP	Pork	1986	1,500
Tama/Toledo	5,077	Tama Pack/IBP	Beef	1995[a]	500
Perry	6,652	IBP	Pork	1989	750
Storm Lake	8,769	IBP	Pork	1982	1,450
Storm Lake	8,769	Bil-Mar	Turkey	1977	575
Marshalltown	25,176	Swift	Pork	1989[b]	1,800
West Liberty	2,935	Louis Rich	Turkey	1940[c]	700
Ottumwa	24,488	Excel	Pork	1987[d]	1,300

[a]Became IBP in May 1995.
[b]Plant remodeled and second shift began in 1989.
[c]Plant closed in 1996.
[d]Became Excel in 1987.

quences for rural schools. This study examines two different, yet closely related consequences. One is growth in limited English proficient (LEP) student populations and the other is enrollment turnover that reflects worker turnover in the plants. Some literature has addressed the relationship between meatpacking labor and demographic transformation of schools in the communities of Garden City, Kansas (Broadway, 1990; Grey, 1990), Lexington, Nebraska (Gouveia & Stull, 1995), and Storm Lake, Iowa (Grey, 1995). But this study is the first to use state-level data on limited English speaking students to demonstrate the concentration of these students in meatpacking towns. In addition, detailed enrollment turnover analysis is provided for one school district closely associated with a large pork plant.

Methodology

Two data sets were used. For the analysis of growth in LEP enrollments, data collected by the Iowa Department of Education were used (Iowa Department of Education, 1982-1996). Each year, school districts submit data on total LEP enrollments, grade status, and first or "home" language. Although the state's total number of LEP students is regularly compiled, this study analyzes the relation between trends in LEP growth and economic change. Only those rural communities with pork, beef, or poultry plants with 500 or more employees were included. These data were compared to LEP data in the rest of the state's rural and metropolitan school districts.

Data for the analysis of student turnover were obtained from one district, Marshalltown, Iowa. The pork plant in Marshalltown employs roughly 1,800 workers. In this analysis, enrollment patterns in all elementary schools in the Marshalltown district were compared. This entailed compiling monthly enrollment records, analyzing annual grade cohort attrition, and comparing daily enrollment activity with official census counts.

This analysis is unique because detailed enrollment turnover data are not routinely tracked by school districts for two reasons. First, it can be labor intensive and other activities are usually considered more important. The second reason is linked to one of the central points of this analysis: Enrollment stability is assumed in schools and student cohorts are expected to remain essentially intact through 13 years of schooling. However, the enrollment stability assumed by school personnel can not be expected in schools associated with meatpacking populations as this study will point out.

Results

Limited-English-Speaking Students

As rural meatpacking jobs became secondary and were increasingly held by immigrants and refugees, these demographic trends were reflected in the schools. Previous research in meatpacking communities bears this out. In Garden City, Kansas—site of two large beefpacking plants—Broadway (1990, p. 331) found that the school district's total enrollment grew by nearly 1,600 or 37% in the 6-year period after IBP opened a massive plant nearby in 1980. The number of minority students doubled in the same period. They made up 19.5% of enrollments in 1980-81 but 27.9% in 1986-87. These trends continued and in 1996-97, Garden City became Kansas's first majority-minority district, with 51% of all students from minority groups.

Table 2
Total Limited-English-Proficient Students as Percentage of Total Student Population: 1981-1995: Rural School Districts Associated with Meatpacking Communities

	Storm Lake		Marshalltown		S. Tama[a]	
Year	Total LEP	% of Total	Total LEP	% of Total	Total LEP	% of Total
1981-82	24	1.6	116	2.1	0	0
1982-83	28	1.9	104	1.9	0	0
1983-84	28	1.9	78	1.4	1	0
1984-85	(no report)	(no report)	88	1.7	0	0
1985-86	43	2.9	69	1.4	0	0
1986-87	17	1.2	45	0.9	0	0
1987-88	10	0.7	43	0.9	0	0
1988-89	27	1.8	25	0.5	1	0
1989-90	88	5.6	12	0.2	0	0
1990-91	120	7.4	12	0.3	0	0
1991-92	210	12.1	75	1.6	5	0.3
1992-93	236	13.6	75	1.6	77	4.5
1993-94	(no report)	(no report)	87	1.8	49	2.9
1994-95	291	16.6	168	3.4	61	3.6
1995-96	373	21.3	249	5.0	78	4.6

[a]School district serving Tama/Toledo.

