M

Ugz-cpf ugcuqp-fgrgpfgpv dgjcxkqwt kp c łkijvnguu kpugev, vjg Awemncpf vtgg ygvc

Rtkueknnc M Ygjk^{1,4}*, Mwttc{ Jqtigpugp² cpf Mct{ Mqticp-Tkejctfu³

¹Dgrctvogpv qh Bkqnqikecn Uekgpegu, Wpkxgtukv{ qh Yckmcvq, Rtkxcvg Bci tguqwtegu guugpvkcn vq hgocng uwtxkxcn cpf tgrtqfwe kp c ugzwcm{ fkoqtrjke, jctgo-hqtokpi kpugev, vjg Awemncpf vtgg ygvc (). Fktuv yg guvednkujgf ctvkŁeken eexkvkgu eu fkwtpen tghwig eexkvkgu epf rqvgpvken jetgo i wetfkpi ukvgu. Yg vjgp gze okpgf ecxkv{ qeewrcpe{ ejcpigu, cpf, dcugf qp qwt mpqyngfig qh rtkqt qeewrcpvu, fgvgt okpgf ugz-urgekŁe rcwgtpu qh cttkxcn, fgrctvwtg, cpf ci i tgi cvkqp cv c rqrwncvkqp ngxgn vj tqw i j qwv vjg {gct. Bqvj ugcuqp cpf vjg ugz qh rtkqt $qeewrcpvu\ kp\ l\ wgpegf\ y\ gvc\ qeewrcpe\{\ rcvvgtpu.\ Mquv\ qdugtxcvkqpu\ y\ gtg\ qh\ ukp\ i\ ng\ hg\ o\ cngu.\ Hq\ y\ gxgt,\ dqv\ j\ o\ cngu$ cpf hgocngu oqxgf kpvq ecxkvkgu rtgxkqwun{ qeewrkgf d{ c ygvc qh vjg qrrqukvg ugz oqtg qhvgp vjcp gzrgevgf d{ ejcpeg cnqpg. Fgocngu cxqkfgf ecxkvkgu yjgtg qvjgt hgocngu ygtg rtgugpv, gzegrv fwtkpi uwoogt yjgp o quv jctg o u hqt o gf. Ip gctn{ uw o o gt, o cng cpf hg o cng vtgg y gvc rtgxkqwun{ nkxkpi crctv dgicp eq-jcdkvkpi. Ggpgtcm{ vjgtg ycu nkvvng tgncvkqpujkr dgvyggp vjg pwodgt cpf ugz qh vjg ygvc kpukfg ecxkvkgu cpf hgocng

fgq fgrct S tg t S gu S # e# hgocng ygvc cv vjku ukvg ctg oqdkng cpf oc{ ugctej hqt ocvgu fwtkpi vjg uw o ogt. Vjg fcvc ctg eqpukuvgpv ykvj c rqn{i{pcpftqwu ocvkpi u{uvgo cu kphgttgf hqt qvjgt vtgg ygvc urgekgu (

Keywords: ciitgicvkqp; jctgo; ocvkpi u{uvgo; Qtvjqrvgtc; rqn{i{p{

Ipvtqfwevkqp

Ugctejkpi hqt o cvgu ecp dg equvn{ (Gy {ppg 1987; Aejct{c 1995), dwv pqpgvjgnguu ku c tgswktgogpv hqt oquv ugzwcm{ tgrtqfwekpi qticpku o u (Kqmmq & Yqpi 2007). Ugctej ghhqtvkp $qpg\,ugz\,ku\,fgrgpfgpv\,qp\,ugctej\,ghhqtv\,kp\,vj\,g\,qvj\,gt\,(Hc\,o\,\,o\,gtuvgkp\,\,dy)$ & Retmgt 1987), dwy dgecwug o cngu o c { dgpgŁy o qtg htqo ownvkrng ocvkpi vjcp hgocngu (Bcvgocp 1948) ocngu ctg igpgtcm{ rtgfkevgf vq ocvg-ugctej oqtg vjcp hgocngu yjgp ownvkrng ocvkpi ku eqooqp cpf urgto eqorgvkvkqp qeewtu (Kqmmq & Yqpi 2007). Hqygxgt, oʻcngu oʻc $\{$ cvvgoʻrv vq o qpqrqnkug tguqwtegu, kpenwfkpi hg o cngu, kh fqkpi uq kpetgcugu tgrtqfwevkxg uweeguu.