These data showed growth in the number of new students in one meatpacking town, but they were not compared with other rural communities in the state and therefore could not demonstrate whether these growth rates were necessarily higher than in nonmeatpacking towns. The present study does compare LEP growth rates in meat towns with other rural communities. Table 1 lists the seven rural Iowa communities with meatpacking plants with 500 or more workers. It also lists their 1990 populations, plant owners, products, year plants opened and size of their 1995 workforces. The locations of these communities are illustrated in Figure 1.

Table 2 shows total LEP enrollments and LEP enrollments as a percentage of total enrollments for these districts between 1981 and 1995. All but one of these districts (Ottumwa) experienced growth in LEP enrollments. In some communities, LEP enrollments dipped slightly during the 1980s. Many Southeast Asian refugee students were resettled by the Iowa Bureau of Refugee Services during the 1970s and early 1980s, but soon graduated or left the community. The more recent and dramatic growth in LEP counts began in the late 1980s as meat plants employed more and more immigrant and refugee workers. All districts except Ottumwa experienced growth in total LEP counts and as a percentage of total enrollments.

Although the majority of LEP students in the early 1980s were Asian refugees, recent trends indicate that more LEP students are Spanish-speaking Latinos. Growth in this student population is illustrated in Table 3. Only one community had significant Spanish-speaking enrollments in the early 1980s—West Liberty. All meatpacking schools, save Ottumwa, experienced rapid growth in Spanish-speaking enrollments. The most dramatic growth took place in Marshalltown, where the number of Spanish-speaking students grew by 224 in 10 years, although Storm Lake's Spanish- speaking population nearly doubled between 1994-95 and 1995-96.

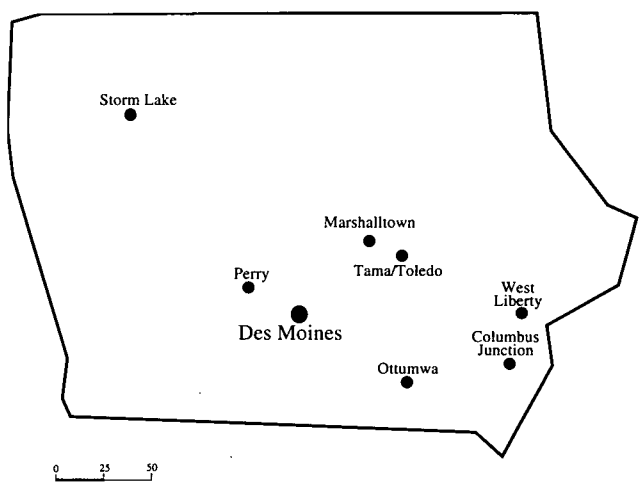

Figure 1. Location of seven rural meatpacking communities.

Columbus		Perry		W. Liberty		Ottumwa	
Total LEP	% of Total	Total LEP	% of Total	Total LEP	% of Total	Total LEP	% of Total
57	7.0	3	0.2	189	17.2	15	0.3
56	7.1	7	0.4	173	16.2	11	0.2
(no report)	(no report)	3	0.1	159	14.4	17	0.3
51	6.7	0	0	158	14.6	16	0.3
28	3.7	0	0	171	15.7	22	0.4
54	6.9	0	0	170	15.4	21	0.5
59	7.7	3	0.2	176	15.9	27	0.2
75	9.4	2	0.1	209	18.0	12	0.3
108	12.7	0	0	275	23.4	15	0.5
129	14.6	4	0.2	277	23.0	23	0.5
156	18.4	21	1.3	325	26.2	26	0.3
187	21.8	43	2.7	375	30.0	17	0.3
197	22.9	43	2.7	405	31.4	13	0.2
171	19.1	46	2.7	390	29.8	12	0.2
220	23.0	87	4.9	363	28.4	9	0.2

These data clearly indicate that the majority of school districts associated with rural meatpacking plants have experienced growth in LEP enrollments. But how do these districts compare with other rural districts in the state? An analysis of LEP data over the last 10 years is particularly telling. Table 4 compares the growth in LEP enrollments in the seven meat towns with the rest of the state. In the baseline year of 1986-87, a total of 2,932 LEP students were reported. (Two of the study districts did not report LEP students at this time.) In 1995-96 6,654 LEP students were reported, a 127% increase.

When taken as a percentage of total state-wide LEP growth, the seven rural meatpacking districts accounted for 28.9% of this growth. Total LEP growth in the meat towns was 343% while LEP enrollments in rural schools grew by 109% over the 10-year period. Of the rural districts reporting LEP students in 1995-96, the seven study districts accounted for 54.2% of this total. More importantly, these seven districts accounted for 80.4% of the growth in LEP enrollments in all rural districts.

A similar pattern is found in the growth of Spanish-Speaking enrollments (Table 5). The seven meatpacking districts experienced 456% growth in Spanish-speaking students, accounting for 64.4% of the total growth in rural Spanish-speaking enrollments. Even when urban districts are taken into account, these seven districts alone made up 30% of the state's rise in Spanish-speaking students.

Discussion

The implications of this rapid growth in LEP enrollments are wide-ranging. First, there are concerns about the costs. Students who don't speak English are more expensive to service than English-speaking students because special programs must be provided for them. LEP growth forced all of these districts to develop and staff new programs. Typically, these take the form of bilingual education at the elementary level and English as a Second Language (ESL) programs at the secondary level. These programs can be more costly than mainstream programs for several reasons. Additional instructors who speak the language of newcomer students must be hired. However, their lack of availability—particularly for languages other than Spanish and some Southeast Asian Languages—can mean that schools either can not find them or pay high market prices for their services. In addition, districts may be constrained from paying higher salaries to these teachers because of collective bargaining agreements. In some cases, schools may manage by hiring instructional aides who speak the students' languages. There are also additional costs associated with new materials and space.

Funding for these additional expenses must be found. In many cases, rural districts can turn to state or federal sources, but many federal sources have time restrictions and districts can not rely on this source indefinitely. Indeed, the case of Storm Lake provides an excellent example

Table 3
Total Spanish-Speaking Students: 1981-1995

Year	Storm Lake	Marshalltown	S. Tama	Columbus	Perry	W. Liberty	Ottumwa
1980-81	0	1	0	59	0	55	1
1981-82	0	13	0	56	0	181	0
1982-83	0	13	0	56	0	155	0
1983-84	0	10	0	(no report)	0	139	0
1984-85	(no report)	12	0	47	0	142	0
1985-86	0	13	0	27	0	155	0
1986-87	0	5	0	53	0	142	0
1987-88	0	7	0	59	1	144	0
1988-89	0	7	1	75	1	163	0
1989-90	2	1	0	106	0	203	0
1990-91	8	0	0	129	4	222	0
1991-92	42	55	5	156	21	262	8
1992-93	56	60	46	185	42	309	2
1993-94	(no report)	83	37	196	39	337	1
1994-95	117	149	59	171	42	329	0
1995-96	202	229	78	218	82	301	2

of this dilemma. In 1992-93 this district received $157,000 in federal funding for its bilingual and ESL program. However, as these funds began to diminish, the number of LEP students continued to grow. The district was faced with a politically difficult decision: should funds from mainstream programs be transferred to ESL programs? Without any program, the district risked violating equity regulations, but transferring funds from mainstream programs meant facing the reaction of irate parents who would not stand for the decline of mainstream programs. When federal funds were about to end, a partial solution was suggested: approach the local plant for funds as they—and their recruiting practices—were widely acknowledged as the factor bringing LEP students to the community. Although the plant resisted acknowledging their responsibility for bringing these newcomers to the community for years, in 1996 the company's foundation did make a $44,000 contribution to the school district for ESL programs. However, there was an understanding that this was a one-time contribution meant to tie the district through the next year and provide more time to find other funding sources.