Ip c rqn{i{pqwu ocvkpi u{uvgo, ocngu eqorgvg fktgevn{ hqt ceeguu vq hg o cngu vj tqw i j o cngó o cng eq o dcv (eh. Dct y kp 1874) qt kpfktgevn{ d{ nqecvkpi cpf fghgpfkpi ukvgu ykvj

tevg ykvj rqvgpvken ocvgu, vjg{ okijv dg oqo hexqwt oqdkng oengu (Tgkejetf gv cn. 2004). Dkhhgtgpegu kp ciitgicvkqp cpf qeewrcpe{ rcvvgtpu dgvyggp vjg ugzgu ecp vjwu qeewt dqvj urcvkcm{ cpf vgorqtcm{ cu c eqpugswgpeg qh dqvj ugz-urgekŁe ugctejkpi rcwygtpu cpf ocvkpi u{uvgo (Lgjocpp & Rgttkp 2003). Pqpgvjgnguu, fcvc vjcv tgrqtv ugcuqpon ejopigu kp ugz-urgekŁe ugotejkpi opf ciitgiovkqp

Mqh upgcmgtu (qt ucvgnnkvgu), cu y gnn cu tgukfgpvu, ecp

hqt ocp{ kpugevu. In och! Otviarvotenu ochou echn wukni uvtkfwhevat! $V j \, gug \, e \, j \, ctcevgtkuvkeu \, uw \, i \, i \, guv \, v \, j \, cv \, vtgg \, \, y \, gvc \, \, o \, qxg \, o \, gpv \, rcwgtpu$

 $u\,o\,cnngt\,uecng\,\,y\,kv\,j\,\,qpg\,\,ecxkv\{\,\,cp\,f\,\,gpvtcpeg\,\,qp\,\,gce\,j\,\,uk\,fg.\,\,Ece\,j$ $ctvk \\ \underline{k} ekcn tghw i g v j wu j c f v y q wpnkpmg f, uc o g-uk | g f ecxkvkgu, qpg$ y kvj cp gpvtcpeg qp vjg vqr nghv, cpf vjg qvjgt y kvj cp gpvtcpeg qp vjg dqvvqo tkijv. Ccxkv{ gpvtcpegu ygtg crrtqzkocvgn{ 2 2 e o . Ecej ecxkv{ o gcuwtgf crrtqzk o cvgn{ 25 150 5 $e \ o \ kpvgtpcm\{, rtqxkfkpi \ urceg \ vq \ ceeq \ o \ oqfcvg \ crrtqzk \ o \ cvgn\{$ gkijv cfwnv vtgg ygvc.

Tghwigu ygtg guvcdnkujgf kp Artkn 2008 cpf oqpkvqtgf $wpvkn\,Aw\,i\,wuv\,2009.\,Ip\,v\,j\,g\,\&tuv\,28\,\,fc\\ \{u\,chvgt\,cvvce\,j\,\,o\,gpv\,vq\,vtggu,$ $y\,g\,tgeqtfgf\,vjg\,pw\,o\,dgt\,cpf\,ugz\,qh\,\,y\,gvc\,kp\,gcej\,\,ecxkv\{\,\,fckn\{,$ fqkpi uq ykvjqwv fkuvwtdkpi vjgo yjkngvjg{ ygtgtguvkpi fwtkpi vjg fc{. Yg co f _ q A co

xkv{! \$ kp Tghwgg T Мо tp (maximum: $=142 \,\mathrm{kp}\,\mathrm{Mctej}\,2009$), cpf vjgc o qwpv qhecxkvkgu qeewrkgf tgcejgf 81% cpf 82% kp Mctej cpf Jwpg 2009. Vjg o gcp pw o dgt qh y gvc rgt qeewrkgf ecxkv{ rgcmgf kp ncvg summer ($^-$ = 4.5 y gvc rgt ecxkv{, gzenwfkpi go rv{ ecxkvkgu}).