In other cases, plants were given property tax abatements which meant that the school district would not benefit from the tax base as much as it could. In Perry, the plant is located just outside the town limits, and therefore exempt from paying property taxes directly to the community.

This raises a critical policy issue: who should pay for the additional expenses associated with the reliance on immigrants and refugees to take secondary jobs? One of the hallmarks of the growth in secondary jobs in rural Iowa is that increasing amounts of the monetary and social costs of maintaining a labor force have been transferred from the industry to the workers and host communities. The higher wages paid to the old meatpacking workers were sufficient to maintain working-class or even middle-class lifestyles and provide opportunities for workers' children. But the lower wages paid by today's meatpacking plants mean that families and communities must take up the slack. Different ethnic groups seem to employ different strategies to survive. For example, in Garden City, Kansas and Storm Lake, Iowa, Southeast Asian refugees often employed extensive kinship networks to provide information about jobs, assistance in migration and settlement, and maintaining functional relations with the Anglo community (Benson, 1990; Grey, 1996).

It has been well established in the literature that rural communities which host large secondary workforces are forced to provide essential services for many workers and their families. These services include low-income health care (Grey, 1997a; Hackenberg & Kulkulka, 1995), homeless shelters (Gouviea & Stull, 1995; Stull, 1990) and food. In addition, host communities must pick up the tab for growing crime rates associated with the transience that results from high employee turnover (Broadway, 1990; Grey, 1997a). Another cost associated with a large secondary workforce that is passed on to host communities involves education. Even though the provision of schooling for newcomer children may not seem like a form of direct support for secondary workers, school districts are required to make programs available to these students or risk sanctions from state education agencies.

Table 4
Total Limited-English Proficient Students: Iowa and Seven Meatpacking Districts

	School Year		
	1986-87	1995-96	% Change
Total LEPS: State of Iowa	2,932	6,654	127%
Total LEPS: Rural Meat Towns	311	1,379	343%
Meat Towns LEPS as Percentage of State Total	10.6%	20.7%	
Total LEPS: Rural Iowa Schools	1,217	2,546	109%
Meat Towns LEPS as Percentage of State Rural Total	25.5%	54.3%	

Enrollment Turnover

The availability of state-wide data on LEP student enrollment provided an opportunity to compare the experience of meatpacking communities with other rural towns. However, enrollment turnover data are not as widely collected. The following discussion, therefore, is derived from an analysis of elementary enrollment data in the meatpacking community of Marshalltown. To protect the interests of the students and staff, the names of the specific schools will not be used. Instead, each school will be identified with a letter.

The principal assumption behind this analysis was that turnover in the meatpacking plant would be reflected in the schools. This was suggested in an earlier study in Garden City, Kansas which found that of all new students enrolled in the district in 1986-87, 44% did not enroll the following year and 2 years later, an additional 20% of this cohort were no longer enrolled (Stull et al., 1990, p. 32).

Similar patterns were found in Lexington, Nebraska schools after IBP opened a large beefpacking plant in 1990. When the 1991-92 school year began, the student turnover rate was only 7.75%. By the end of the school year, however, the turnover rate grew to 25% (Gouveia & Stull, 1995, p. 97).

A detailed analysis of turnover in Garden City High School in 1988-89 indicated that over one quarter (28%) of students were not enrolled for the entire school year. Of these, the average duration of enrollment was only 4.38 months. In terms of ethnic differences in enrollment patterns, 20% of Anglos were not enrolled through the school year, but nearly half (47.7%) of Hispanic students and 41.9% of Asian students were not enrolled through the school year (Grey, 1990).

Because this research took place in Garden City's only high school, it did not provide an opportunity to compare enrollment trends with other schools in the same community. The present research does. Instead of focusing on a single school, it compares enrollment data among the district's six elementary schools.