Weta aggregations

Mquv qdugtxcvkqpu qh ukping vtgg ygvc (= 1249) ygtg qh hgocngu (= 849). Ukping ygvc qdugtxcvkqpu ygtg fqwdng vjqug qh vtgg ygvc ujctkpi c ecxkv{ (= 660). Ahvgt ukping y gvc, o cngóhg o cng rektu, qpg o cng y kvj vy q hg o cngu, cpf qpg ocng ykvj vjtgg hgocngu ygtg vjg pgzv oquv eqooqp itqwrkpiu. Vjtqwijqwv vjg {gct, vjg pwodgt qh ecxkvkgu vjcv ygtg rtgxkqwun{ xcecpv, qeewrkgf d{ qpg hg o cng, c rckt, qt c jctgo ejcpigf ukipkŁecpvn{ d{ xkukv (Ftkgfocp tcpm uw o vguv r-xcnwg < 0.001; dwv r-xcnwg = 0.328 hqt ecxkvkgu qeewrkgf d{ qpg ocng). Aiitgicvkqp rcvvgtpu ejcpigf ftcocvkecnn{ chygt Dc{ 221, cv vjg gpf qh urtkpi (Fki. 2). Qxgt vjg uw o ogt (fc{u 2506310) kpetgcukpi pw o dgtu qh o cng cpf hg o cng y gvc ygtg qdugtxgf vqigvjgt kp ecxkvkgu, kp eqpvtcuv vq rtgxkqwu qdugtxcvkqpu qh ukping ygvc. Fgygt ukping hgocngu ygtg qdugtxgf, ykvj cp kpetgcug kp dqvj rcktu cpf jctgou (Fki. 2). Vjg oczkowo pwodgt qh hgocngu ykvj c ukping ocng kp qpg ecxkv{ ycu Łxg, yjkej yg tgeqtfgf qp vjtgg qeecukqpu (kp Dgegodgt, Fgdtwct{ cpf Jwn{ tgurgevkxgn{). Vq hwtvjgt gzrnqtg vjg rqukvkxg eqttgncvkqp qh o cng cpf hg o cng pw o dgtu fwtkpi vjg uwo ogt, yg cpcn {ugf ocng cpf hg ocng cttkxcnu cpf fgrctvwtgu kp vjg ecxkvkgu.

Male arrivals

Mcng qeewrcvkqp qhecxkvkgu (Vcdng 1) qxgtcnn y cu pqp-tcpfq o. Dwtkpi vjg kpkvkcn eqnqpkucvkqp rgtkqf (Rgtkqf A), pq o cngqeewrkgf ecxkvkgu ygtg qeewrkgf kp vjg pgzv qdugtxcvkqp rgtkqf d{ vyq o cngu (=2160 vqvcn qdugtxcvkqpu, =63 o cng eqnqpkucvkqp gxgpvu; ugg Vcdng 2). Ip vjg hqnnq ykpi ykpvgtóurtkpi (Rgtkqf B), qpn{ vyq o cng-qeewrkgf ecxkvkgu ygtg eqnqpkugf d{ c ugeqpf o cng cpf vjg o cng-cxqkfu-o cng ghhgev y cu uvtqpi (=701 vqvcn qdugtxcvkqpu, =61 o cng eqnqpkucvkqp gxgpvu; ugg Vcdng 2). Vjku ghhgev y cu kpuki pkŁecpv (r>0.05) kp dqvj uw o ogt cpf ncvg cwvw op (Rgtkqfu C cpf D). Ip eqpvtcuv vjgtg ku pq gxkfgpeg vjcv o cng ygvc cxqkfgf ecxkvkgu dcugf qp vjg

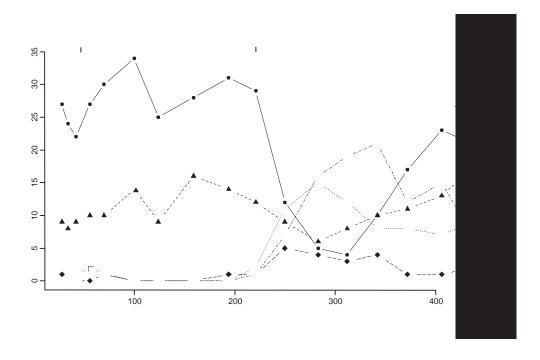


Figure 5. Rtqrqtvkqp qh ocng cpf hgocng uwdcfwnv Awemncpf

kp dqvj vk og rgtkqfu, cpf kh vjg vk og rgtkqfu ctg eq odkpgf, vjg uk ipkŁecpeg qh vjgug tguwnvu ku uvtgpivjgpgf (qffu tcvkq = 0.232, r-xcnwg = 0.021 hqt ocngu ngcxkpi jctgou cpf qffu tcvkq = 7.29, r-xcnwg = 0.000 hqt ocngu ngcxkpi qvjgt ocngu). Qvjgtykug, ocng fgrctvwtgu ygtg pqv uk ipkŁecpvn{ fkhhgtgpv dgv yggp fkhhgtgpv jcdkvcvkqp v{ rgu kp uw o ogt qt cwvw o pó y kpvgt. Apcn{uku qh Rgtkqf C cpf Rgtkqf D fcvc ujqyu pq uk ipkŁecpv rcvvgtpu kp hg ocng fgrctvwtgu.

Sex ratio and age structure

Vjgtg ygtg oqtg hgocngu vjcp ocngu kp gxgt{ fckn{ cpf oqpvjn{ eqwpv vjtqwijqwv vjg tgugctej rgtkqf. Vjg cxgtcig tcvkq qh hgocngu vq ocngu ycu 2.5:1 kp vjg Łtuv 28 fc{u cpf 2.1:1 htqo Mc{ 2007 vjtqwij vq Jwn{ 2008. Vjg rtqrqtvkqp qh qeewrkgf ecxkvkgu eqpvckpkpi ygvc qh dqvj ugzgu ejcpigf octmgfn{ vjtqwij vjg {gct (Fki. 4), dwv ugz tcvkq fkf pqv. Fgy koocvwtg ygvc ygtg rtgugpv kp ctvkŁekcn ecxkvkgu fwtkpi vjg Łtuv hgy oqpvju qh eqnqpkucvkqp (3.9% qh vqvcn kp Artkn, cpf 6.1% kp Jwpg 2008; Fki. 5), dwv koocvwtg ygvc pwodgtu kpetgcugf kp cwvw op 2009 (14617% qh vqvcn). Ioocvwtg ocngu qwvpwodgtgf koocvwtg hgocngu.

Dkuewuukqp

Fqt vjg Łtuv vkog, yg ujqy ejcpigu kp vtgg ygvc ciitgicvkqp cpf oqxgogpv rcvvgtpu cuuqekcvgf ykvj qeewrcpe{ qh fkwtpcn tghwig ecxkvkgu vjtqwij vjg ugcuqpu. A engct ejcpig kp ci itgicvkqp rcvvgtpu y cu qdugtxgf kp gctn{ uw o o gt y j gp kpetgcugf pwodgtu qh ocng cpf hgocng ygvc ygtg tgeqtfgf vqigvjgt kp ecxkvkgu. Vjku eqpvtcuvu ykvj vjg jkij rtqrqtvkqp qh ecxkvkgu y kvj ukping y gvc qdugtxgf kp vjg rtgxkqwu y kpvgt cpf urtkpi. Vjg hqtocvkqp qh jctgou crrgctu vq tguwnv dqvj htqo hgo cng y gvc pq nqpigt cxqkfkpi qvjgt hgo cng y gvc cpf htqo ocngu oqxkpi kpvq ecxkvkgu ykvj qpg qt oqtg hgocng ygvc. Qwt fcvc ujqy vjcv ocngu qeewrkgf ecxkvkgu ykvj c hgocng rtgugpv oqtg qhvgp vjcp gkvjgt gorv{ ecxkvkgu qt ecxkvkgu ykvj cpqvjgt o cng rtgugpv, dqvj fwtkpi vjg kpkvkcn eqnqpkucvkqp cpf kp vjg uwoogt. Vjku tguwnv ku eqpukuvgpv ykvj ecxkv{ ejqkeg (Kgnn{ 2006e) yjgtg experiments in o cngu ugctej hqt o cvgu, cu o ki j v dg gzrgevgf kp c rqn{i {pqwu urgekgu y jgtg urgt o eq o rgvkvkqp ku nkmgn{ qeewttkpi (Kqmmq & Yapi 2007; Kgnn { 2008c). Haygxgt, rewgtpu qh hgo cng qeewrcpe { cnuq fg o qpuvtcvg vj cv, vj tqw i j qwv vj g { gct, hg o cngu lqkpgf ecxkvkgu oqtg qhvgp vjcp d{ ejcpeg yjgtg c rtkqt ocng qeewrcpv jcf dggp tgeqtfgf. Ih hgocng oqxgogpv rcvvgtpu ctg cuuqekcvgf ykvj vjg ugctej hqt o cvgu, vjku uwiiguvu vjcv hg o cngu cnuq o cmg e j qkegu cdqwv rtqurgevkxg o cvgu (Urgpegt 1995), cpf vjev eq-jedkvevkqp ykvj o engu o c{ pqv ngef vq vjg jki j equvu vjcv qeewt kp (Kgnn { 2006e). Anvjqwij hgocng vtgg y gvc fq pqv tgegkxg c pwrvken ikhv, o engu o ki j v eqpvtqn ceeguu vq vjg fc $\{vkog tghwig vjcv ku c tguqwteg$ tgswktgogpv, cpf vjgtghqtgeqpvtkdwvgvqhgocngugctejkpi qt o qxg o gpv rcvvgtpu. Vjg hg o cng cttkxcn cpf fgrctvwtg rcvvgtpu crrctgpv jgtg eqpvtcuv ykvj dgjcxkqwt rcvvgtpu tgeqtfgf kp vjcvkpfkecvghgocnguctgoqtgugfgpvct{