There are some advantages to using elementary enrollment records for this type of analysis. First, it allows for comparisons among neighborhoods and the socioeconomic status of their inhabitants. There is no perfect fit between neighborhood and class, and school districts often find ways to comply with state equity mandates by distributing at least some minority students among all schools. However, neighborhood-based schools do provide windows to the parents' occupations. The other advantage to using elementary data is that students may not drop out. (Students in Iowa may legally drop out at age 16.) The same may be said of junior high and middle schools, but in most rural communities like Marshalltown, there are only one or two middle schools and they will not reflect neighborhood demographics but a cross-section of the community.

The pork plant in Marshalltown typically experienced monthly turnover of 10%. Throughout 1996, for example, the plant hired 50 to 80 new workers every week. It was assumed that this degree of employee turnover would be reflected among the children of workers. For the most part, this assumption held true.

Enrollment turnover was determined by calculating the total number of enrollments and how many of these enrollments were for less than the entire school year. (The total number of students served could not be used because of multiple enrollments by individual students.) Three types of enrollment were determined: movement into or out of the district, transfer within the district, or a combination of the two. Particular attention was paid to the number of students who came into or left the district.

Table 6 shows that the two schools (A and B) having the highest number of children with at least one meatpacking parent had a disproportionate share of the students not enrolled for the entire year and who came into or left the district in 1995-96. Although these two schools had only 33% of the district's students, they had 54% of the students with meatpacking parents. They also had 48% of the elementary students who transferred into or out of the district during that school year. Table 6 also shows the percentage of the schools' total enrollments that were in/out

Table 5
Total Spanish-Speaking Students: Iowa and Seven Meatpacking Districts

	School Year		
	1986-87	1995-96	% Change
Total Spanish-Speaking Students: State of Iowa	772	3,821	395%
Total Spanish-Speaking Students: Rural Meat Towns	200	1,112	456%
Meat Towns: Spanish-Speaking Enrollments as Percentage of State Total	25.9%	29.1%	
Total Spanish-Speaking Enrollments: Rural Iowa Schools	500	1,924	285%
Meat Towns: Spanish-Speaking Enrollments as Percentage of State Rural Total	40%	57.8%	

of district. Schools A and B both had 20% of their students in this situation.

Another important distinction in enrollment patterns between these two schools and the other four elementary schools emerged. Iowa school funding formulas require student counts on the third Friday in September and virtually all state funding is provided on the basis of this one-day count. Table 7 shows that the two meatpacking schools had 33.5% of the district's total official elementary enrollment. But they had more than half (56%) of the students who were served but were not included in the official one-date count. School A alone served 40% (n = 112) of the district's students who attended but were not included in the school's official count.

This high rate of mobility raises serious questions about the reliance on one-date counts for school funding. For schools with relatively stable enrollments, a 1-day count may reflect the school's funding requirements. However, high student turnover throughout the school year means that many students will be served for whom the school and/or district will not receive state funding.

Student mobility was also determined in terms of kindergarten cohort loss. All kindergarten cohorts between 1990-91 were tracked for the number and percentage of the cohort that returned during the succeeding school years. Table 8 shows that the school with the highest percentage of the district's meatpacking parents lost an average of 18% of its kindergarten cohorts *each year* over the 5-year period. School B lost an average of 15% each year. Four of the remaining schools also suffered average losses at or below the district average of 13%/year.

Implications

These enrollment data are from only one district and similar studies need to be undertaken in other districts. But this enrollment turnover data does raise important policy issues. First, there is the critical question of one-day counts. State formulas that distribute funding on the basis of head counts tend to even out the differences among school districts that are inherent in systems that rely exclusively on local property taxes, but they can not assure distribution of funds to reflect uneven enrollments during the school year.

Students who transfer among schools in the district may disrupt classroom stability, but they can reasonably expect to be exposed to the same curriculum. In addition, students who transfer among schools within the district will be counted for funding purposes. They may move from school to school, but the district will still receive state funding for them.