vjcp o cngu, dwvcitgg ykvj Łpfkpiu vjcv dqvj hg o cngu cpf o cngu ctg o qdkng, cpf vjcv rqn { i {pcpft{ okijv dg c dgwgt fguetkrvqt qh vjg o cwkpi u {uvg o vjcp rqn { i {p{ (Kgnn{ 2006e)}.}}

Yggorjcukugvjcvygocmgpqenckoucdqwvvjgdgjcxkqwt qh kpfkxkfwcnqt÷v{rkecnøygvc.Ipuvgcf,yghqewuqpejcpigu kpqeewrcpe{rcvvgtpu,cpfqwteqpenwukqpurgtvckpvqygvc (rnwtcn)cucrqrwncvkqptcvjgtvjcpvqkpfkxkfwcnygvc.Vjwu, cnvjqwij vjg uc og kpfkxkfwcn ygvc okijv dg wukpi c ecxkv{ yjgtg qeewrcpv cig cpf ugz ctg wpejcpigf dgvyggp oqpvjn{ qdugtxcvkqpu (Urwtt & Bgtdgp 2004; RMY wprwdn. fcvc), qwt tguwnvu fq pqv tgn{ qp vjku cuuw orvkqp. Vjg fcvc engctn{ fg oqpuvtcvg vjcv ejcpigu kp ecxkv{ qeewrcpe{ pw odgtu hqt ocngu cpf hg ocngu ujqy ukipkŁecpv fgrgpfgpe{ qp kpkvkcn qeewrcpe{ qh vjg ecxkv{. Vjku ngcxgu uq og wpegtvckpv{ cu vq jqy vjg fgrgpfgpe{ yqtmu cv vjg kpfkxkfwcn ngxgn; hqt gzcorng, qeewrcpe{ ejcpig kp c ecxkv{ dgvyggp xkukvu oc{ pqv pgeguuctkn{ eq og cdqwv kp vjg uk ornguv rquukdng yc{, uwej cu vjtqwij vjg cttkxcn qt fgrctvwtg qh c ukping ygvc, cnvjqwij vjku oc{ kp hcev dg vjg ecug. Pqpgvjgnguu, vjg gzkuvgpeg qh vjg ghhgevu vjg ougnxgu qp vjg qeewrcpe{ rcvvgtp qh vjg rqrwncvkqp ku gxkfgpv.