This is not the case for most students who come into or leave the district. Any student who was enrolled in the district and left before this count date will not be counted. But more importantly, the district will not receive funding for any student who enrolled after the count date which includes up to 168 out of 180 contact days.

Enrollment turnover in Marshalltown elementary schools suggests that this district would be better served receiving incremental funding based on periodic counts (say once per quarter). For those schools with particularly high turnover and which serve significant numbers of students over their official count, incremental funding would mean significant increases in funding in the aggregate.

High enrollment turnover also raises important questions about curriculum. One of the fundamental assumptions of schooling is that knowledge will be transmitted and learned in designated amounts of time. Groups of students will be exposed to the same material through a predetermined time period. This approach assumes, of course, that student groups will remain intact throughout this period. Enrollment turnover challenges this state of affairs by disrupting the link between time and exposure to material. When teachers can no longer predict the duration of their pedagogical relationship with students, the principles behind their curriculum are rendered useless (Grey, 1991).

One response to this dilemma is to provide individualized education. But this requires more staff and is therefore rather costly. In addition, age can not always be used

Table 6
Enrollments, Meatpacking Students, Transfers In/Out of District for Each School and as Percentage of District Totals

School[a]	Total Enrollment	Students with Meatpacking Parent(s)	Students In/Out of District	% of District Enrollment	% of Meatpacking Students	% of District In/Out 1995-96
A	318	113	92	15%	33%	25%
B	374	70	84	18%	21%	23%
Subtotal:	692	183	176	33%	54%	48%
C	268	32	50	13%	9%	14%
D	298	46	36	14%	13%	10%
E	403	23	53	19%	7%	15%
F	445	57	49	21%	17%	13%
Subtotal:	1,414	158	188	67%	46%	52%
Total:	2,106	341	364	100%	100%	100%

[a]Schools A and B, both located near meatpacking plant, are elementary schools with the largest percentage of meatpacking parents.

as a means to determine approximate placement. This is especially true for immigrant and refugee children for two reasons. First, many newcomer children will not speak English and if they do, children of the same age may speak at different ability levels. Similarly, when LEP students of similar English skills are placed together, there can be a wide range of ages.

In short, high enrollment turnover and rapid growth in LEP student populations combine to pose a significant challenge to the underlying assumption of schooling. Without continuity in student cohorts or pedagogical experience, traditional means of determining student progress become less useful. Standardized tests are designed under the assumption that student cohorts will have been exposed to roughly the same material through pre- designated periods of time. Without this continuity, test scores may fall.

This seems to have been the case in Marshalltown. The two elementary schools with the highest percentage of children associated with the meatpacking industry had Iowa Test of Basic Skills (ITBS) composite scores below the district average over the last 3 years. The school with the highest percentage of meatpacking parents (35.5% in 1996-97) averaged 5th grade ITBS scores nearly two full grade equivalents *below* the school with the lowest percentage of packing parents (5.7%). Generally, the schools with lower turnover experienced higher test scores. Numerous factors may be contributing to these lower scores, but school officials and teachers were convinced that enrollment turnover played a significant role. Much of the previous research on the relationship between geographic mobility and student achievement supports their claim (Hefner, 1994; Ingersroll, Scammon, & Eckerling, 1988; Schuler, 1990). But other research on the relationship between mobility and achievement is inconclusive or suggests that high mobility had little or no effect on school performance (Blane, 1985; Marchant & Medway, 1987).

Regardless of whether mobility affects student achievement, high enrollment turnover causes other problems for rural school districts. Turnover makes planning difficult, particularly in terms of budgeting, staffing, facilities and supplies. Another problem concerns academic and health records. Mobile students—particularly immigrants and refugees—are less likely to bring adequate academic records with them and movement among several schools may make transferring records difficult. Without adequate records, initial classroom assignments are often difficult and must often be based exclusively on placement examinations, particularly for English.

High mobility also challenges assumptions about the transfer of school "credit." If children are enrolled in a particular school for less than the interval of time designated for the curriculum, how will their lack of academic credit transfer to another school district? Even when individualized education is provided for mobile students, there are serious questions about how student progress can be documented and certified for transfer to another district.

Conclusion

The development of a dual labor market and the reliance on immigrants and refugees in many secondary meatpacking jobs has had profound consequences for rural

Table 7
Number and Percentage of Students Served over Official Count, 1995-96

Schools	Students Served Over Official Count 1995-96	% of District Total	% of Schools' Official Count	Official Count	School Count as % of District Enrollment
A-B	158	56%	44%	723	33.5%
C-F	123	44%	36%	1,435	66.5%
District Total	281	100%		2,158	100%

communities and schools. This article has considered two of the most important consequences associated with the meatpacking industry in Iowa: rising enrollments of limited English speaking students and how employment turnover is reflected in school enrollment patterns.

The LEP enrollment data clearly demonstrate that the industry's reliance on immigrants and refugees has fundamentally changed the demographic makeup of many rural Iowa school districts. This aspect of the research clearly benefits from the availability of data for the entire state. For Iowa, the data are conclusive.

The enrollment turnover data clearly represent a limited case study. Although the research responsible for achieving this data can be viewed as a prototype, further study in other rural districts is needed to draw conclusions. However, the labor intensive nature of this type of research and the lack of continuity among districts in terms of recording parental employment present particular challenges.

These two data analyses combine to illustrate how secondary labor forces affect rural schools. The transformation of meatpacking has led to the transformation of schools in host communities. It is unfortunate, however, that many of the social and cultural factors used to determine which populations are best "suited" for meatpacking jobs may also be reinforced in the schools. Industries that provide secondary jobs may—at least in the short run—have more to gain by the failure of rural schools to successfully respond to the needs of immigrant and refugee students. Indeed, the failure to achieve academically provides students with fewer job opportunities and often forces them to take secondary jobs. In this sense, the industry can benefit from poor school performance.

The schools considered in this article are clearly caught in the cross fire between corporate efforts to create secondary jobs and their dependence on the migration of immigrant and refugees to maintain them. These schools have no power to influence these forces nor can they simply turn away new students (and their diverse issues). The Iowa experience also suggests that even when policy makers recognize that these conditions are imposed on school districts, there have been no significant policy initiatives to address these new realities. To do so would openly acknowledge the proliferation of secondary sector jobs (often with economic incentives provided by the state) and corporate preferences for newcomers over established residents (Grey, 1997b).

There are signs that the industry has recognized that high employee turnover rates can not continue indefinitely (McKay, 1997b). Some plants—including the pork plant in Marshalltown, Iowa—have recently launched efforts to reduce turnover rates, including raising wages and engaging outside evaluators to assess the situation. Some plants have forged relations with local school systems by hiring school/community liaisons with the hope that positive school experiences will encourage immigrant and refugee workers to settle. Further, some plants have tacitly admitted that they are responsible for immigrant and refugee influxes to rural communities by contributing limited amounts of funding to school programs. In other cases, plants have allowed surveys of their workforces to help school districts qualify for federal migrant education funds.

Schools may play a significant role in stabilizing rural workforces. The data presented here suggest that when schools successfully adjust to the challenges presented by newcomers, higher student achievement may result and meatpacking parents may be more inclined to settle. In this scenario, rural schools can play a potentially significant role in economic development. However, it remains to be seen whether the meatpacking industry will acknowledge

Table 8
Average Annual Percentage Loss for Kindergarten Cohorts 1990-1996

School	Average Percentage of Kindergarten Cohort Lost Per Year
A	18%
B	15%
C	13%
D	13%
E	8%
F	11%
District Average	13%

the benefits of higher school performance. At this point, stabilizing turnover rates appears to be the major incentive for encouraging positive school experiences for workers' children. However, corporations can not actively promote too much academic success because it would result in students becoming overqualified for the jobs the corporations provide. This may threaten their long-term ability to maintain secondary jobs as such. As workers' children succeed in school today, it may mean a more stable workforce, but it may not mean that workers' children will be available to take these jobs when they become adults.

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