Vjgqffutcvkquhqtchgocngoqxkpikpvqcecxkv{qeewrkgf d{ qpg qt oqtg hgocngu (eqorctgf ykvj c xcecpv ecxkv{) uwiiguv vjev hgo eng y gve exqkf qvjgt hgo engu hqt o quv qh vjg $\{ \verb"gct". Hqy gxgt", \verb"kp" gct" n \{ \verb"uw" o" o gt", \verb"vjku" rcvvgtp" ejcpigf". Fcevqtu$ kpłwgpekpi hgocng fgrctvwtg tcvgu ctg pqv engct, dwv htqo qwt feve kv uggou wpnkmgn { vjev oengu gxkev hgoengu chvgt oevkpi (eh. $Kgnn\{2008d)$, cu guvk o cvgf o cng fgrctvwtg tcvg y cu uk o knct vq hgocng fgrctvwtg tcvg (Vcdng 2). Dwtkpi vjg uwo ogt oquv cfwnv hgo cngu y gtg qdugtxgf kp j ctgo i tqwru, cpf cdqwv 64% qh hgocngu tgeqtfgf kp qpg xkukv ygtg rtgugpv kp vjcv ecxkv{ kp vjg pgzv xkukv. Fgocng gxkevkqp vjwu uggou wpnkmgn{w qffu tcvkqu kpfkecvg y jkej qdugtxgf rcvvgtpu qh cttkxcn fkhhgt ukipkLecpvn{ htq o tcpfq o (cpf kpfkecvg cvvtcevkqp y jgtg v jg{ ctg itgcvgt vjcp 1). Ip ecugu y jgtg c u o cnn uc o rng uk | g qeewtu hqt cp kpkvkcn rqrwncvkqp uvcvg, eqplf gpeg kpvgtxcnu ecp dg y kfg. Hqygxgt, kp o quvecugu, eqpŁfgpeg kpvgtxcnu fkf pqv hcm dgnqy 1, cpf vjwu kpfkecvg vjg Łpfkpiu ctg tqdwuv.

Yg jcxg pq gxkfgpeg vjcv o cng fgrctvwtgu htq o ctvkŁekcn ecxkvkgu kp vjg Łtuv ukz o qpvju qh ecxkv{ eqnqpkucvkqp ygtg kpłwgpeg fd{rtgxkqwuecxkv{ qeewrcpe{. Hqygxgt, fwtkpi vjg uwo ogtócwwop rgtkqf o cngu ygtg o qtg nkmgn{vq uvc{kh c hg o cng jctg o qh o qtg vjcp vyq hg o cngu ycu rtgugpv, cpf ngcxg (qt dg gxkevgf) kh c ugeqpf o cng ycu rtgugpv. Vjgug Łpfkpiu ctg eqpukuvgpv ykvj gzrgevcvkqpu qh o cngó o cng eq o rgvkvkqp yjgtg hg o cng fghgpeg rqn{i {p{ ku c hgcvwtg qh uqekcn qticpkucvkqp (Eongp & Qtkpi 1977; Fkgnf & Ucpfncpv 1982; Mqnngt 1985; Fkgnf 1993; Gkddu 1998; Kgml{2006e}, dwv yjgtg u o cm ucvgmkvg o cngu oc{cfqrv c upgcm cpf ycpfgt uvtcvgi {vjcv kpetgcugu vjgkt o cvkpi uwe _ M

- Kgml CD 2006e. Tguqwteg swcnkv qt jctgo uk|g: yjcv kpłwgpegu ocng vgpwtg cv tghwig ukvgu kp vtgg ygvc (Qtvjqrvgtc:Apquvquvqocvkfcg)? Bgjcxkqtcn Eeqnqi {cpf Uqekqdkqnqi {60:1756183.
- Kgnn{CD 2008c. Urgto kpxguvogpv kp tgncvkqp vq ygcrqp uk|g kp c ocng vtkoqtrjke kpugev? Bgjcxkqtcn Eeqnqi{19:101861024.
- Kgm{ CD 2008d. Yj{ fq ocng vtgg ygvc ciitguukxgn{ gxkev hg ocngu htqo icnngtkgu chvgt ocvkpi? Evjqnqi{ 114: 2036208.
- Kqmmq H, Yqpi BBM 2007. Yjcv fgvgtokpgu ugz tqngu kpocvg ugctejkpi? Exqnwvkqp 61: 116261175.
- Lgjocpp L, Rgttkp P 2003. Ipdtggfkpi cxqkfcpeg vjtqwij mkp tgeqipkvkqp: ejqqu{ hgocngu dqquv ocng fkurgtucn. Aogtkecp Pcvwtcnkuv 162: 6386652.